

Chapter 11

Some Agricultural Institutions

Modernisation of agriculture, regulation of natural resources management, and social equity policy and implementation rely of sound government institutions. Institutions of the Thai government are structured on historically derived criteria modified across transitional periods, such as the reign of King Chulalongkorn and the post-1932 revolutionary period. Embodying traditional elements which may be construed as conflicts-of-interest in Western terms, the system reflects patronage, influence, and a level of separation between government and the populace.¹ Within an evolving role for government over the centuries and especially in recent decades, the ministries concerned with agriculture, and in particular those arms of government supporting agricultural growth through research, extension, education, cooperative action, credit and marketing, have changed, and require further change; these agencies are discussed in this chapter.

Government and Agriculture

The Ramkhamhaeng inscription, eulogises abundance of fish and rice in the Sukhothai waters and fields, and continues ... *[the people] establish areca and betel plantations all over ... many coconuts ... mangos ... tamarinds are planted in this city ... whoever plants, owns those plants ...*² The individual freedom implied has pervaded Thai self-image, and might even be interpreted as a freedom from the need for government involvement in ensuring agricultural welfare. From this perspective, Ayutthaya and Ratanakosin views of agriculture as a source of tax revenue may be linked to the slow creation of specifically agricultural institutions.

¹ Phongpaichit, Pasuk and Baker, C. (1997)

² Sukwong, Somsak (1989)

Centralised government facilitated resistance to colonial impositions while extending the Central Plains Kingdom, producing national institutions rather than autonomous provincial departments. Tai and Mon-Khmer structures of *Ban*, *Muang*, and to an extent *Nakorn*, evolved into today's some 76 provinces with populations ranging from a few hundred thousand to 3.5 million. Provincial administration through *Ampur* or districts implements central policy; *Tambon* or sub-district activities are conducted through some arms of government, such as agricultural extension. At the village or (*mu*)*ban* level, traditional governance systems are now part of the centralised system with village headmen being responsible for leadership and maintenance of records.³

Nevertheless, urban and rural knowledge bases have diverged as urban bureaucrats identify with Western procedures, and rural leaders with traditional ways. The failure of some government initiatives of recent decades illustrate gaps between urban and rural perspectives, and within institutional hybrids of tradition and components of diverse foreign systems.

Institutional Instruction

As learning from experience has been a hallmark of Thai culture, recent policy and institutional failures provide a means of assessing past and likely future developments. Thai agricultural policy has reflected the weaker lobby of agriculture compared to countries where the majority of produce is domestically consumed, and hence on the domestic market producer and consumer are closely linked when political action such as shortages threaten. Self-sufficiency policies in China and India for example, have focussed government on agricultural research more than has been evident in Thailand. This has been compounded by a tendency to copy such policies, as indicated at times by emphasis on import substitution crops more than the major export crops.⁴ Poorly informed planning has further biased policy outcomes, where intentions to assist farmers rather led to increased hardship.

Well-documented failures of the post-1950s' development period, include a revolutionary Land Reform Act in 1975 which perpetuated absentee landlordism⁵

³Donner, W. (1978)

⁴ Setboonsarang and Khaoborisuth (1990)

⁵ Ramitanondh, Shalardchai (1989)

and created private ownership for some forest reserves.⁶ Risks of forest incursion were borne by poor small-holders whose rights were then procured by privileged urbanites when land values increased.⁷ The failure of good government intent to improve land administration⁸ was matched by a need to ensure social and environmental equity in fisheries.⁹ The legal and resource underpinnings to the promise that ... *whoever plants, owns those plants* ... have lagged behind development.

Other unintended consequences of government programs have proven false creating a farm level suspicion that government technology and information is unreliable or unrealistic. For example, the Four-Pronged Project of 1987 supported the private sector to coordinate small-holder cashew tree planting with credit from the Bank of Agriculture and Agricultural Cooperatives (BAAC). Government fervour to replace cassava with another crop and to assist the Northeast, overrode the lack of relevant research, with the resulting high insecticide costs and low yields causing farmer indebtedness. Contrasts have been drawn with successes in Taiwan where strong small-holder to government links exist,¹⁰ and differing education system coverages.

In the livestock sector, government introduced exotic cows to the Northeast without investigating feed or management requirements, with the result that low production and reduced reproductive rates again left farmers in debt for an unproductive asset. Contract production of seed-corn for the hybrid corn industry was promoted to farmers without advice that yields would be lower than regular corn crops.¹¹ Many such examples have been linked to unfair personal gain by individuals. The tradition of *kin muang*, originating as a means of supporting agents of the Crown by their retention of part of the revenue they collected, has been eloquently linked to the continuing receipt of gratuities by officials.¹² However, even where argued as culturally acceptable, such antecedents are now irrelevant as the source of funds is government, and the element of ensuring that overtaxing

⁶ Siamwalla, Ammar (1986)

⁷ Ramitanondh, Shalardchai (1989)

⁸ Onchan, Tongroj (1990)

⁹ Arphaphirama, Anat et al (1987)

¹⁰ Dohs, L.S. (1988)

¹¹ Poapongsakorn, Nipon (1995)

¹² Phongpaichit, Pasuk and Baker, C. (1997)

did not affect future productivity has long been lost.

Additional to such internal constraints, institutional assumptions that Thailand can follow rural development policies of other successful Asia economies ignore fundamental differences, not only in the composition of the economy, but in investment in education and research. The number of years of general education of the general populace in 1995 was of 3.8 for Thailand compared to, for example, 8.8 for Korea; the number of scientists per thousand persons for Thailand was two compared to 41 in Korea and 110 in Japan; and the percentage of GNP allocated to all research, for Thailand was 0.2 percent compared to 1.4 in Korea and 2.8 in Japan.¹³ Yet at the same time, it was claimed that Thailand had achieved industrialised status.

Following the outward form of a balanced economy, protests against forest policies led to the imposition of a prohibition on logging to domestic and international acclaim. However, powerful forces subverted the needed 80 percent enforcement level, and such issues as land tenancy, forest incursions, and the forest needs of small-holders, remained unresolved. Recent de-gazetting of degraded forest reserves, creation of new reserves, and understanding of policy needs, herald a possible new era in this case.¹⁴

It would seem that having one of the most developed institutional and legal infrastructures for environmental management in the region¹⁵ does not guarantee its effective application. Inter-agency conflict, opaque government workings, and poor dialogue between the public, non-government organisations, and media, have constantly pre-empted realisation of potential. Attempts to coordinate, such as the establishment of the National Environment Board in 1991 to improve on the some 70 laws related to the environment, still rely on cooperation between ministries and increased delegation of responsibilities in a manner more suited to Western than current Thai culture.

