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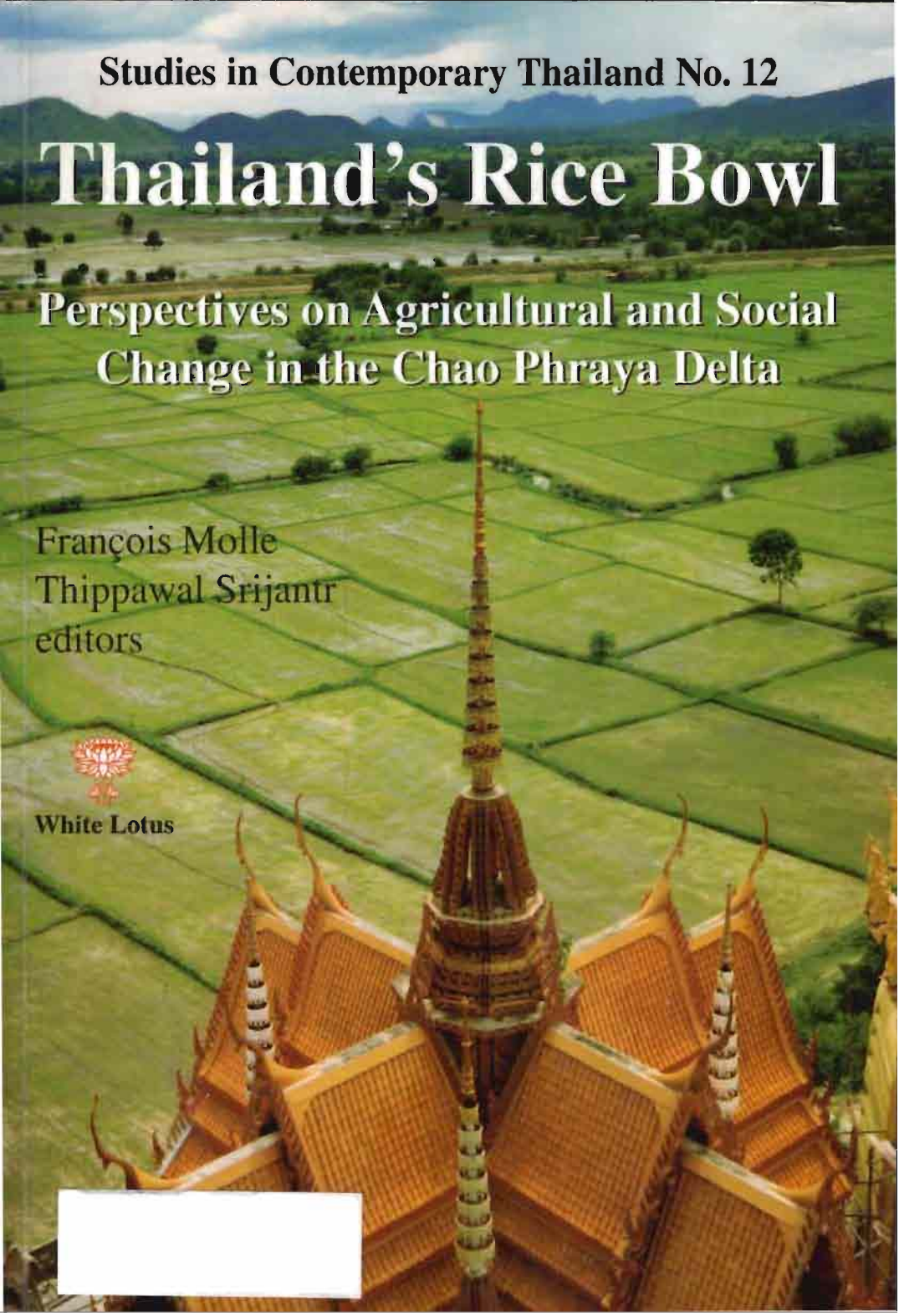
Thailand's Rice Bowl

Perspectives on Agricultural and Social
Change in the Chao Phraya Delta

François Molle
Thippawal Srijantr
editors



White Lotus



Thailand's Rice Bowl

Studies in Contemporary Thailand

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Foreword

Kasetsart University and the Institut de Recherche pour le Développement (IRD) jointly implemented the research project *Agrarian dynamics and water management in the central plain of Thailand* during the 1994–2001 period. This project was a multidisciplinary endeavour aimed at investigating the evolution of agriculture in the Chao Phraya Delta. It later included a comparison with the Red River and Mekong Deltas. Most chapters in this collection are the fruit of both this project and the International Conference, *Thailand's Rice Bowl: Perspectives on Agricultural and Social Change in the Chao Phraya Delta*, organised in December 2000 by Kasetsart University, IRD, the Chulalongkorn University Social Research Institute, and the Center for Southeast Asian Studies, Kyoto University. Eight of the fifteen chapters are revised versions of papers presented at this conference, while the remaining seven are original contributions.

The chapters of this volume benefited from the suggestions and comments from several persons who are gratefully acknowledged, notably Charles Mehl, Utong Prasasvinitchai, Chaiwat Prechawit, Jonathan Rigg, and Peter Vandergeest. Last but not least, we are very much indebted to Chris Baker for his careful reading and correction of the final manuscript.

François Molle and Thippawal Srijanat

Preface

The half-century after the Second World War has seen enormous changes throughout rural Thailand, nowhere more so than in the central plains. Uniquely among the various regions of Thailand, the dominant propeller of change was the increased control over water, which brought in train the introduction of high-yielding varieties, changes in cropping patterns towards higher-valued crops and shrimp farming. This kind of change entails quite a complex process of social adjustment—certainly more so than that entailed by, say, a greater exposure to markets, a process that the central plains had almost completed well before the Second World War. And we have not yet mentioned the intrusion of the industrial sector which was drawing labour rapidly from farming, the traditional mainstay of people in the Central Plains.

Unlike other regions of Thailand, particularly the politically sensitive northeast, the changes that took place in the central plains are not well documented. People in Bangkok are certainly well aware of what was going on, and perhaps for that reason never felt the need to explore in depth the changes that were taking place almost in front of their eyes.

Francois Molle and Thippawal Srijantr at the DORAS (Development Oriented Research on Agrarian Systems) Center deserve our gratitude for assembling a great amount of data and for conducting detailed research which throws new light on developments occurring in the central plains. Detailed perusal of this volume and a large number of previously available research reports from the Center cannot but lead one to conclude that these developments were uniform neither over time nor over space. Facile generalisations about a geography that appears to the naked eye as boringly flat are therefore more likely to be wrong than right. More

seriously, such generalisations do not do justice to the capacity of Thai farmers to adapt to a wide variety of changes taking place within this landscape, and are more likely to give rise to misguided policy prescriptions.

Ammar Siamwalla
Bangkok
November 2001

Chapter 1

Introduction

François Molle and Thippawal Srijantr

This book is about recent changes in the agrarian systems and societies of the Chao Phraya Delta. It is no exaggeration to claim that these changes have been large and diverse. Although traditionally dubbed as Thailand's "rice bowl," with the implication of an agrarian society practising rice monoculture, this description has become rapidly less appropriate over the past three decades. Cropping patterns have become more varied, more complex, and cultivation more intensive. The growth of Bangkok has made markets more powerful and accessible. Entrepreneurs, factories, and new informal businesses have come into the village, while young people have left for the city. Patterns of landholding have changed as family strategies adjust to the new conditions of labour availability and market opportunity. Water has ceased to be an open access good, and become a managed resource which is increasingly scarce and hence subject to competition. Village society has become not only markedly different from the past, but also more fluid and more closely integrated with the outside world. Government policy makers scramble to keep up with this pace of change with schemes to change crop patterns, revolutionise water management, and decentralise government.

These recent changes are predicated on a long historical development of agrarian society in the delta. The conventional view of the establishment of the Siamese kingdom begins with a gradual southward migration of the Tai ethnic group. In the mid 14th century the capital of the kingdom was established at Ayutthaya, around the margin of the inhospitable southern part of the delta¹. Although Mon-Khmer settlements and cities already existed in the delta, the foundation and development of Ayutthaya triggered improved communication

routes radiating from the capital, and boosted maritime commerce as well as the expansion of rice cultivation, mostly in the flood plain of the Chao Phraya Delta (see Map 3 in Appendix). In the late 17th century, Tachard (1685) described his journey from Ayutthaya to Louvo (Lop Buri) through “vast plains reaching out of sight covered with rice,” while Turpin in 1771 noted “paddy fields [that] could be seen as far as sight could reach.”

However, agriculture as a whole, and rice cultivation in particular, long remained more limited than often assumed. The central plain around 1830–40 was a mixture of virgin land (swamps, heavy grass, clumps of bamboo, thick shrubbery, jungle tree, etc), and of diversified agricultural production including sugarcane (in the south of Bangkok, in Nakhon Chaisi, Chachoengsao, Chai Nat and near Kanchanaburi), vegetables and orchards (west of Bangkok, near Samut Songkram and Chachoengsao), and rice.² In 1835, even the surroundings of Ang Thong were still “largely uncultivated” (Terwiel, 1989). Towards the middle of the 19th century, on the eve of the Bowring Treaty, the population of the Chao Phraya Delta was concentrated in Bangkok, in minor cities such as Ayutthaya, Nakhon Chaisi, or Chai Nat, and more generally along the main rivers. The population numbered around 1.3 million³ and included a fascinating ethnic mosaic. Baffie (Chapter 3) provides a historical examination on the role of migrations and wars in the constitution of an ethnically varied population that consisted of people of Indian, Malay, Mon, Lao Song, Lao Phuan, Vietnamese, Khmer, and Chinese origin. At this time rice cultivation in the delta was limited to approximately 300,000 ha.