Within this learning process for institutions, those related to agriculture

¹³ United Nations (1995)

¹⁴ Sadoff, C.W. (1992)

¹⁵ Kaosaard, Mingsarn et al (1995)

have been tending toward areas which constitute a primary responsibility of government, including:

- research for public good aspects of commercial agriculture, as well as problem solving approaches to poverty affected rural dwellers and areas
- educational services and information to ensure a strong cadre of agricultural researchers linked to well informed information specialists working with a better educated rural populace to access information as it relies less on extension agents
- ensuring availability of essential factors of agricultural production including seeds, fertiliser, water, and insecticide through appropriate policy environments which assist the efficient performance of the private sector
- assisting risk and financial management of small farmers through ensuring availability of insurance and credit, and preventing diversion of services for small farmers to medium or large scale farmers, or agribusiness
- ensuring ability to equitably market produce.

These functions can be seen in the past and present structure of the Ministry of Agriculture and Cooperatives.

Origins of the Ministry of Agriculture and Cooperatives

Sukhothai records¹⁶ imply policies to maintain irrigation systems, protect forest in a manner found in other Tai¹⁷ groups, and to allow land ownership and inheritance. However, the concept of an agency concerned with the welfare of agriculturists is easily overstated. With absorption of adjoining cultures and institutional arrangements, Ayutthaya created a position of *Khun Kasetratibodee* associated with the department known as *Krom Na*, the antecedent of a Ministry of Agriculture. *Krom Na* was primarily involved in disputes over paddy fields, farm equipment including animals, and title deeds. Subsequently, the development of abandoned land, irrigation schemes, draught animals, and collection of rice tailings from the Royal barn became essential functions of *Krom Na*.¹⁸

¹⁶ MOAC (1999)

¹⁷ Sheng-Ji, Pei (1985)

¹⁸ MOAC (1999)

Increasing sophistication of administrative structures led to the creation of further ministries which, by the late eighteenth century, were; Ministry of the North, Ministry of the South, Ministry of the Capital, Ministry of the Palace, Ministry of the Treasury and Foreign Affairs, Ministry of Lands, and *Chaophraya* of the *Oparaja*. The elite of the Ayutthayan aristocracy ensured broad education and positioning of their children and families; the foreign-linked and highly influential Bunnag family provided six of the nine Ministers of *Krom Na* during the early Bangkok period of 1782 to 1892.¹⁹

Without effective leadership following power shifts of the 1890s, the *Krom Na* took various forms. It was restyled as a Ministry of Commercial Agriculture in 1892 with the integration of the Department of Ordinance Survey, although the primary task was collection of agricultural fees, duties, and other taxes to support the modernising kingdom.²⁰ It was completely abolished for two years from 1896 when its vestigial responsibilities were exercised through the Ministry of Finance through a specially created Department of Farmers.²¹ In 1898, the three Ministry of Finance departments of Farmers, Ordinance Survey, and Mineral Resources, were grouped to form a new Ministry of Agriculture.

The Department of Farmers investigated and issued replacement title deeds for farmlands, the Department of Ordinance Survey conducted land surveys and prepared maps, and the Department of Mineral Resources performed administrative functions. Eleven Land Registration offices improved issuance of title deeds and a Department of Land Registration was established around 1908, as a prelude to the Land Act of 1936. A Department of Waterways was established in 1902 and a Department of Silk Worm Technicians, renamed the Department of Cultivation, was established in 1908 with a primary focus on the creation of mulberry plantations and silk worm raising. Further inter-ministerial trading of departments led to the Department of Ordinance Survey shifting to the Ministry of Defence, and the Department of Royal Mining, Industry and Geography shifting from the Ministry of Interior into the Department of Land Registration.²²

¹⁹ Wyatt, D.K. (1968)

²⁰ MOAC (1999)

²¹ Wyatt, D.K. (1969)

²² MOAC (1999)

Rice, cotton, and animal competitions began in 1911 as did experiments with cotton and animal competitions. The Department of Waterways shifted to the Ministry of Civil Engineering in 1912, a veterinary surgical school was established under the Department of Cultivation in 1914, the Department of Forestry was transferred from the Ministry of Interior to the Ministry of Agriculture in 1921, the Department of Irrigation Supply was renamed the Department of Irrigation in 1927, and the Department of Cultivation was transferred to the Ministry of Commerce and Communications. The Ministries of Agriculture and Commerce, and Communications were merged to form the Ministry of Commercial Agriculture in 1932 with the Departments of Land Registration, Land Survey, Forestry, and Royal Mining Industry transferred to the Ministry of Interior.

Further reshuffling through the post-revolutionary period of the 1930s led to the Ministry of Commercial Agriculture being renamed the Ministry of Economic Affairs in 1933, with the Department of Farming Inspection renamed as the Department of Agriculture, the Department of Aquatic Animal Preservation renamed as the Department of Fisheries and in 1934, separating these units from the Ministry of Economic Affairs to form the Ministry of Agriculture once again, in 1935. By 1938, the Departments within the Ministry of Agriculture were; Agriculture, Fisheries, Lands, and Mining Industry, the last of which was transferred to the Ministry of the Economy. In 1942, divisions within the Department of Agriculture relating to animal treatment and animal characteristics were grouped to form a new Department of Livestock and Draught Animals.²³ Creation of the agricultural university, Kasetsart, in the following year substantiated commitment to modern agriculture.

Continued renaming of Departments led to the Department of Agriculture becoming the Department of Farming, Livestock and Draught Animals becoming Livestock, and Kasetsart University becoming a department, and the Department of Cooperatives becoming the Ministry of Cooperatives in 1952. By 1953, the Division of Rice and Experimentation within the Department of Farming was established as the Department of Rice, and the Department of Farming once again reverted to the departmental title of Agriculture. In 1959, the five existing universities of the Kingdom, namely Kasetsart, Chulalongkorn, Thammasat, Medical Science,

²³ MOAC (1999)

and Silpakorn, were grouped under a new Ministry.

By the 1970s, structures which have carried into the present era became evident. The National Milk Cow Business Promotion organisation was created in 1971 within the Ministry of Agriculture, and the departments of Cooperatives Promotion, Cooperatives Audit, Irrigation, and Land Development were transferred to the renamed Ministry of Agriculture and Cooperatives upon dissolution of the Ministry of National Development. The Department of Agricultural Techniques was created as a combination of the departments of Farming and Rice in 1972 and, in 1974, the Marketing Organisation of Farmers was created as a State enterprise associated with the Ministry. The Agricultural Land Reform Office was created in 1975 to contribute to increased agricultural productivity through widening farmer land ownership in areas surrounding public forest lands,²⁴ and the Office of Agricultural Economics was created in 1979.²⁵

Present day structures within the MOAC reflect historic trends and external pressures, mainly from international finance institutions. Organisational units include; Office of the Secretary to the Minister, Office of the Permanent Secretary, Royal Irrigation Department, Royal Forestry Department, Department of Cooperatives Auditing, Department of Fisheries, Department of Livestock Development, Land Development Department, Department of Agriculture, Department of Agricultural Extension, Cooperatives Promotion Department, Agricultural Land Reform Office, and Office of Agricultural Economics. State enterprises which report through the MOAC include: Forest Industry Organisation, Rubber Estate Organisation, Fish Marketing Organisation, Government Cold Storage Organisation, Dairy Farming Promotion Organisation of Thailand, Office of Rubber Replanting Aid Fund, Thai Plywood Company Limited, and the Marketing Organisation of Farmers.

Within MOAC, six units operate provincial offices, the Agricultural Land Reform Office, and the departments of Fisheries, Livestock, Forestry, Cooperatives Promotion, and Agricultural Extension;²⁶ all except ALRO also have district offices. The Department of Agricultural Extension also operates at sub-district level.

²⁴ Jutsuchon, Somchai (1989)

²⁵ MOAC (1999)

²⁶ NIDA (1980)

However, as an agricultural country, many aspects of government involve agriculture, even if this is not overt in policy statements. Government services which relate to agricultural development are listed in Table 12.1.

Reliance of new technology for agricultural innovation is evident in the development of Thai agriculture. To continue such innovation requires an ability to develop new technologies and to solve local problems through an active agricultural research sector, with an ability to ensure that innovations are appropriate to, and adopted by, farmers.

Agricultural Research

From the development period of the 1950s to the present day, the creation of a human resource base of highly trained researchers and administrators has formed a critical component of the development of the MOAC and agricultural education. Creating tensions with historic operational modes, the most consistent view has been espoused in documents influenced by Western thought, which provides a convenient approach for discussion. It is unlikely that the pre-1950s approach to agriculture would have moved in this direction of its own accord, considering persistent views that rural production in general could provide low-cost government revenue. Supportive comments about the research and extension bureaucracy²⁹ contrast with most commentaries, and may reflect the large changes which occurred between the 1950s and 1970s. Nevertheless, substantial change remains an imperative.

The Western research approach has simply codified historic actions of civilisation, which in agricultural research focuses on understanding in areas of pure science, and development of technologies in areas of applied science in the four general areas of:

- genetic manipulation through traditional breeding and molecular biological techniques to adapt plants and animals to the production environment
- environmental manipulation to optimise soil, water, nutrients, temperature, and other external factors of plant or animal production while minimising deleterious natural effects on final yield through control of pests

²⁷ Jutsuchon, Somchai (1989)

²⁹ Grimble, R.J. (1976)

Table 11.1 Government Agricultural Development Services and Institutions²⁸

Services	Government Agencies
Technology	<ul style="list-style-type: none"> • Department of Agriculture • Department of Livestock Development • Department of Fisheries • Department of Forestry • Department of Agricultural Extension • Universities and Colleges
Marketing	<ul style="list-style-type: none"> • Marketing Organisation of Farmers • Fish Marketing Organisation • Cold Storage Organisation • Dairy Farm Promotion Organisation
Supply	<ul style="list-style-type: none"> • Marketing Organisation of Farmers • Department of Agricultural Extension • Department of Fisheries • Department of Livestock • Department of Forestry
Transport	<ul style="list-style-type: none"> • Ministry of Communications • Accelerated Rural Development • Ministry of Defence • Public Transport Organisations • Local Government
Incentives	<ul style="list-style-type: none"> • Ministry of Commerce • MOAC Line Agencies • Provincial and Local Authorities - price support
Extension	<ul style="list-style-type: none"> • Department of Agricultural Extension • Department of Livestock • Department of Fisheries • Department of Forestry • Department of Community Development
Credit	<ul style="list-style-type: none"> • Bank of Agriculture and Agricultural Cooperatives • Bank of Thailand - agricultural bill discounting
Group Action	<ul style="list-style-type: none"> • Department of Cooperative Promotion • Department of Agricultural Extension - farmer groups • Fish Marketing Organisation
Irrigation and Land Development	<ul style="list-style-type: none"> • Department of Irrigation • Office of Land Reform • Department of Land Development • Department of Forestry • Department of Local Administration • Department of Public Welfare • Ministry of Defence • Inter-agency Committees • Kings' Project
Plans, Manpower and Budgets	<ul style="list-style-type: none"> • National Economic and Social Development Board • Civil Service Commission • Budget Bureau • Ministry of Agriculture and Cooperatives • Provincial Authorities • Inter-agency Committees

²⁸ NIDA (1980)

- enhanced input and post-harvest technologies, which increase efficiencies of such inputs as fertilisers, pesticides, and machinery, and maximise harvest yields while minimising post-harvest losses during transport, storage, and preliminary processing
- processing which reduces losses, develops products to suit market demand, health, and preservation requirements, and the creation of new markets and products from commodities in which Thailand has a comparative production advantage, such as rice.

Within Thailand, the balance between types of research has reflected the apparent importance of individual industries,³⁰ and has followed farmer initiatives rather than leading into new crops or efficiency-improving technologies in production, processing, or marketing.³¹ For example, biases against rice through the period of upland cropping expansion are clear from convenient departmental budget separations of the period; from 1959 to 1972, the total budget of the two concerned departments rose from 58 million to 124 million baht at 1962 prices with the balance between rice and agriculture shifting from around 50:50 to 34:66 (Table 11.2). The shift in allocations occurred towards the end of the upland cropping expansion indicating that research followed cropping patterns rather than a long term plan.

Table 11.2 *Departments of Rice, and Agriculture Budget Shares (%), 1959 - 1972*³²

Year	Department of Rice	Department of Agriculture
1959	50.3	49.6
1961	45.2	54.8
1963	45.5	54.5
1965	47.2	52.8
1967	44.9	55.1
1969	36.2	63.8
1971	33.1	66.9
1972	34.3	65.7

³⁰ Setboonsarng, Suthad and Khaoborisuth (1990)

³¹ Paopongsakorn, Nipon (1995)

³² OAE (1973)

A tendency to invest in extension more than research is consistent with reliance on technology developed by farmers, transferred from abroad, or minimally adapted from foreign sources.³³ The MOAC allocated between 31 and 41 percent of its budget to the Department of Crop Extension compared to between 19 and 24 percent to crop research between 1982 to 1995.³⁴ Within the overall public allocation between 1977 to 1986,³⁵ less than 10 percent was assigned to agriculture, half of which was for irrigation, primarily engineering works. The apparent bias towards rice³⁶ produced little increase in productivity,³⁷ thereby confirming the inadequacy of actual research investments of less than one percent in an agricultural economy.