The development of the “rice economy” has been extensively recounted and this makes further description unnecessary. The reclamation of the delta, both through the initiative of the state and by a “silent frontier” of peasants, reached a first inner limit by the end of the 1930s. Most of the land had been cleared, with the exception of higher lands in the old delta (see Map 3 in Appendix) and in the Mae Klong area. Through their account on the land system and its transformation in the 20th century, Molle and Thippawal (Chapter 4) capture the successive stages of agrarian development that resulted in pressure on land resources, and change in land tenure and average farm size. The crisis around 1970 was the result of several concomitant factors including closure of the upland frontier, stagnating yields and depressed rice prices, indebtedness, and pressure on land resources. In the late 1970s and early 1980s, the crisis was relieved by several factors including dissemination of High Yield Varieties, double cropping, improvement of water control, development of institutional credit, a drop in the birth rate, betterment of rice prices, and growing supply of non-farm job opportunities.

The boom decade preceding the 1997 economic crisis brought about several dramatic changes which are addressed in this volume. Between 1986 and 1996, the labour force engaged in agriculture in the central region dropped from 3.5 to 2.5 million, with the greatest decrease among people aged under 30 years. During this time real wages appreciated, rural labour became scarcer, the pressure on land was relieved while that on water resources increased, and agriculture moved towards greater intensification, diversification, and mechanisation.

Somporn and Hussain (Chapter 5) document the changes undergone by rice cultivation. Labour shortage and double cropping triggered the adoption of labour-saving innovations, most notably the direct seeding technique which replaced transplanting, the adoption of tractors and threshers, and the mechanisation of harvest in the 1990s. These changes resulted in greater land and labour productivity, and in a drastic reduction of labour requirements from 58 to 8 man-day/ha. However, Molle and Thippawal show that, due to declining profitability of rice farming and the mechanisation of rice production, there is a trend towards specialisation amongst some rice growers who farm increasingly large areas. This trend is currently limited to the flood prone areas, where economies of scale are possible and the land rental market more favourable, but it might foreshadow a more general change in rice production. This evolution of rice cropping is paralleled by a process of diversification out of rice to cash crop production ranging from vegetables, orchids and flowers, fruits, and field crops to aquaculture. Such cash crop production is much more labour and land intensive (and therefore dovetails with the overall trend in farm size reduction), and also provides incomes that are competitive with non-agricultural activities.

Thippawal Srijantr (Chapter 6) documents agricultural diversification in upland environments with an example from the Mae Klong area, where sugarcane/rice cropping patterns have given way to a much more diversified agricultural production including vegetables and the association of baby corn with cow breeding. As is the rule, the increased integration to the market economy tends to sharpen socio-economic differentiation. Farm endowments in land, labour, and capital, as well as skill, are factors which largely dictate the changes and the strategies of farmers.

Cheyroux (Chapter 7) analyses the expansion of vegetable and fruit gardens in the lowlands of the Damnoen Saduak area. She shows how a combination of factors (Chinese settlements, good land and water conditions, proximity of urban and export outlets, and start-up capital provided by the trade sector) has allowed the expansion of an extremely intensive and market oriented agriculture, now covering almost 100,000 ha. Depending on their individual situation (farm size,

family labour force, capital accumulation, and access to credit), farmers develop different cropping systems, more or less intensive in work and capital, more or less risky and profitable. The socio-economic differentiation of farms partly explains the cropping diversity in Damnoen Saduak. In case of little capital availability, risk can be dealt with by adopting crops which require low investment and which can be harvested year round, thus providing a regular income (guava, rose apple, and coconut). This intensive agriculture is marked by an extremely high responsiveness and adaptability to the market. Although she establishes a typology of farms, Cheyroux shows that there is little eviction or out-migration of farmers, as smaller scale agricultural producers can develop intensive systems oriented toward high added value and/or engage in off-farm activities, thanks to the high local demand.

The responsiveness of the delta farmers to economic opportunities, together with the declining interest in rice cultivation, cannot be better exemplified than by the development of inland shrimp farming described by Szuster *et al.* (Chapter 8). As shrimp farms can yield more than 25 times the annual income provided by double rice cropping, such farms are now encroaching on paddy land at an alarming rate. This activity is characterised by high risk due to yield variation caused by the spread of diseases and water quality problems. Despite technical adaptations aimed at decreasing the use of salt water, there are severe concerns on the long-term environmental impact of tiger prawn farms. Trucks loaded with sea water delivering as far as Suphan Buri province are a striking symbol of private initiative and technical innovation. But they also dramatise the incapacity of the government to respond to short-term destructive activities, to assess environmental damage, and to enforce the ban it has enacted.

These trends towards agricultural diversification have implications in terms of socio-economic differentiation and of risk-taking, most notably regarding marketing and price fluctuations, but they also have the potential to generate much higher incomes. Siriluck and Kammeier (Chapter 9) describe the attempt by the government to support this process through the launching of a programme aimed at "restructuring agricultural production" in 1994. This policy was designed as an answer to the water shortages experienced in the 1991–94 period and as a means to reduce the share of rice in agricultural production. It appears that such overall policies face drastic difficulties of adaptation to local conditions and often have dramatic counterproductive impacts. In particular, as the programme paid little heed to the conditions of marketing, several farmers were eventually found to have abandoned the programme while remaining burdened by the debts incurred. The analysis

strongly suggests that state intervention and attempts to influence farmers' decision-making must be mediated through improving the security of water supply and output prices, rather than by dictating crop choice. The study also identifies a worrying incapacity of state agencies to monitor their activities and to derive lessons for the future.

Rice intensification as well as diversification is contingent upon the quantity, reliability, and quality of irrigation water supply. Molle (Chapter 10) paints a worrisome prospect of the evolution of water availability for the Chao Phraya Delta in the dry season. The decline of the inflow in the storage dams, the growth of water use, both in areas upstream of the delta proper and in domestic or non-agricultural sectors, gradually curtails the amount of water available for dry-season cropping. This decrease has so far been dealt with by reducing dam water releases solely for energy generation and by using dam carry-over storage that should be kept for inter-annual regulation. The analysis shows that farmers have been extremely responsive to water scarcity and that, contrary to common wisdom, efficiency in water use at the basin level is high. The spread of individual pumping devices, in particular, has dramatically modified the patterns of access to water and has undermined any collective effort to increase equity. The top-down water allocation process allows little say to users and the lack of technical and institutional control over the whole basin gives free ride to political interventions and to the competition between administrations. Molle also shows how projects, policies, and reforms are biased and undermined by both the inadequate conception of state intervention in the countryside and the ideology of international development agencies.

All these far-reaching agricultural changes cannot be analysed and understood only as internal transformations. They are part of the mutations which affect the wider economy, both national and international, and more generally of social and cultural transformations in the country. Kitahara (Chapter 11) provides a longitudinal study of a village in the Mae Klong area and describes its gradual incorporation into industrial and urban domains. Economic activities appear increasingly determined by age class. The younger age strata predominantly engage in factory work, while middle-aged people together with the elderly and women are found working in rice farming or in the village informal sector. These informal activities include all kinds of cottage industries, daily wage work, independent or sub-contract workshops, food preparation, as well as a few small-scale factories. To his surprise, Kitahara found no evidence of significant part time farming, as is common in East Asia. He analyses changes as driven by a process of new consumption and

lifestyle formation prompted by the outside market and contacts with urban life. However, because of the development of transportation infrastructure, most villagers are able to commute daily, thus contributing to the conservation of the traditional family social structure and corresponding social links and boundaries.

Such economic diversification and intricate relationships between the urban and rural spheres are also reported by Askew (Chapter 12), who studied rice farmers and gardeners at the urban fringe in Nonthaburi. Askew's conclusion is that "the metaphor of the threatening urban frontier" is a mistaken one. He sees farmers not as victims of external agents of change but actively participating in the social and economic transformation of their society. They gradually but purposely release their land resources according to individual strategies devised within the wider economy. These strategies include diversification of occupation, education of children, together with the quest for status among neighbours. Despite urbanisation, he finds the persistence of strong and complex webs of kinship and patterns of reciprocity, which support the evidence that social links and values do not merely disintegrate in the process of change.

The historical and cultural basis of social organisation in the delta is examined by Shigetomi (Chapter 13). He emphasises several differences between the central region on one hand, and the northern and northeastern regions on the other hand, in terms of settlement patterns, social fabric, family linkages in land transactions, communal land management, or temple ceremonies. Rather than engaging in collective action based on a hypothetical and rather elusive village, people in the central region appear to be mobilised through networks of dyadic relationships, often stemming from a core group, and with a more contractual definition of roles. Emphasising the lack of fit between administrative units (villages and *tambon*) and the spatial spread of these social networks, Shigetomi observes that development organisations and groups are largely disconnected from the formal local administrative structure, even if they have been initiated by government agencies. A greater interaction of rural communities with the outside world poses new challenges that require, and may even foster, new forms of collective organisation and action, particularly in response to state interventions and more specifically to the increasing amount of funds that are to be managed locally.