Rice research figures may be inflated by foreign, particularly USA, financial assistance.³⁸ Nevertheless, the lagging nature of research shifted technology-testing risks to the small-holders and limited researcher participation in cutting edge research, even for rice in which Thailand might be expected to be a world leader. The 1975 increases in Department of Agriculture budgets for horticulture, hailed as responsive to opportunities for Thailand, in fact followed farmer choices of the 1960s.³⁹ Research allocations varied between years (Table 12.3) following such national policies as import substitution, presumably affecting long term research projects. Such swings undermined research quality.

Significant successes of research include the breeding of adapted maize and rice varieties. In both cases, these have been associated with high level scientific and funding assistance from abroad, through the Rockefeller Foundation and the International Rice Research Institute. The Suwan 1 maize variety has been utilised in other countries as parent stock in maize breeding programs. This is a matter of pride to Thai researchers when viewed from one perspective, while from another, an indication that the research conducted in Thailand was indeed part of a global research program under the auspices of the International Maize Research Centre (CIMMYT).

³³ Paopongsakorn, Nipon (1995)

³⁴ Bureau of Budget (1997)

³⁵ World Bank (1984b)

³⁶ Setboonsarng, Suthad (1987)

³⁷ Siamwalla, Ammar (1986)

³⁸ Pochanukul, Patamawadee (1992)

³⁹ Trairatvorakul, Pasarn (1981)

Table 11.3 Research Expenditure per 10,000 Baht of Crop Value, 1987- 1988⁴⁰

Crop	1987	1988
Exportable Crops		
Rice	49	37
Rubber	46	54
Maize	52	20
Cassava	20	18
Sugar Cane	43	23
Mung Bean	88	74
Sorghum	101	77
Importable Crops		
Soya Bean	79	66
Oil Palm	72	46
Cotton	435	230
Ground Nut	120	230

Strengthening agricultural research through the World Bank National Agricultural Research Project assisted to decentralise the Department of Agriculture to work through 19 regional research centres and to augment research and research management skills.⁴¹ The project was implemented over 12 years and continues to have impact, although by 1990, the proportion of staff holding doctoral degrees had not reached three percent, Masters Degrees were around 17 percent, and those with Bachelor Degrees were 37 percent. This relates in part to an under-supply of agricultural graduates suited to research.

In parallel with the National Agricultural Research Project, a National Agricultural Extension Project expanded the Department of Agricultural Extension to be the only agency within the Ministry of Agriculture and Cooperatives to operate down to sub-district level across throughout the country. The large department so created requires technology to deliver through its operatives supported by Subject Matter Specialists who liaise with researchers in the Department of Agriculture. The centralised and hierarchical Training and Visit system introduced through the project required modification to suit Thailand, and has been criticised for its high cost and limited relevance to broad rural needs beyond agriculture. Review of the project concluded it to be overly ambitious in scope and rate of implementation.⁴²

⁴⁰ Setboonsarng, Suthad and Kaoborusisuth, T. (1990)

⁴¹ World Bank (1994)

⁴² World Bank (1986a)

Lower rates of adoption than in similar countries⁴³ indicate low levels of extension efficiency, and has led to farmer involvement in planning as an acknowledgment of the risk which they assume,⁴⁴ and to reduce perceptions of officials' ignorance⁴⁵ of village needs.⁴⁶ Extension was predicted to be easier in Thailand,⁴⁷ yet the urban-rural separation led to such assumptions as land titles and credit being required by farmers, when in fact they were probably seeking security of tenure rather than official recognition and access to credit.⁴⁸ The system of personal contact limits the department to serving only one of the five million farming households, and suggests a role for electronic communication⁴⁹ coupled with wider education to eventually replace conventional extension.

The year 2000 issue is wider than the Department or the MOAC. Under-supply of technical university graduates was assessed in 1995 as 3,120 graduates rising to 11,610 by 2001.⁵⁰ Continued reliance on agribusiness rather than acknowledgment of the comparative advantage of the State's institutional capacity to improve agricultural development⁵¹ has reduced attention to this issue. Recent excesses of the Thai economy enhanced the private sector's image as the powerful force, as it enticed university graduates away from government. This produced an apparent problem decline in the calibre of candidates entering the civil service where the proportion scoring less than 2.5 out of 4.0 in the civil service entrance examinations rose from 29 percent in 1986 to 50 percent in 1993.⁵² With no tradition of private sector research, Thailand's 1.3 science and technology researchers per 10,000 persons in the labour force compared to 41.8 in Taiwan and 27.0 in Korea in the early 1990s,⁵³ highlights a severe human resource deficiency which has yet to be fully realised.

⁴³ Siamwalla, Ammar (1986)

⁴⁴ Turton, A. (1987)

⁴⁵ Siamwalla, Ammar (1986)

⁴⁶ Garforth, C. (1994)

⁴⁷ Silcock, T.H. (1970)

⁴⁸ Feder, G. et al (1988)

⁴⁹ TDRI (1987)

⁵⁰ Khoman, Sirilaksana (1999)

⁵¹ Christensen, S.R. (1992)

⁵² Siamwalla, Ammar (1999)

⁵³ Sripaipan, Chatri (1992b)

Reconsideration of the role of government in agriculture⁶⁰ includes an emphasis through the Ministry of Science and Technology, embodying the creation of the Thai Research Fund in 1992 as a commitment to high quality applied research of direct relevance to Thai industries including agriculture.⁶¹ New competitive funding mechanisms within government can aim to increase research quality only if the human resource is adequate, and researchers are recognised within the bureaucracy. The same issues affect livestock, fisheries, and forestry.

Livestock, Fisheries, and Forestry

Allocation of research budgets on the basis of current crop areas has its corollary in the livestock sector where Department of Livestock Development budgets reflect the contribution of livestock to GDP, with periodic adjustments associated with new initiatives and disease outbreaks. In the case of Fisheries, environmentally costly developments to become the world's largest Black Tiger Prawn producer, and the demise of Gulf of Siam traditional fisheries through over-fishing, justified an increase in the proportion of budget allocated to the Department from 15 to more than 21 percent over the period 1982 to 1995.⁶² Forestry languished under unenforceable policies until recently, and enhanced allocations are expected under environmental initiatives.

The Department of Livestock Development aims to improve productivity and increase the quantity of livestock products for domestic consumption, to encourage production of livestock and livestock products to substitute for imports, and to increase alternatives and income for farmers.⁶³ As with crop research, an applied research orientation is often associated with adapting introduced foreign technologies.

Budgetary allocations for the Department from 1982 to 1995 increased faster than those for crop research and extension, and growth of livestock GDP. However, within the Department, research commanded less than six percent of the total budget which is a factor of 13 lower than the level of 0.5 percent of livestock

⁶⁰ Poapongsakorn, Nipon (1995)

⁶¹ Yuthavong, Yongyuth and Wojcik, A.M. (1997)

⁶² Poapongsakorn, Nipon (1995)

⁶³ DOLD (1997)

GDP recommended by the World Food Conference. Livestock extension, 40 percent of which was disease control, commanded up to 73 percent of the Department's budget.

Livestock research through the 1980s was oriented to veterinary support of disease control programs. By the 1990s, the focus shifted to breeding, including artificial insemination, and nutrition; from a research share of 71 percent in the early 1980s, veterinary research declined to less than 10 percent by 1995. The refocus redressed past biases and recognised potential to improve animal management and nutrition in conjunction with judicious breeding programs, supported by a maintenance activity for disease control programs reliant on regional and global animal health strategies.⁶⁴

After disease control, production of bovine stock (32 percent) and forage crop extension (15 percent) were the largest programs, with a priority allocated to cattle. The focus on cattle and overall under-funding of research indicates a high reliance on imported technologies such as in the poultry and pig industries, which has been at the cost of indigenous breeds and small-holder self sufficient systems.

Poor coordination of livestock research, even in comparison to cropping, has perpetuated early misinformed opinion of the appropriateness of; imported cattle, nutritional requirements of crossbred animals, and production systems of more developed countries to a country such as Thailand. As a consequence, indigenous livestock have mainly been compared with imported breeds under unrealistically favourable conditions. Linkages between Kasetsart, other universities, and the Department has partially rectified poor funding and assisted to refocus livestock research. However, research in universities has likewise been slow to develop, and remains a minor component of post-graduate programs and academic staff performance appraisals.

The departments of Fisheries and Forestry are likewise concerned with regulation, research, and extension. Fisheries stations produce seed stock for aquaculture and river release; forestry produces seedlings for reforestation. Regulatory activities increasingly fall within natural resource rather than agricultural development sections of national plans.

⁶⁴ Paopongsakorn, Nipon (1995)

Research Impact

Other assessments of the impact of Thai agricultural research have noted,⁶⁵

- limited evidence of new technology being introduced from fruit crop and vegetable research of the Department of Agriculture, as a result of the poor knowledge base from which such research began and low levels of research investment until recent years
- private sector adaptive research, including farmers' own research, has been an important component in the development of modern horticulture
- livestock research has possibly assisted agricultural diversification
- livestock disease control programs have indicated a positive economic benefit although control of foot and mouth disease, the major disease of pigs, cattle, and buffalo, failed due to poor vaccine supply lines and cross-border smuggling of cattle
- maize research provided higher returns than rice research⁶⁶
- rice research has focused on improvement of irrigated rice yields using outputs of the International Rice Research Institute, thus limiting impact to the 25 percent of Thailand's rice area which is amply irrigated.⁶⁷
- Thailand continues to produce rice yields lower than its neighbours from an environment generally considered to be superior, probably indicating unrealised research potential
- higher apparent returns to extension than research⁶⁸ indicated the strong reliance on imported and simply adapted technologies, rather than research, and are masked by the overall unrealised potential of research
- areas for likely benefits from improved research and extension include labour cost savings and mechanisation, increasing yields to free up marginal lands to conservation, efficient utilisation of increasingly scarce water resources, ensuring compatibility with international trade partners in an increasingly competitive market place, and maintaining the agricultural sector's competitiveness within the Thai economy⁶⁹
- biotechnology fields of immediate importance include recombinant DNA

⁶⁵ Paopongsakorn, Nipon (1995)

⁶⁶ Setboonsarng, Suthad and Evenson, R. (1991)

⁶⁷ Siamwalla, Ammar et al (1992)

⁶⁸ Setboonsarng, Suthad and Evenson, R. (1991)

⁶⁹ Siamwalla, Ammar et al (1992)

technology, cell fusion, cell and tissue culture, embryo rescue, cloning, monoclonal antibody production, DNA and RNA probes, soma-clonal variation, fermentation, bio-sensitive elements, and bio-process engineering⁷⁰

- there is a need for a single agency, the National Science and Technology Development Agency, to coordinate high technology research.⁷¹

From a tentative adoption of a foreign research ethic, Thailand has yet to realise its potential in agriculture. One of the continuing constraints is human resources, and the linkage of education to research and extension.

Agricultural Education

Agricultural education in Thailand traces its origins to technical and everyday life skills learned in the village and family environment, which was complemented by traditional education through the temple.⁷⁸ With the modernisation of Thai society, foreign forms of education became available to the elite, which itself became more diverse during the reign of King Chulalongkorn.⁷⁹ Reforms in 1891 which prescribed ages of study and course lengths for schools, also charged some, where qualified teachers existed, with offering agriculture and commerce in addition to arts and crafts, and English.

By 1897, the influential and far sighted Prince Damrong had begun a program to compile text books for the study of agriculture and physics culminating in an 1899 recommendation for an industrial school to be created to offer instruction in agriculture, crafts, and domestic arts on a partial cost recovery basis. Delayed for several years, agricultural training was deemed similar to crafts able to be studied by students with only a primary education. Other fields of specialised training required a secondary education, such as the Normal School, the Law School, and the Civil Service School, the last of which had evolved from the Royal Pages School. By 1910, there was a total of 622 schools with an enrolment of 40,314, 95 percent of whom were males; of the seven schools with enrolments of 1,361 in Ministries other than Education, there was one College of Agriculture, with an exclusively

⁷⁰ Sripaipan, Chatri (1992a)

⁷¹ Sripaipan, Chatri (1992b)

⁷⁸ Wyatt, D.K. (1966)

⁷⁹ Wyatt, D.K. (1975)

male enrolment.⁸⁰

Kasetsart College, meaning 'College of Agricultural Science', within the Ministry of Agriculture emerged at Maejo in Chiang Mai, and in 1938 was ranked as a division within the iteration of the Department of Agriculture of the day. Offering three year post-secondary education programs, the college trained staff for employment within the Ministry, and eventually evolved into Kasetsart University. A parallel Ministry of Agriculture school of forestry in Phrae was institutionally joined with Kasetsart College in 1939 which, with its agricultural and the addition of cooperative sciences, removed to Bangkok in Bangkok.⁸¹ With the creation of Kasetsart University in 1943 the faculties of Agriculture and Forestry were complemented with faculties of Cooperative Science and Fisheries which were subsequently supplemented in 1955 by a Faculty of Veterinary Medicine which was transferred from the University of Medical Science, now Mahidol University, and the Faculty of Engineering from the Royal Irrigation Department within the Ministry.