The project to decentralise administration and government spending to democratically elected local bodies is addressed by Nelson (Chapter 14), based on the example of Chachoengsao province. Through an analysis of the local structure of power and the predominance of cliques (*phuak*) based on inter-personal relationships, Nelson shows that the activation of citizens to participate in public

and political life is still minimal and sees attempts at “democratic decentralisation” having little prospect of immediate success. Rather, decentralisation might well mean the increasing penetration of the central bureaucracy into the countryside rather than localities regaining their previous autonomy. However, the on-going process can be seen, in a more positive tone, as a prerequisite to the gradual elimination of the influence of the *phuak* and as a learning process towards local governance.

These chapters cover a rather extensive range of disciplines and aspects of agricultural and social transformations in the Chao Phraya Delta. The overall picture emerging from these different glimpses portrays the fading away of a peasant world. Technical change, intensification, diversification, pluri-activity and migrations have responded to and accompanied changes in demography, factor prices, and market opportunities. Mobility, flexibility, and adaptiveness are keywords of transformations that, the studies suggest, are taking place in an economic, social, and cultural continuum between Bangkok and the rural delta.

Putting the changes observed in the Chao Phraya Delta in context, Kaida (Chapter 15) distinguishes between agrarian deltas, such as the Red River and the Bengal deltas, and mercantile deltas, which include the Mekong, Chao Phraya, and Zhujiang (Pearl River) deltas. The latter are seen as inland extensions of insular Southeast Asia with economic systems based on transactions with the external world. The mercantile deltas have developed by attuning their economies with those of maritime and commercial activities. They are opportunistic, loosely structured societies with little attachment to land, characterised by capital intensive undertakings and high linkages with world markets, but also by greater socio-economic differentiation.

This takes us to an underlying theme which pervades many of the studies carried out in the delta. Molle (Chapter 2) shows that the vision, by urban or foreign scholars, of the transformation of the delta’s peasant society contains a dialectic tension between nostalgia for an often idealised peasant society (with its contrastive discourse of a peasantry disintegrating through the intrusion of state and markets), and recognition of the necessity to seize new opportunities in the context of agrarian change driven by closure of the frontier and increased integration with the outside world. The state is seen as intrusive and overbearing but it has also provided new rice varieties, irrigation, road infrastructure, credit, etc., which allowed the development of the delta. In addition, the presence of the market stirs individualism and competition, but also provides cash income which is recycled into further investments, education for children, and demand for goods on the national market.

On balance, the tension may not be as critical as often assumed. Comparison with the Vietnamese deltas shows that, despite the agrarian crisis around 1970, the Chao Phraya Delta has managed relatively well its transition from a rice bowl towards a post-agrarian society. The labour surplus has been transferred to non-agricultural sectors but this trend, particularly in the last 15 years, has been fuelled by pull factors (increased and/or more regular income, economic independence for youths, but also by the attractiveness of urban life as opposed to the low social status of farming), rather than by a push out-migration of destitute farmers. It is apparent that farmers have been active players more often than victims. This is, of course, a macro-level description, and does not deny the existence of difficulties and hardship in the delta but, because of its numerous comparative advantages, the region compares favourably with other parts of Thailand.

At the turn of the new century, this book provides glimpses of the transformation of Thailand's rice bowl and its current status. It allows us to grasp the magnitude and the speed of the changes it has undergone in less than one century, from a wild hinterland reclaimed by peasants newly freed from bondage and fully devoted to rice production, to a complex post-agrarian society with modern infrastructure, intensive agriculture, economic diversification, and ever increasing economic and cultural linkages with the outside world. It also offers clues on possible future trends, which might include a growing specialisation of farms between rice-cropping (on larger land) and non-rice intensive farming (diversification), the spread of pluri-activity (with farming as a part time occupation), the development of non agricultural sectors in regional centres, a growing demise of agriculture, but also a strain on natural resources, notably water, and on the environment. With an ageing and declining population of farmers, the demise of agriculture could reach proportions only witnessed elsewhere in the region in Malaysia (see Rigg, 2001). The respective profitability of rice and sugarcane cultivation, fruit production and aquaculture, as compared with the supply and remuneration of non-farm activities, will largely dictate the pace of transformation (Molle and Thippawal, 1999). This is tantamount to stressing that the paths ahead are by no means mapped out and will be strongly shaped by the evolution of the wider economy.

Notes

¹ The geographic definition of the delta is problematic, though crucial to delineate the focus of this book. The terms central plain or central region are also encountered in the literature and often refer to totally different entities (thus generating recurring

confusion and contradiction). Even the administrative definition of the central region is far from fixed, as an examination of diverse official documents show (Kasetsart University and IRD, 1996). We chose here to define the delta by the actual limit of the irrigated area (which includes both the Greater Chao Phraya and Greater Mae Klong Projects; see Maps 1 and 3 in Appendix). This choice is justified in that the development of irrigation facilities has generated a dramatic contrast between the inner area, where agriculture has markedly intensified, and the rain-fed upland outer area. In addition, this definition is consistent with history, as the greater part of the irrigated area corresponds to the lowlands which were reclaimed during the boom of the rice economy (with the exception of the western terrace fringe and of the upper Mae Klong area).

² According to the historical records collected by Terwiel (1989), rice was confined to areas near habitations, such as along *khlung* Bang Yai ("a few paddy fields"), near Potharam (with irrigation from the Mae Klong River) or along the middle reach of the Tha Chin River. Extensive rice fields were to be seen only north and south of Bangkok, on its east along the first reach of *khlung* Saen Saep between Ayutthaya and Tha Rua, and in one region extending between Nakhon Nayok and Chachoengsao.

³ The ratio between the population of the six inner *monthon* intersecting the delta to the total population in 1911 was 30% and data by province from 1919 show that (at least) 18% of the population of the 6 *monthon* was residing in upland provinces. Applying the same ratio to Skinner's estimate of the Thai population in 1855 (5.37 million) gives a total of 1.32 million.

Chapter 2

Knowledge in the making: a brief retrospective of village-level studies in the Chao Phraya Delta during the 20th century

François Molle

2.1 Introduction

An important part of the knowledge acquired about societies (and in the present case about the Chao Phraya Delta) is derived from local surveys and research which could be termed micro studies, as opposed to macro approaches which rely on the analysis of aggregated statistical data or observable general trends. Some of these micro studies have not only significantly contributed to the creation of common knowledge but have sometimes also sparked intense scholarly debates. The observations and the theorisation, often bordering on generalisation, drawn from such local studies are, of course, strongly shaped by the specificity of the village considered, but also by the idiosyncrasies of the researcher himself, and more generally by the wider intellectual context at the time when the study was carried out. The interpretation and the extrapolation of the information are therefore biased by these different factors, but also tend to linger on and to endure even though new radical transformations may already have taken place.

This chapter sketches a retrospective picture of micro studies carried out in the delta¹ during the 20th century. It primarily intends to mirror the transformations undergone in this region by assembling a series of chronological observations and reflections, but it will also comment on their contribution to the making and shifting of paradigms through the course of time. It is also hoped that this chapter will facilitate the endless and time-consuming process of unearthing bibliographical sources and be of use to those scholars willing to contribute to the development of rural studies in Thailand. Obviously this inventory does not claim to be exhaustive

and, in particular, has not explored disciplines such as archaeology, architecture, religious beliefs, or psychology. Its focus is more on the social and economic history of the rural delta², although it also covers the delta's increasing integration within the urban domain. The main studies are listed in Table 2.1 at the end of the chapter and are also represented on a map³ (Figure 2.1), in which there is evidence of some interesting geographical patterns. The studies include fieldwork undertaken by Ph.D. students or academics on rather long term or in-depth research projects (indicated by a square), and other studies which have given rise to one or several scientific papers (indicated by a circle)⁴.

2.2 Fragmented information prior to WW II

No scholarly micro-study was carried out in the delta prior to WW II. Fragmented information comes from travellers or official reports, or from the compiled observations of a few foreigners living in Siam at that time. Two exceptions are the nationwide economic surveys undertaken by Zimmerman in 1930 and Andrews in 1934, but they are not strictly speaking village studies but collections of data from a limited sample of villages.

Glimpses of rural life are afforded by historical archives, which provide official letters and reports from provincial or Bangkok officers, petition letters, inspection trip observations, etc. As such written documents are often motivated by the occurrence of some problem (flood, drought, banditry, land dispute, economic slump, etc.), they tend to emphasise difficulties. The limited information available about daily life or social relationships often focuses on farmers' exploitation by landlords, Chinese middlemen, officials or bandits, on the vagaries of the climate and hydrological regime, indebtedness, or cattle rustling (Chatthip and Suthy, 1978; Chatthip *et al.*, 1978; Sunthari, 1978; and Johnston, 1975). These accounts tell us of a peasant frontier society in a process of emancipation from lords and rulers trying to further their position in the expanding capitalist economy. They mirror a world in rapid mutation where the physical environment was being transformed, the social and political relations redefined, and where the reshuffling of access to land, capital and labour engendered new tensions, conflicts, interventions, and laws.

To be sure, hardships related to health, security, and economic exploitation were attached to these transformations. Most accounts, however, originate from the east bank, most especially Rangsit. Little is known about those peasants who had been engaged in floating rice cultivation since Ayutthaya's time in the flood

plain of the delta (see Map 3 in Appendix); about settlers in the old delta, who lived more on lumber, bamboo products, and charcoal making than on agriculture, very often moving back and forth between the land frontier and more populated areas (Gisselquist); and about this “silent frontier”, far from the landlord area of the east bank. As is typical of frontier societies with an abundance of land, most problems could be overcome by moving further on. Beyond the commercial interests of those engaged in the rice market, the rice industry also fuelled a tremendous human drive towards peasant farming. Its integration in capitalist circuits, rather than its development as a subsistence economy, may be only partly explained by the necessity to buy goods, hire labour, or pay taxes. The swift response of the Thai countryside and the “post-treaty euphoria” suggest that commodity production and the monetisation of exchange were already well developed in central Siam (Seksan, 1989). Many of the settlers were from Bangkok or its outskirts, “accustomed not only to sustaining themselves from the fields and gardens, but also to considerable exchange with the markets” (Hanks).

While rice production was subject to uncertainty, fishing also developed along with the canal network and the paddy fields, and was often more than a complement (Hanks); extra patches of land were cleared for sugarcane, eggplant, or beans and a few fruit trees; chicken, ducks, and pigs complemented the diet. Over the course of time, communities grew and temples were built. Stories tell us about the mobility of small groups, interconnected by links of kinship, battling against mosquitoes or bandits, clearing the land and testing the appropriateness of the water regime for rice cultivation, moving again to other areas (Hanks; Kaufman; Gisselquist).

As early as 1930, Montri observed “conditions of congestion which exist in many of the best rice producing districts . . . where a very large number of persons [are] working 5 *rai* of land and under. . . . This condition has been produced by the growth of families living on ancestral land, which have been gradually divided up amongst the new generations.” While abundant land was available in the 1910s, in only 20 years or so the situation reversed, although pressure was first felt in areas with older settlements. The 1930 crisis also came at a time when yields were declining and rice prices would not recover before the middle of the century. The delta’s peasant society retreated towards subsistence, continued expanding the rice frontier into marginal lands (water-deficient uplands or ill-drained swamps), grappling with climate and market vagaries but protected by the “constructive neglect” of the government to administer property rights, which limited the possibilities of accumulation (Pasuk and Baker, 1995).

2.3 Post-war investigations on the rural delta (1945–1960s)

Except for the collection of impressions and scattered observations published by some westerners such as Virginia Thompson (1941) or R. L. Pendleton (1946, 1962), virtually no scholarly work is available on the culture and socio-economy of rural livelihoods in this era. The first agricultural census (1950) and a large scale rural economic survey (1953) provided interesting statistical data but it seems that little use was made of them at the time. Until the 1960s, no Thai person had ever formally studied sociology or social anthropology (Amara, 1998). The first well known benchmark of systematic ethnography in Thailand was the launching of the Thai-Cornell Bang Chan Project, conducted by a team of researchers from different disciplines. The project not only addressed the social history of a community (Sharp and Hanks), the farm structure and economy (Kamol), psychology and behaviour (Phillips), but also a series of other issues such as religion, nutrition, and child-rearing. The project yielded a description of rural life close to Bangkok which contrasted with the more general picture of Asian culture mostly derived from East Asia. This lent support to the “loosely structured society” concept put forward by Embree (1950) and gave rise to the well-known scholarly controversy.

Bang Chan village was a cluster of several hamlets, with a significant degree of interaction with nearby Bangkok and other markets (only 52% of the products consumed originated from the village). Farmers engaged in more consumption than their production would allow⁵. Income tended to remain low because of limited land supporting a growing population, the lack of other activities to undertake, the constraints which soil conditions and inadequate water control imposed on rice production, and the scarcity of cash and credit.

A similar anthropological study was carried out by Kaufman in 1954 in Bangkhud, a village 14 km from Bang Chan. Kaufman depicted farmers as preoccupied with rice and religion, and placed emphasis on two main changes: the building up of agrarian pressure, and the growing influence of the centralised state. Population growth and land fragmentation by inheritance triggered the intensification of rice cultivation (with a shift from dry broadcasting to transplanting and mechanisation), an increase in the labour demand, and a growth of hired labour, landlessness, and migration to Bangkok or other areas, and the alteration of the socio-economic patterns of access to land and labour. At the same time, the village was increasingly integrated to the centre through district services, the growing dependence of the *wat* on the Department of Religion, the new schools

under the control of the Ministry of Education, and the development of roads and transportation services.

As Kaufman drew a picture which was complementary and similar to Bang Chan, the study of rural economy seemed to lose its attractiveness. Field work was redirected to religion, beliefs, and folklore (Attagara; Terwiel; Bunnag; Ingersoll), reflecting the interest of foreign academic research in exploring cultural and religious diversity rather than in substantive economic issues.

2.4 The rise of an agrarian crisis (late 1960s–early 1980s)

We must wait until around 1967 to see the almost concomitant launching of four new important village studies carried out respectively by Steven Piker (near Ayutthaya), Takahashi Tomosugi (Sing Buri province), Jeremy Kemp (Phitsanulok province), and Jacques Amyot's team (Ayutthaya province, in 1969). At that time, several studies had already suggested the emergence of a crisis resulting from growing indebtedness (Uthit, 1958), pressure on land and the shift of bargaining power in favour of landowners (Chuchart *et al.*, 1965), and landlessness and stagnation of productivity despite the advent of irrigation (FAO/UNDP, 1968).

Piker's study confirmed the increase in agrarian pressure. It showed that the breaking of the family cycle and of the relative balance between land and labour within households had significantly weakened kinship ties and the security they offered to members. Landlessness (half of the village households) and social and economic differentiation were on the rise but there were still "no pronounced class differences within the village." Migration to the uplands or to Bangkok had caused an impressive decline of the population by 25% between 1945 and 1960, increasing the availability of wage labour in the village. Urban culture was encroaching. Traditional life styles and goals appeared decreasingly attractive. His interpretative framework accounts for both "structural regularities" and normative principles (bilateral reckoning of descent, matrilineal residence, partition at inheritance, etc.) and for the prevalence of ad-hoc dyadic relationships, including patron-client relationships and flexible, voluntary patterns of relationships ("the pattern is one of shifting and unstable, not durable alliances; and this is true for kin-based as well as non-kin based alliances").

Tomosugi's village is located in a different ecological setting. While most of Piker's Banoi was planted with floating rice, Tomosugi's Yamani was supplied by irrigation canals constructed ten years earlier. The completion of the Greater Chao Phraya Project contributed to several changes in rural life, including the growth of

wage labour (a huge labour force was mobilised for the construction), improvements in transportation and public safety, and increasing commercial activity. Although he mentions the permanence of features commonly associated with traditional peasant life (labour exchange, use of animals for ploughing the land, subsistence-oriented economy, and importance given to chatting, rituals, or spirits), his description "shows how such categories as peasant, trader and wage labourers are all bound together in the village, suggesting transitional phases from a substantive to a market economy."

Kemp's study of Hua Kok village led him to several conclusions on the Thai social structure. A large part of his work is devoted to showing the absence of groups, the predominance and stability of dyadic relationships including patron-client relationships (while opposing Hanks' generalisation of the concept), and the illusions attached to the concept of the village or the community. His picture of the village economy also emphasises population pressure relieved by the development of upland agriculture, increasing commercialisation and economic differentiation, and the resulting changes in the social organisation of production.

In 1969, the Chulalongkorn University Social Research Institute launched its "Ayutthaya Village" study, consisting in the comparison of three villages. The findings synthesised by Amyot (and by Fuhs with regard to labour utilisation) yield a picture of rice-based agriculture severely constrained by ecological factors and already seeking to alleviate population pressure by migration and non-farm activities (1976).

The 1970s and early 1980s can be seen as a period of transition between a crisis and new opportunities. Local studies span a much wider range of interests than pure anthropological village studies and their scope is often narrowed down to a specific salient aspect of rural transformation. A first set of studies was devoted to the green revolution and to the modalities of the intensification of agriculture. They include perspectives on rice cultivation and on the adoption of innovations (Green; Jerachone *et al.*; Fujimoto and Matsuda; Tanabe), institutional change (Hara), village level contractual arrangements (Gisselquist), land issues (Tongpain and Jayasuriya; Wiwatchai; Tanabe), marketing (Pranee), and social organisation for water management (Duncan). Another set of studies focused on ethnicity (Foster; Snit; Sams), while Riley and Lauro documented demographic change, fertility drop, mobility, and population control.