Kasetsart University opened a Faculty of Science and Arts in 1966 and a Graduate School in 1969. Other faculties established were: Education in 1969; Social Sciences in 1974; Agro-industry in 1980; faculties of Science and Humanities in 1981 by separating the Faculty of Science and Arts; faculties of Economics and Business Administration in 1992 by separating the Faculty of Economics and Business Administration; and a Faculty of Liberal Arts and Science at the Kampaengsaen campus in 1992.⁸² By 1995, the University was comprised of 14 Faculties, namely Agriculture, Agro-Industry, Business Administration, Economics, Education, Engineering, Fisheries, Forestry, Humanities, Liberal Arts and Science, Social Sciences, Veterinary Medicine, and the Graduate School.

The Ministry of Agriculture remained responsible for Kasetsart University until 1959 when it was shifted to the Office of the Prime Minister until, in 1972, the Bureau of State Universities was created in that office, eventually evolving into the Ministry of University Affairs in 1977. By 1998, Kasetsart University supported 16 research stations, five field stations, eight national and international centres, and

⁸⁰ Wyatt, D.K. (1969)

⁸¹ Kasetsart University (1998)

⁸² Kasetsart University (1995)

some 25 internal research centres, and campuses at Bangkok, Kampaengsaen, Sriracha, Sakon Nakhon, Lopburi, Suphanburi, and Krabi with differing levels of activity and education.⁸³ An external assessment of the university in 1998⁸⁴ highlighted:

- a need to re-conceptualise agricultural higher education
- a need for strategic planning to integrate faculties and disciplines around education and research priorities
- improved organisational structures to facilitate staff and student re-groupings as required
- increased university autonomy and accountability as a mechanism to enhance responsiveness to changing societal requirements
- strong incentives to foster the development of visionary and entrepreneurial leaders
- development of real international linkages between peer researchers and educators.

Today, agricultural education is undertaken through 11 provincial agricultural colleges and about 15 universities. University agricultural education, managed through the Ministry of University Affairs until its subsumption into a new Ministry of Education Culture and Religion in 2000, is supported to varying extents through most of the 24 public and 41 private universities, as agriculture, agribusiness and related social, technical, and economic fields continue to be the final application of much of Thailand's education.

The origins of agricultural education form a major part of the short history of government education in Thailand. Beginning with medical, legal, administrative and engineering schools in the second half of the nineteenth century, the Civil Service College formed in 1917 evolved to Chulalongkorn University. Thammasat University was founded in 1933 with a focus on moral and political sciences surrounding political sentiments of the time. In 1943, the other three key institutional and educational components of Thai higher education were established, namely medicine through Mahidol University, fine arts through Silpakorn University, and agriculture through Kasetsart University. This was all part of the post-1932

⁸³ Kasetsart University (1998)

⁸⁴ Eriksen, J.H. et al (1998)

revolutionary reforms where universities continued to serve the recruitment requirements of the bureaucracy. Thus all five were in Bangkok, with Chulalongkorn University and Thammasat University training administrators while Mahidol, Kasetsart, and Silpakorn covered the principle areas relevant to Thai culture and society, namely medicine, agriculture, and fine arts respectively.

Formal economic development plans noted regional expansion which led to universities being established in Chiang Mai in the North, Khon Kaen in the Northeast, and Songkhla in the South over the period 1964 - 1967. Each established major agricultural or natural resource management faculties. Further institutes were developed through the 1960s and 1970s including the National Institute of Development Administration and the Asian Institute of Technology. The opening of further universities included specialty agricultural facilities such as Maejo Institute of Agricultural Technology, and others with broadly based business, science, and art fields which complemented agricultural and rural development throughout the country. Open Universities were established in 1971 and 1979 to widen access to government university education.

With overall education in Thailand being vested in ten ministries, coordination has been difficult and efficiencies low. The MOAC maintains responsibility for an irrigation college, a veterinary school, and a cooperative school, while the Ministry of Education retains control of provincial agricultural colleges, and another 68 provincial technical colleges until 2001. The Ministry of University Affairs, and after 2000 the Ministry of Education Culture and Religion, is responsible for public and private universities.

Major providers of agricultural and related university education offer international programs. These include Chiang Mai University, King Mongkut University of Technology Thonburi, Kasetsart University, Khon Kaen University, Mahidol University, Suranaree University of Technology, Assumption University, and Asian University of Science and Technology.⁸⁵ However, Kasetsart University continues as the major provider with faculties relating to agriculture including; agriculture, agro-industry, business administration, economics, fisheries, forestry, and veterinary medicine. It is internationally known having grown in repute from

⁸⁵ MUA (1998)

early assistance, predominantly from the USA to instil elements of the land grant college concept.⁸⁶

Thai agricultural education has developed more slowly and perhaps with less connection to the production base than that of its once colonially dominated neighbours. From the seventeenth century⁸⁷ in Britain and Europe through historical sites of education in Bohemia, Hungary,⁸⁸ Florence,⁸⁹ Padua,⁹⁰ and Edinburgh,⁹¹ the British vocational schools and USA land grant colleges eventually influenced Thailand. The blossoming of Western agricultural education at around the same time as the colonial period allowed agricultural education to be part of a package of colonial administration which Thailand did not share. The innovative introduction of agricultural education to Thailand in the 1890s partly compensated for this competitive disadvantage, although it continues in the form of low levels of education participation in Thailand, the elite nature of university education, and an urban bias in all education.

Provincial and open universities widened the catchment for students, increased graduate numbers, and consequently broadened expectations of graduate careers.⁹² Nevertheless, universities remained a preserve of the wealthy. In common with other countries which placed agricultural education in urban locations, graduates with urban backgrounds exhibited little enthusiasm for rural careers. Regional universities have now demonstrated leadership in orienting research to regional development as a basis of instruction in the otherwise centrally controlled curricular, such as the integration of highland agricultural research outcomes into Chiang Mai University courses.⁹³

Low educational participation rates are indicated in comparisons of Thailand's economic growth, notwithstanding recent setbacks, against that predicted from global social indicators. For a country indicating the same levels of life

⁸⁶ Egan, A. and Falvey, L. (1996)

⁸⁷ Creasey, J.S. (1995)

⁸⁸ True, A. C. (1929)

⁸⁹ Creasey, J.S. (1995)

⁹⁰ Beveridge, J.L. (1991)

⁹¹ Fleming, I.J. and Robertson, N.F.(1990)

⁹² Phongpaichait, Pasuk and Baker C. (1997)

⁹³ Angkasith, Pongsak (1996)

expectancy and access to safe water, it is predicted that gross secondary enrolments would be around twice current levels, or 1996 GDP would have been about 40 percent less.⁹⁴ Rather than assume that such a happy outcome would continue, as may have once been espoused, the responsible approach has been to increase allocations to all levels of education. Thai agricultural education continues to require social, as well as economic and technical understanding, of integrated small-holder farming in a manner which is uncommon in mainstream universities of more developed countries. As a consequence, usual areas for academic exchange between Thai and other agricultural universities are commercial agriculture and agribusiness including processing and marketing.