Pooled together, these studies afford us insight on the complexity and diversity of the rural world and on the profound transformations at work. After more than a decade of tension, the mid-1970s brought some relief on such diverse aspects as

the land market (local landlords shifted to urban areas and non-agricultural investments), the labour market (rice intensification, notably double cropping, raised labour requirements), the capital market (institutional credit became widely available, at least to landed farmers), water supply (drainage and on-farm facilities were gradually improved), population growth (decreases in fertility, emigration), and rice prices. Studies point to a high level of geographical mobility. Farmers in richer areas moved to buy land in less developed portions of the delta, land-hungry families moved temporarily or permanently to the upland frontier, and others gave up farming to enter non-agricultural sectors. All this tended to reshape the patterns of poverty which could no longer be simply equated with indebtedness and landlessness. While Snit sees rice farmers exploited by middlemen, most studies emphasise relatively efficient social control of interpersonal relationships⁶. The growing influence of the state is seen bringing some benefit in curtailing autocratic or capitalistic local powers (land title establishment, public security, institutional credit, etc.) and providing new services in terms of electrification, roads, and irrigation infrastructure. After the limited and disappointing impact of irrigation in the 1960s, the advent of High Yield Varieties (HYVs) and the surge of double cropping brought about a sweeping restructuring of the factor markets, mechanisation, and an increase in income for those who could grow irrigated crops in the dry season. These changes, however, were felt chiefly in the irrigated areas. Follow-up studies of Ayutthaya villages by CUSRI showed that the situation in the flood-prone area had progressed little.

In 1976, Thiravet complemented the research in urban anthropology undertaken by Akin (1975) and Johnson (1978) with a study of the northern rural fringe of Bangkok (Pak Kret). He showed how farmers managed the transition from farming to urban life and gradually found their place in the city. While old people remained in the farming sector, 33% of households entered the bazaar economy (household industry, petty trading, intermittent jobs), and as many as 42% entered the capitalist sector (construction, transport, government work, etc.). Such an economic continuum between the rural and urban fringes echoes that in social organisation shown by Akin in his study of a slum. It also strengthens the pervasive impression that most farmers are neither attached to their land nor to their occupation. Even as early as the 1940s, Virginia Thompson (1941) noted that "Bangkok is so far in advance—in the western sense—of the rest of the country that provincial Siamese dream of nothing but going there," an impression later confirmed by Kaufman. A 1972 survey revealed that 65 to 77% of the peasants interviewed expected that their children should have another occupation than their own (Douglass, 1984).

Amyot noted that farmers see “no prestige in farming” and Snit reported that 60% of farmers in his village near Lop Buri already thought of changing occupations, while wanting their children to achieve higher education.

The village studies carried out by Utong and Sams in the 1980s in the Mae Klong area provide insight on the process of agricultural diversification and the integration of the village economy to the wider economy. While authors such as Chayan (1993) are preoccupied with the possibility “to have a self-reliant village economy under a capitalist system trying to penetrate every corner of the village,” these studies suggest that the prosperity and even the social integrity and cohesiveness of the village might well be contingent upon a (controlled) process of opening to the outside world. In the case of Nong Ngam village, Utong shows that the cultivation of cash crops could provide enough job opportunities and income to villagers to make out-migration unnecessary. In the case of the village studied by Sams, the introduction of a highly successful commercial venture (the Lao Song Handicrafts Project, initiated by a Catholic NGO) not only succeeded in alleviating temporary hardship but revolutionised the village economy, relegating rice cultivation to a secondary occupation. On his part, Snit observed that economic change from a relatively subsistence system to a market economy stimulated the social mobility and assimilation of the Lao Phuan peasants.

This counterbalances the common viewpoint that the commercialisation of agriculture and of the village economy as a whole has increased the spread of individualism, the waning of labour exchange and reciprocal obligations, and the downfall of indebted small farmers to landlessness and factory labour. While such concerns rightly pinpoint crucial changes of village life, it is unclear whether they are adequate to typify the overall transformation of the rural world. For example, it is doubtful whether traditional reciprocity could have coped with the range of increasingly complex contracts needed for an irrigated agriculture in a process of intensification, requiring more capital, faced with a sharp decline of its labour force and the spread of pluri-activity⁷. Lamenting the loss of the original “village” might be a question of personal feeling but cannot overlook the fact that a closed agrarian system under growing population pressure, as was the case in the 1960s, can only survive with some kind of “vertical” growth (intensification), and that such a growth can hardly be conceived outside the market economy. Likewise, it is not obvious that the transfer of labour from agriculture to non-agricultural activities is perceived as coercion or a downfall. From a situation of agrarian pressure sensed as far back as the 1970s, where the diversification of activities was driven by a mix of pull and push factors, the last two decades are best

characterised by a pull from the city, both economic and cultural (see Molle and Thippawal, 1999).

It is useful here to borrow Rigg's distinction (1997) between "those studies which regard rural households as unwitting victims of a process beyond their control—pawns on a macroeconomic chess board—and those which view farmers as independent actors in their own right." It is readily apparent from the literature on the central plain that few, if any, local studies draw a picture that fully accords to the view of the former type. Studies which have adopted the approach of critical social sciences, Marxism or political economy, are in general inspired by a macro and historical perspective on production forces and capital development from which they derive an interpretation of local processes. Typical examples are the works by Witayakorn (1983) and Douglass (1984). Although all village studies report differences in households regarding resource endowment, family structure, income, and occupations, there is little convincing evidence that the economic stratification observed can be couched in terms of social classes and social polarisation. Even Siwarak, in search of "class stratification" in Nakhon Sawan province, eventually found that "harmony and unity existed within the communal society," sustained by several factors including a "unique tradition of class reconciliation." Two studies, nevertheless, show widening social division. Naruemon Bunjongjit's study of a village in Nakhon Nayok province identifies a "polarisation of farming society" and sees social differentiation as reflected by land tenure status. The need for cash and money borrowing is the mechanism by which smaller farmers become dependent on wealthier absentee landlords. These patron-client relationships, however, do not give way to severe antagonism, partly because each party needs the other and contracts can be broken at will by both parties. In the Chachoengsao village surveyed by Ananya, it is the new market opportunity provided by contract chicken breeding, as well as the introduction of HYVs, which have created imbalances in the village, favouring those who could respond to it and increasing their wealth and power in the locality. Smaller farmers end up indebted and are gradually left no other choice than working as wage labourers.

It is also not fortuitous that these works have been issued in the particular political and intellectual context of the 1970s and early 1980s, when the awareness of social problems and ideological confrontation were at their highest, both in Thailand and in the region. Kanoksak (1987) sees the working methodologies of early American scientists as a "form of ideological practice" in that they fostered the image of the easy-going, apolitical, unconcerned, and "happy peasant." He

sees the events of October 1973 as a watershed in the making of an indigenous ideology. With hindsight, the 1970s now appear as the culminating point of an agrarian crisis in the delta (Molle and Thippawal, 1999).

2.5 A post-agrarian society? (mid 1980s to the present)

With the defusing of the agrarian crisis and the further appreciation of rural real wages from 1985 onward, agricultural problems lost much of their appeal. Interest in agricultural change shifted to issues of agricultural diversification. The transformation of rice farming was documented by Fujimoto and Matsuda, while Molle and Jesda reported on the transformation of deep-water rice cropping systems into HYVs. They documented technical change, mechanisation, changes in labour use, and household income. Rangsan (Suphan Buri province) and Thippawal (Nakhon Pathom province) have explored the diversification of farming systems in upland conditions and have shown the benefits in terms of labour absorption and regular income generation. Farm strategies such as choice of cropping systems, investment, and risk management appear strongly dictated by the farms' factor endowment and ecology. However, as risk also tends to be higher in a commercialised economy with high cash input and unstable crop prices, the most fragile farms are prone to failure. This process has been eased by the relatively high supply of job opportunities in non-agricultural sectors, triggering a spectacular occupational shift in the younger generations. Cheyroux has concentrated on the lowlands where drastic land development converted areas to growing fruits and vegetables. Raised bed systems are a typical feature of the lowlands and now cover more than 100,000 ha in the delta, with the bulk located along the Damnoen Saduak Canal (Kasetsart University and IRD, 2001). The picture there appears similar to that of the uplands but with much higher levels of intensification in cropping, capital, and labour use. Benefits per land unit can be extremely high (as for grapes or orchids, for example), but much capital is required to weather the risk inherent in the most profitable crops. All these agricultural activities, in both the uplands and lowlands, are tightly integrated to the market. Better control of the marketing process (cooperatives, contract farming) appears desirable in order to lower risk and increase benefit margins.

In 1977 and 1993 Tomosugi revisited Yamani, the village he had studied in the late 1960s. He outlined the deeper and quicker transformations which followed the development of double cropping and the introduction of electricity from 1975 onwards. He described the drastic out-migration of young villagers to Bangkok

and its periphery, or to the Middle East. The market economy had developed, not solely through a growing dependence on marketed goods, but also through the mobilisation of the village labour force in home industries (notably artificial flower making). Demographic changes (out-migration, decrease in fertility) and cultural changes (the “eagerly accepted” idea of development) translated into several concomitant evolutions, among which Tomosugi emphasised the induced technical change in rice cropping (response to decreasing labour availability), the decline of the importance of farming activities (growth of pluri-activity and wage labour), and the decrease of the social and psychological distance between the village and Bangkok’s factories and way of life. He pointed out the significant geographical and social mobility, and the efficiency of commercial networks based on kinship. He posited that “the incredible development of the money-oriented economy throughout the country, which has been attained by a driving power derived from the strong desire for a better life, could be construed as a positive endeavour to escape from the horrible, negative spirit of former days.”

This commercialisation of agriculture has been paralleled by a process of integration of the countryside into the urban world. A second set of studies has examined the blurring of the frontier between rural and urban domains. Chantana Banpasirichote described the integration of a community near Chachoengsao and its embracing of both shrimp farming and factory work. Young generations “have become a part of the production process of a wider world, and less part of the community.” However, the proximity of factories (daily commuting is the rule) has also made them part of the local world and factory life has even allowed a kind of re-socialisation. Rural industrialisation helps provide more alternatives when agricultural development is constrained and, in return, impacts on the agricultural sector (labour shortage). Strategies oriented towards rice cropping, shrimp farming, or factory work also appear to be governed by land and capital endowment, education, and age class.

Several similar observations were made in the area surrounding Ayutthaya where ecological constraints to agricultural development and the development of industrial estates have radically altered the traditional vision of the province as the cradle of rice and water (*ou khao ou nam*)⁸. Yos reported on the adaptive response of a peasant community to industrialisation. He opposes the way of life and communitarianism of the traditional village to what he terms the “industrial culture” (*watthanatham utsahakam*) which is seen as antagonist (*khwaam chareon ma su chumchon*) to peasant values. The development of local industries results in the pollution of air and water, in social disintegration (*pho mae thing luk pai tham*

ngan), and only benefits a few local agents and capitalistic networks interested in the export of cheap goods. Arghiros also touched upon the process of differentiation⁹. Land sale in the province was accentuated by both supply (the precariousness of rice cultivation and the demise of agriculture in general raised willingness to sell) and demand factors (the area is crossed by the Asian Highway and industries were developing, thus encouraging speculation). One of his fulcrum questions is whether the personalised village-level relationships, which hitherto limited drastic social imbalances, are being weakened, and whether one's position in the society is increasingly perceived along lines of class. This is reinforced by the fact that local elites are now competing over access to supra-local resources, typically state-derived ones, and are increasingly able to control local elections.

A research team from CUSRI furthered the longitudinal survey of three villages initiated in 1969. Wathana emphasised the demise of agriculture, paralleled by the development of industrial occupations. Although manufacturing and commercial establishments in Ayutthaya trebled between 1976 and 1990, the supply of jobs remained well under demand. While considering the shift from an agrarian society to an urbanised/industrialised one as "forced," Suriya and Amara reckoned that the positive aspects outstripped the negative ones.

A similar process was observed in Lan Laem village, Nakhon Pathom province, by a group of Japanese researchers led by Kitahara. Although the village is not directly located in an industrial area, a good road connection to the Nakhon Chaisi and Phetkasem road allowed the village to integrate itself to the non-agricultural world. In Lan Laem, middle aged and old villagers tend to continue farming, or engage in cottage industries and other informal activities, while the young commute to factories. Segmentation of activities seems to be the rule, rather than the pluri-activity commonly found in East Asia. Noteworthy is the emergence of local entrepreneurs, who increased the local supply of jobs and further accentuated the penetration of non-agricultural activities and values into the village.

Two other recent studies have addressed similar questions on the urban fringe closer to Bangkok. Sowatree Nathalang emphasised that "far from being conservative peasants in a once stable subsistence village, the present population in the Bangkok peri-urban regions has undergone decades of opportunistic adjustments as the macro-level capitalist world-system has exerted overwhelming impact on their everyday lives." She stressed the adaptive capacity of the population to a settlement pattern characterised by an intense land-use mix, where agriculture, industry, housing, and recreation all impact upon each other. This was by and large echoed by Askew who focused on farmers' strategies in Nonthaburi on the western

bank of the Chao Phraya River. He contended that smallholding farmers had never been insulated from the wider society and that, well before housing estates and factories encroached into formerly rural landscapes, the farmers' strategies were already diversified and shaped by the opportunities provided by the city. The metaphor of the threatening urban frontier, with farmers as victims of external agents of change, appears a mistaken one.

In parallel with these two focal points of investigation on agricultural and economic diversification, the late 1980s and 1990s were marked by the emergence of political science studies (Nelson; Arghiros; Murashima; Takaji; Ryo; Nakharin, 1993) focusing on processes of democratisation and decentralisation. These studies show the weakness of political discourse and party ideology, and the prevalence of inter-personal relationships in the access to power, largely mediated through *phuak* (cliques). Vote buying and patronage appear widespread in all local elections. Increasing responsibilities and budgets made available at the *tambon* level attract the interest of local businessmen. Decentralisation is also placed in its historical and cultural context and often appears more like an expansion of administrative control to lower levels than a real process of democratisation.

Altogether the local studies of the last 15 years are telling indicators of the commercialisation and diversification of agricultural activities (in phase with the demand of urban markets and agro-industries), of the de-agrarianisation of the delta (younger generations rejecting agriculture, surge of factory work and other local non-farm activities, consumerism, and urban values), and of the overall political transformation (decentralisation, however ambiguous it may be, and democratisation). The recent study of three villages by Molle *et al.* (2001c) provides an outlook on how village economies adapt to different agro-ecological environments which define the potential for agricultural intensification. The access to water largely governs the rice cropping intensity that can be achieved and the share of rice production in the village income. The study shows how constraints on rice production dictate farm land size and how alternative economic strategies are devised, both on-farm (animal breeding) and off-farm (factory work). The income gap encountered between the three villages is thus partly, but significantly, bridged.

Piker (1975) described the situation in the late 1960s as a post-peasant society, characterised by the surge of landless wage labour, weakening kinship ties, migration, and growing off-farm work. This was indicative of agrarian pressure and the end of a peasant economy where production was in line with the labour resources of each household. At the beginning of the new century, the landscape has changed into what could be termed a post-agrarian society, characterised by a

blurring of the economic and cultural frontiers between the urban and rural spheres. Although in the delta this frontier has never been as sharp as sometimes assumed, improved transportation and communications, constant population flows to and from the capital, rural industrialisation, and the expansion of state services (police, irrigation, roads, electricity, health, etc.) have now defined a mixed economy where agriculture is specialising in high value cash crops and where the younger generation has little commitment to farming. The full consequences of these changes still remain to fully materialise and will appear along with the gradual retirement of farmers (especially rice farmers) over 50 years old.

2.6 Concluding remarks

One is obviously apprehensive in attempting a synthesis of all these variegated “building blocks” of knowledge. This would have to be done within a wider framework of analysis of agrarian and societal change and is much beyond the limited ambition of this chapter. A few remarks, however, can be made by way of conclusion. Two interconnected themes appear across the different studies. The first one—more anthropological in scope—covers the characterisation of folklore, beliefs, social structures, relationships, and contractual arrangements between fellow villagers, and between the village and the outside, spanning issues such as labour allocation, marketing, patron-client relationships, and political life.

The second overarching theme is the role of agriculture in the village economy and culture, and its transformation, or demise, in an ever opening world where social and economical changes are driven by a growing exposure to markets, intrusion of the state, and consumerism. Overall these studies are tinged with a negative vision of the agrarian transition. Markets, monetary exchanges, wage or non-agricultural labour, land sale, mechanisation, emigration to cities, and so on are essentially seen in a negative fashion. This can be understood from several viewpoints. From a scholarly perspective, it can be traced to the common prejudice of anthropologists against changes which tend to alter the assumed cultural integrity of their object of study¹⁰. In the same vein, this echoes a more Jeffersonian urban-based idealisation of village life, as expressed by the strength of the ideology of “community culture” (*watthanatham chumchon*)¹¹. Commercialised relations, it is said, impinge on the traditional peasant culture by replacing labour exchange, reciprocity or free land rent, by increasing consumerism, by generating economic imbalances, and by accentuating social differentiation between landlords and landless farmers. From a political and economic perspective, changes are also seen

negatively in that mechanisation appears to be labour displacing, and farmers are forced to participate in a market economy where they are dependent on cash inputs and do not control output. In brief, autonomy and self-sufficiency are bartered for a status of either rural or urban proletariat, where the fruits of labour are appropriated by external agents. Knitted communities are disintegrated and kinship bounds swapped for impersonal and individualistic endeavours in a profit-oriented world. In ideological terms, it is evident that the dominant vision of farming is one inherited from the waves of populism and political economy of the 1970s. This is most apparent in the discourse of many intellectuals and NGOs, but also in the media, which periodically issue reports on the rural world laden with "miserabilism"¹².

It would probably be equally wrong either to discard the reality uncovered by this discourse or to remain confined to it. Viewpoints couched in terms of darkening realism are of little help in capturing the diversity, complexity, and dynamism of the situation in the countryside. As such, they lead to a simplistic vision of reality and tend to elicit judgements, actions, and policies which are poorly attuned to real needs. In retrospect, many of the accounts provided by the studies only give limited support to a wholly negative vision. Authors repeatedly stress that even the poorer strata "never really lack food or other basic needs" (Kaufman), and remain at a "level far above poverty which prevails in the rural areas of some other Asian societies" (Piker). Visser holds that "inequality has not been imported with the market economy culture" and that "entrepreneurs also existed formerly and so did patron client relations." Gisselquist also considers that nothing points to a formerly more equal village society and he describes how local powers have been curtailed by the presence of the state. Sams, Thippawal, and Cheyroux show that the linkage with markets is an ambiguous process which enhances individual differences in factor endowments, but also in skill, risk taking, or industriousness, generating increased wealth but also a more skewed distribution. Utong, as well as Chantana and Kitahara in the case of factory work, show that this outward economic diversification is not always tantamount to social disruption and can even contribute to keeping the community alive by limiting the emigration of youth. Foster makes the case that in times of crisis, the villages with more connections with the outside world and more occupational diversity fared much better.