Agricultural research and education in support of continuous innovation forms part of a package with other development inputs, including cooperatives, credit, and marketing, each of which has had overriding government involvement.

Agricultural Cooperatives

Agricultural cooperatives in Thailand have been strongly influenced by government. Beginning in 1916, government closely supervised a successful village credit cooperative which led to the 1928 promulgation of a Cooperative Societies Act, and the establishment of cooperatives in several provinces. Cooperative societies today vary little and are managed under groupings of; agriculture (including dairy), fisheries, land settlement, consumer, service, thrift, and credit cooperatives, through local, provincial, and national, and apex units

With more than 70 agricultural cooperative federations at provincial level, government remains involved through; the Office of the Registrar of Cooperatives, the Cooperatives Promotion Department within the MOAC, and the Dairy Cooperatives Promotion section in the Department of Cooperative Development. Government agencies assist with training, surveying economies and sites of proposed cooperatives, technical support to established cooperatives, advising on purchases, international negotiations, linkages to other government agencies, and seeking project aid.⁹⁵ In the case of dairy cooperatives, the program's success derives

⁹⁴ Khoman, Sirilaksana (1999)

⁹⁵ Anon (1987)

from a total development package which enabled producers to enter a new industry with appropriate cooperatively owned processing facilities, access to credit, technical advice, and guaranteed markets and prices, while limiting unfair competition.⁹⁶

However, the overall history of agricultural cooperatives has been characterised as 50 years of failures,⁹⁷ due to inadequacies in; feasibility studies, extension and research support, management and finance training, and member feelings of ownership, and over emphasis on physical facilities, excessive involvement of government and government financing, and a lack of a unified credit system. A Cooperative League of Thailand established in 1968 to assist in promotion and education of agricultural producers, and a National Agricultural Cooperatives Training Institute to coordinate seminars for cooperative leaders, managers, and officers in areas of credit, finance, and marketing, partly addressed these concerns. Farmer associations created in the 1970s provide functions related to cooperative action to assist farmers to determine whether they should form a cooperative,⁹⁸ with support from extension in recognition of the causes of past failures. The Farmers Federation of Thailand experienced a fillip from the 1974 political turmoil with membership expanding to 1.5 million, and a break from past passive acceptance of non-participatory policy formulation.⁹⁹

Lessons derived from this past are clear,¹⁰⁰ although current assumptions that these can be expected to not recur may be optimistic. The reasons for government involvement in cooperatives have and continue to change, and are increasingly related to other government entities concerned with extension and credit.

Bank of Agriculture and Agricultural Cooperatives

Government first provided subsidised credit to rural cooperatives before 1920, although outcomes were unsatisfactory until the formation of BAAC in 1966.

⁹⁶ Falvey, L. and Chantalakhana, Charan (1999)

⁹⁷ Hughes, R.P. et al (1968)

⁹⁸ Yongkittikul, Twatchai et al (1983)

⁹⁹ Trace, P. (1981)

¹⁰⁰ Hutanuwatr, Nuntiya. (2000)

BAAC's initial mandate to lend to farm households for agricultural activities was eventually expanded to include agribusiness.¹⁰² By 1982, BAAC provided credit totalling some 12 billion baht to about half of all Thai farm families.¹⁰³

Close management and field supervision favoured the application of funds to their intended purposes, and that vouchers were not transferred for cash. Thus BAAC became involved in fertiliser purchase and distribution in a manner mimicking that of the Department of Cooperative Development. By 1998, BAAC distributed 20 percent of all fertiliser in Thailand, and almost 70 percent of the public sector's fertiliser distribution. Prices through private outlets fell and remained more stable through this market influence, for a period.¹⁰⁴

Private commercial banks which dominated the Thai financial sector through a narrow ownership base,¹⁰⁵ ensured that high levels of subsidy such as in the Philippines and Indonesia, were not provided by BAAC. Commercial banks were required to lend five percent of the total of their previous year's lending to agriculture from 1975 with this allocation rising to 20 percent over subsequent years. Shortfalls in such lending were to be deposited with the BAAC and attract an interest rate below market levels. Private banks successfully expanded the definition of agriculture to include agribusiness and agro-industries although they failed to meet assigned quotas.¹⁰⁶ No penalties were imposed and other government schemes were created to facilitate lending to small farmers such as the Small and Medium Sized Enterprises Scheme, and the Small Industries Finance Office. In 1992, the BAAC charter was amended to allow lending for agriculturally-related activities operated by farmers which, with assistance from an Asian Development Bank loan, quickly accelerated rural lending.

Requirements of loan collateral were utilised to justify the accelerated land title issuance¹⁰⁷ which led to a decline in informal lending through middlemen.¹⁰⁸ The diverse services provided by middlemen, which were rewarded

¹⁰² Mingmaneeakin, Wanrak (1988)

¹⁰³ Yongkittikul, Twatchai et al (1983)

¹⁰⁴ Siamwalla, Ammar (1992)

¹⁰⁵ Doner, R. and Unger, D. (1993)

¹⁰⁶ Muscat, R.J. (1995)

¹⁰⁷ Feder, G. et al (1988)

¹⁰⁸ Poapongsakorn, Nipon and Nettayarak, Prayong (1988)

through the apparently higher interest rates, were assumed by BAAC through procuring and distributing agricultural inputs and technical advice at subsidised rates. BAAC even became involved in marketing of produce, thereby further assuming the role of individual middlemen. However, the middleman resident and integrated with a local community continued to maintain an advantage over institutionalised credit in such situations as emergency requirements for cash during a period of illness and other individual needs.

BAAC proved flexible in times of rainfall or market failures,¹⁰⁹ and in lending to groups which were fostered to ensure high levels of repayment and to so build confidence in the bank. With administrative costs of around five percent of loans, BAAC achieved an enviable level of success for a subsidised credit distributor to small-holders, many of whom were previously considered uncreditworthy. Limits to the approach were reached in marginal agricultural areas where development needs were possibly the greatest; in common with similar institutions, BAAC served the the better-off rural households. Marginal farmers who do engage significantly in commercial trade, may be better encouraged in self sufficient lifestyles, with any loans being participatory Grameen style microcredit,¹¹⁰ rather than risk loss of land and indebtedness.¹¹¹

Efficient BAAC operations¹¹² facilitated expansion; by 1995, 82 percent of revenue was from farmer repayments when 70 percent of expenses was interest and related expenses. Compared with commercial banks, BAAC received low returns from its low interest rates and subsidised services, although 1997 and 1998 international prices and weather combined to allow loan repayments to be maintained when commercial banks lost heavily from speculative loans. Debt repayment problems in the Northeast¹¹³ and institutional duplication of government services in cooperatives support, extension, credit, marketing, and fertiliser distribution will determine the future activities of these organisations.

¹⁰⁹ Siamwalla, Ammar (1993)

¹¹⁰ Yonis, M. (1999)

¹¹¹ Hirsch, P. (1990)

¹¹² Muraki, T. et al (1998)

¹¹³ McGuire, P. B. and Conroy, J.D. (1998)

Marketing Organisation of Farmers

The MOF has subsidised and supplied, often late, more than one-third of fertilisers used by paddy farmers since 1977. A State enterprise, the MOF receives funding through the Farmer's Aid Fund free of interest, which it supplements with loans from commercial banks. The MOF has bartered crop produce to provide fertilisers below market prices, and when foreign aid funds have been used, it is claimed that only transport costs were subsidised rather than the acquisition price of fertiliser. Net subsidies are equivalent to the public MOF budget including aid, and given legal constraints farmers can sometimes receive a negative subsidy; in 1998 rice farmers appeared to subsidise government. Competition with BAAC is now seen as anachronistic, and past MOF associations with political patronage indicate its incompatibility with modern governance systems.¹¹⁴

Effectiveness and Small-holders

It is possible to conclude that Thai institutions have been supportive of agricultural development with variations in efficiency. This view is challenged by the historical orientations and roles in garnering central monies, and by recent analyses where the State has been shown to be 'not benevolent, but predatory in nature'.¹¹⁵ Dysfunction between institutions and a reliance on administrative law appears to have allocated unreasonable influence to elected and appointed officials with a concomitant increase in moral hazard. Inconstancies in policy choices, a less conspicuous form of such hazard than simple corrupt receipt of funds, has probably caused the decline in accountability, until the post-1997 governance changes introduced with some external insistence. In the case of cassava growers, failure to regulate institutional actions led to such irrational outcomes as increased grower poverty and inadequate education for informed and united bargaining with the State. The argument that such exceptions or excesses are ultimately resolved by international influence through aid and other means have been similarly challenged in the case of GATT,¹¹⁶ and intellectual property rights.¹¹⁷

¹¹⁴ Siamwalla, Ammar (1992)

¹¹⁵ Sirirprachai, Somboon. (1998)

¹¹⁶ Sirirprachai, Somboon. (1998)

¹¹⁷ Rerkasem, Benjawan. (1999)

Attempts to assist small-holders have thus been constrained by the effectiveness of institutions. Those supporting agriculture can be understood from perspectives of the development process. For example, government policy to encourage farmer cooperatives has embodied two assumptions, that:

- the environment for successful cooperatives in other countries can be created by government
- small-holders farmers can gradually be converted towards modern agribusiness through group organisation.

Government has therefore linked, at least in the minds of some parties such as lending institutions, small-holders to supplying national and multinational agribusiness groups. Experiences have been positive and negative. Contract farming groups have been occasional beneficiaries from prices set marginally above farmer costs.¹¹⁸ Dairy cooperatives, on the other hand, represent coordinated government policy across trade, fiscal, developmental, and social policies including cooperative formation for an industry which has globally benefited from cooperatives.

Farmers who are members of institutions such as cooperatives have higher standards of living than non-members. Such a justification for further farmer group formation has expanded subsidised inputs and enticed agribusiness guarantee markets in such government-agribusiness projects as; cashews, dairy, imported beef cattle, coffee, pigs, chickens, rice, and hybrid seed production. However, higher farmer standards of living is a clearer indicator of first adopters of opportunities, rather than a result of cooperatives themselves, even though many members feel that group membership provided benefits.¹¹⁹

The commercialisation of small farmers is implied in the 1968 Cooperatives Law which corporatised and expanded cooperatives for functions of; credit, marketing, technology transfer, and product supply.¹²⁰ Later linkages facilitated by BAAC, the Cooperative League of Thailand, and the National Agricultural Cooperatives Training Institute, were oriented to widening the commercial agricultural base. Successful examples of linking small-holder groups

¹¹⁸ Dolinsky, D.J. (1992)

¹¹⁹ Patanapongsa, Narinchai (1983)

¹²⁰ Yongkittikul, Twatchai et al (1983)

to agribusiness abound, however, marginalised farmers to whom poverty alleviation policies have been targeted have sometimes been falsely assumed to also be the prospective commercial farmers forming part of a global agricultural market system.

Marginalised farmers are unsuited to a fully commercial approach, because:

- their primary focus is subsistence agriculture, or at least self-sufficiency
- their surplus production is unreliable for environmental, technological, and home consumption reasons
- well intentioned government policies tend to drift towards better-off beneficiaries, for example, collateral requirements for loans, and better-off farmers joining farmer groups
- efficient lobby from agribusiness can modify government policies to their benefit
- marginal farmers are poor and poorly educated, and thus easily exploited.

Assumptions that small-holder farmers can be linked to agribusiness in a single step towards modernising of agriculture in Thailand have proved invalid. Recognising research, education, and service needs of self-sufficient small-holders separate from commercially oriented farmers and agribusiness, will inform the continuing evolution of government institutions related to agriculture. Further consideration of agribusiness is presented in the following chapter.

Summary

Key points pertinent to an understanding of Thai agriculture which can be elicited from this discussion of agricultural institutions include:

- Embryonic agricultural institutions of Sukhothai were transcended by Ayutthaya systems, which allowed wide application of taxation and dispute resolution, culminating in the formation of organisational units in the 1890s that, through constant reorganisation with frequent foreign influence, created today's departmental structure.
- Institutional failures have been attributed to inadequacies in, and later entry to, modern research and education that, with an under-emphasis on agriculture and poorer initial links to systems of colonial powers, precluded Thai leadership in fields which might have been expected, with the consequence that adoption of new technology has been slower than in neighbouring countries.

- Service and input oriented agricultural institutions showed low levels of success in the field of cooperatives and fertiliser subsidy, until linked with credit and extension through the BAAC, thereby highlighting anachronistic institutional arrangements, and incidentally, the need for a more considered view of non-commercially oriented farmers.