To be sure, "an erosion of traditional social and economic phenomena is taking place, but of course other things are taking their place," observed Visser, considering that "there is definitely no question of cultural or social disruption." If there is a single word common to all studies, this word is probably *adaptation*. Adapting to new conditions and circumstances is not necessarily done willingly, nor

accompanied with benefits or gains. However, if a macro trend is to be derived from all these micro studies, it is probably that the agrarian transition in the delta has been relatively smooth.

It is not superfluous to issue here a caveat regarding the scope of the above interpretation. Thailand's four main regions offer contrasting human, ecological, historical and socio-economic settings. The production of a uniform discourse on Thailand as a whole is a well known trap which some analysts regularly fall into. On balance, it appears that the Chao Phraya Delta—although typified as the region which developed through the commercialisation of rice production and where less social cohesion is to be found—has been able to overcome the crises which have surfaced at various points in its history. Of course much of its relative success is due to the significant comparative advantages it enjoys with regard to the other regions (Parnwell and Arghiros, 1996). Soil and water conditions are good, irrigation networks cover 2 million ha, excellent roads connect villages with markets and outside work opportunities. Social tensions or disruptions never reached the situation reported in other regions. If Turton (1987) and others are probably well founded to analyse the situation of the north in the 1970s in terms of class struggle, history is much more parsimonious in providing evidence of such a radical situation in the delta¹³. The more recent works by Holland and Arghiros, however, suggest that this might change in the future and that such an eventuality needs to be further scrutinised.

As in most cases when dealing with locality, we are always confronted by some degree of exceptionality which mirrors the specific ecological, social, historical, and human features of the place under study¹⁴. In addition, these spatial heterogeneities are not fixed but, rather, constantly reshaped and redefined during the course of time. Just as the early "Rangsit bias" generated by a focus on this area distorted the view on the whole delta, it is also possible that classical studies on the Bangkok periphery and on Ayutthaya's flood prone area have influenced the making of common knowledge. As Amyot recognised in 1994, "Having used the province of Ayutthaya for more than twenty years as my window to observe the heartland of the central region, I should perhaps find it somewhat disturbing to discover . . . that it is not typical of the region as a whole. . . . the central region is not homogeneous. In fact, it displays considerable variation from province to province and, in some cases, from district to district." The study by Molle *et al.* (2001c), indeed, showed that the response and evolution of farming systems are very varied and predicated upon several micro and macro factors.

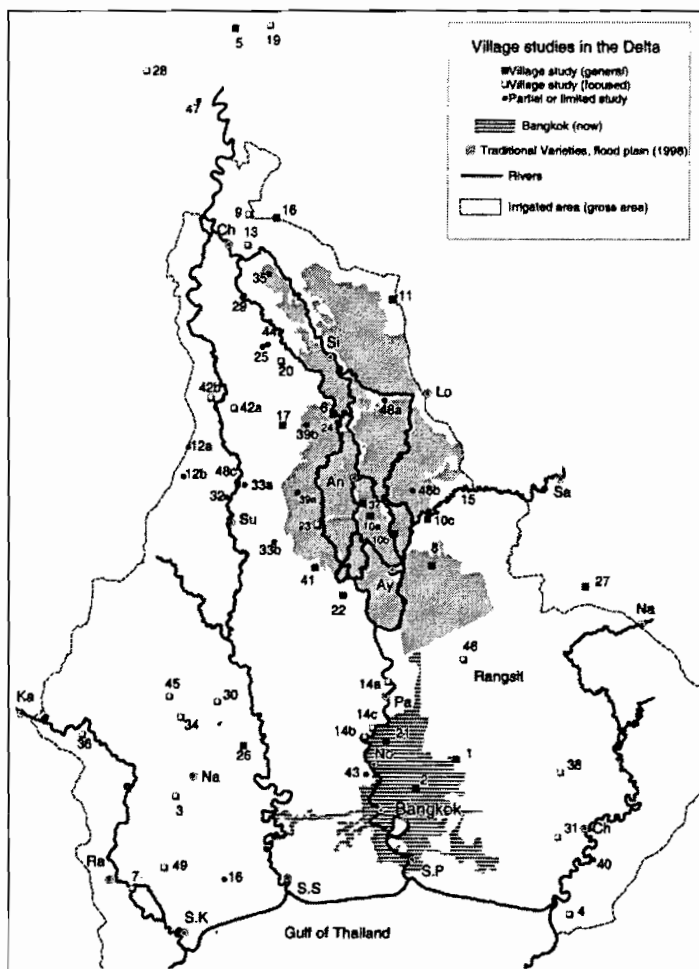
The overall impression conveyed by the studies (and this will be abundantly shown in the following chapters) is that the Chao Phraya Delta has moved from a

seemingly undifferentiated rice bowl to a complex and highly integrated sub-region that epitomises the blurring of the frontier between urban and rural domains widely observed in Southeast Asia (Rigg, 2001). The “dipole” formed by Bangkok and the delta exemplifies the striking “densification” of flows across sectors, regions, and countries. People move freely between Bangkok and their village, either temporarily or permanently, or commute daily to nearby factories; villagers go to the Middle East while several hundred thousand Burmese work in the delta; flows of capital include remittances, cross-investments, institutional credit, and state investments; land and water resources are re-appropriated; information in forms such as technical innovations, market prices, education, news, and advertisement flow back and forth; political and administrative networks expand and strengthen the links between the local and the national levels; rice and orchids are sent abroad while imported electric appliances flow into the villages; “rural culture” is idealised and becomes a political construct in some urban quarters, while rural youths dream of nothing but swapping it for the neon lights of the city.

This redefinition of the agricultural sector and the evolution of rural household economy take us to the classical “agrarian question” on the interrelations between agriculture and capitalist development. In an age of globalisation this not only refers to the relationship between peasant farming, state policies, and the urban economy, but also to their intersection with the global economy and the pervasive ethos of modernity that comes along with it. As neatly phrased by Rigg (2001), “processes of agrarian change are embedded, at the local level, in political, social and cultural relationships, as well as in environmental contexts through and upon which the forces of globalisation are reworked in unique and place-specific ways.”

In conclusion, I would like to leave open the following question: do we know enough? Judging from our inventory, which gathered 49 studies spanning half a century, the answer could be mixed: on the one hand they amount to considerable effort and time but, on the other hand, our patchwork obviously still has gaping holes¹⁵. This is reminiscent of Kamol’s warning, issued in 1955, that “ignorance of the most simple facts about rural conditions result in wrong or doubtful popular concepts; and ready popular acceptance of biased concepts promulgated by various interest groups.” There remains little doubt that the body of knowledge¹⁶ produced by rural studies in Thailand, and most particularly in the delta, is still insufficient to depict the rapid transformations under way, and to orient policy makers to their implications. The sweeping changes observed over the past decade or so, together with the specificity of local processes alluded to above, make the task of documenting them arduous and demanding.

Figure 2.1 Spatial distribution of local studies in the Chao Phraya Delta (1950–2001)



From north to south: Ch: Chai Nat; Si: Sing Buri; Lo: Lop Buri; An: Ang Thong; Sa: Saraburi; Su: Suphan Buri; Ay: Ayutthaya; Na: Nakhon Nayok; Pa: Pathum Thani; No: Nonthaburi; Ka: Kanchanaburi; Na: Nakhon Pathom; Ch: Chachoengsao; Ra: Ratchaburi; S.P.: Samut Prakan; S.S.: Samut Sakhon; S.K.: Samut Songkhram.

Table 2.1 Inventory of local studies in the Chao Phraya Delta (1950–2001)

No.	Year 1	Year 2	Place	Main reference	Topic
1	1950	1947–56	Bang Chan	Sharp (1953); Sharp and Hanks (1978); Phillips (1974) Kamol O. Janlekha (1955)	Village study
2	1954	1954	Bangkhuad	Kaufman, Howard Keva (1960)	Village study
3	1960	1960	<i>Tambon</i> Sra Kathiam	Ingersoll, Jasper C. (1963)	Religion
4	1964	1964	Na Pa	Attagara Kingkeo (1967)	Customs, culture
5	1966	1966–67	Hua Kok	Kemp, Jeremy (1992)	Anthropology
6	1967	1963+ 1967	Ban Noi	Piker, Steven (1983)	Anthropology
7	1967	1967	Yamani	Tomosugi, T. (1980)	Anthropology
8	1967	1967 +1977	Wat Sancaw	Terwiel, B. J. (1971, 1979)	Religion/rural change
9	1968	1968	Manorom	Greene, B. A. (1971)	Agriculture, rice cultivation
10	1969	1969/70	Ban Chung	Amyot, Jacques (1976); Fuhs, Friedrich (1979)	Village study, labour
11	1971	1971	Old pavillon	Riley, J. N. (1972)	Demography, anthropology
12	1971	1971	Ban Sao	Snit Smuckarn (1972)	Cultural change, village study
13	1971	1971	Don Chedi	Jerachone Srisvaslidek <i>et al.</i> (1975)	Farming systems, rice cropping
14	1972	1972	3 villages	Foster Brian L. (1972)	Village study, ethnicity
15	1973	1973	Tha Rua (fictitious)	Wiwatchai Attakor (1975)	Land tenure
16	1974	1974	Ban Dong	Visser, R. (1980)	Anthropology, village study

No.	Year 1	Year 2	Place	Main reference	Topic
17	1974	1974	Wang Nam Yen	Gisselquist, D. P. (1976)	Technical and institutional change
18	1975	1974-77	<i>Tambon</i> Yokkrabat	Akin Rabibhadana (1983)	Development process
19	1975	1974-76	Wang Thong	Preecha Kuwinpant (1980)	Anthropology, markets
20	1975	1975	Chanasutr	Duncan, H. S. (1980)	Irrigation, water management
			Irrigation proj		
21	1976	1976	Pakret	Thiravet Pramuanratkarn (1979)	Village study, urban fringe
22	1977	1974-79	Ban Nom Kho	Tanabe, Shigeharu (1994)	Ecology, farming systems
23	1977		Bang Chang	Lauro, Donald J. (1979)	Demography
24	1977	1977	Onkarak	Hara, Yonosuke (1981)	Technical and institutional change
25	1978	1978	Phakthan, Singburi	Tanabe, Shigeharu (1978)	Rice growing communities
26	1980	1980 +1996	Lan Laem	Kitahara, Atsuchi (2001)+ publ. in Japanese	Village study
27	1980	1979-81	Pa Kha	Naruemon Bunjongjit (1987)	Land-labour relations
10	1980	1980	3 villages	CUSRI (1983), Chantana (1982)	Various (rural and cultural change)
28	1981	1981	Nakhon Sawan	Siwarak Siwarom (1984)	History, agrarian change
29	1981	1981	Sankhaburi/ Sanphaya	Tongpain, S. and Jayasuriya, K. (1982)	Rice, land tenure
30	1982	1982-83	Ban Laem Kam	Sams, Bert (1987)	Anthropology, history

31	1983		Theparas	Ananya Bhuchongkul (1985)	Agrarian change
32	1985	1984-85	Phophya, Suphan Buri	Fujimoto and Matsuda (1987); Fujimoto <i>et al.</i> (1990)	Farming systems, rice cropping
33	1987	1987 +1998	Sri Prachan	Somporn Isvilanonda and Sarun Wattanutchariya (1990)	Rice cropping
34	1987	1987	Nong Ngam,	Utong Prasasvinitchai (1993)	Farming systems, sociology
35	1989	1988-89	Khaw Kaew	Montesano, M. J. (1992)	Land system, anthropology
10	1990	1989-93	3 villages	Napat (1998); Nitaya (1998); Kobkul (1998); Pinit (1982); Suriya (2000); Wathana (1993, 1998); Suriya and Amara (2000) (CUSRI project)	Various (rural and cultural change)
36	1990	?	Saen To	Holland, S. (1990)	Social differentiation
37	1990	1990-2000	Ban Thung	Arghiros, Daniel (1993)	Political science
38	1991	1991-2000	Chachoeng-sao	Nelson, Michael (1998)	Political science
39	1992	1989-92	Huai Khan Laen	Shigetomi, Shin'ichi (1995)	Social structure, groups
40	1992	1992	Klong Ban Pho	Chantana Banpasirichote (1993)	Community change
7	1993	1993	Yamani	Tomosugi, Takashi (1995)	Anthropology
41	1994	1994?	Sena, Ayut.	Yos Santasombat (1996)	Agrarian change
42	1995	1992-93	Don Chedi	Rangsan Pitipunya (1995)	Farming systems, rice cropping
43	1996	1995-6	Nonthaburi	Askew, Mark, in this volume	Sociology
44	1996	1996	Chai Nat	Molle, Francois and Jesda Keawkulaya (1998)	Water management, land use
45	1996	1994-96	Thung Lung Nok	Thippawal Srijantr (1998)	Farming systems

No.	Year 1	Year 2	Place	Main reference	Topic
46	1997	1997	Rangsit Project	Sowatree Nathalang (1999)	Anthropology, urban fringe
47	1997	1997	Nakhon Sawan	Ryo, Takagi (1999)	Political science
48	1999	1999	3 villages	Molle <i>et al.</i> (2001c)	Farming systems, village economy
49	1999	1997-99	Damnoen Saduak	Cheyroux, Blandine (this volume)	Farming systems

Year 1: reference year; Year 2: period of field investigations.

Only the principal publication is mentioned in the table. Other references from the same authors can be found in the general bibliography of this volume.

2.7 Notes

¹ For a spatial definition of the delta, see Chapter 1.

² Even with such a focus, several studies may have escaped my attention. Such omission is, of course, not intentional and only reflects the unfortunate incompleteness of my knowledge. The focus on local studies obviously captures only a portion of the accumulated knowledge on the region and may not do justice to other seminal historical investigations. The limited ambition of this chapter, however, did not allow their inclusion in this tentative inventory. For convenience, the studies referred to in this chapter are indicated only by the name of the author(s), while the reader is referred to the bibliography for further details on other publications. Other cited references are indicated with their year, in accordance with conventions.

³ A few studies do not specify accurately the location of the village studied and the position is therefore approximate: this holds in particular for Riley, Visser, Siwarak, Yos, and Lauro. The latter two intentionally disguised the location of the village. Hua Kok village and *amphoe* Wang Noi, studied by Kemp and Pranee, have been situated at the top of the map for convenience of scale but they lie in reality to the east of Phitsanulok, further north.

⁴ Ph.D. theses and research reports or books tend to be more comprehensive than the papers which present results, in general, more limited in length and scope. However, some of them are often focused on a single issue (e.g. land transactions or folklore), whereas some papers may give a wider vision of the village. Therefore the distinction does not necessarily reflect the amount and the quality of information made available by each study.

⁵ The Bang Chan research team's check list of consumption goods could not catch up, in the course of four or five years, with "new items of consumption including wrist watches, fountain pens, hair do, Coca-cola, invitation cards, admission to Miss Thailand contests, etc." (Kamol)

⁶ The rare investigation in economic anthropology carried out by Gisselquist in Ang Thong province, unfortunately and intriguingly widely ignored, provides insights on the socio-economic transformations at the village level in the complex decade of the 1970s. For an historical analysis of landlord/tenant relationships see Molle (forthcoming).

⁷ Tipaporn (1976) observed that, with double-cropping, labour exchange was disappearing because it did not provide a satisfactory means of organisation in face of new exigencies for quicker and more flexible farm operations. Hanks

(1972) sees labour exchange between neighbours as “a symptom of underpopulation, for it disappeared as soon as hired labour became available,” while Hara reckons that wage labour is a “more efficient form of labour allocation than the traditional mutual exchange of labour.” Kemp (1992) also reports that farmers don’t see the change as imposed but, rather, as desirable.

⁸ It is interesting to observe that, until the end of the 19th century, the comparative advantages of the floodplain—where labour was scarce, land abundant, and water control technology limited—turned out to be a liability when the situation later reversed (in particular when irrigation facilities and HYVs allowed the intensification of rice cultivation in the upper parts of the toposequence); see Molle, Chapter 10.

⁹ Arghiros refers to the thesis by Holland on social differentiation in Kanchanaburi province. I was unable to access this document which is nevertheless included in the list.

¹⁰ This was part of the criticism directed at Potter’s study of a village in northern Thailand, which was conceived with little reference to the outside world.

¹¹ I do not wish to expand here on the several facets of these ideological movements (see Chatthip, 1991; Pasuk and Baker, 2000; Rigg, 1991 and 2001). They can be construed, in broad lines, as a cultural response to globalisation and to the destructuring aspects of the market economy on the local social fabric. To what extent population growth, agrarian pressure and the world integration make such changes inevitable, desirable, and controllable or not, or what are the shares of both internal and external agents of change and the autonomy of people to respond to them, are of course highly controversial issues.

¹² It is interesting to note that the vision, commonplace in the 19th century and in the 20th century at least until the 1960s (see Kamol, 1955), of farmers as lazy, indulging in gambling and drinking, and idle half of the year, while those apparently poor are stupid, stubborn, and self-indulgent, has been replaced by one where farmers are pictured as victims, and where their virtues are extolled to the point where they are presented as a normative alternative for a society in crisis. The shift corresponds to the emergence of “urban bias” theories and of populism in general, together with political economy.

¹³ Putting aside the specific case of Rangsit and other landlord areas before WW II, Visser considers that “There is also no question of class distinction, or rather of classes per se. The local elite does not form a unity. They do not work together. They make no agreements on their economic actions as far as each other’s clients

are concerned and, they do not meet on the village political scene. Neither do the poorer farmers form a class.”

¹⁴ I have surveyed groups of neighbouring villages in the delta which, if studied in detail, would have yielded very contrasting pictures. In some villages, the farming population was reduced to less than 10%, while in adjacent ones intensive rice farming was still dominant. The choice of the “village” is thus necessarily oriented by the focus adopted for the investigation. The articulation and consolidation of local studies must therefore be achieved in parallel with a macro spatial characterisation of the most important variables (land use, farm structure, demography, etc). For the delta, the reader is referred to Kasetsart University and IRD (1996).

¹⁵ There are many significant issues and topics which have never been addressed in detail, including the following. What is the real competitiveness of marketing channels down to the consumer level? What factors govern the response to engage in the different categories of activity? What is the importance of temples in the social and economic life of communities, and how does this change? What is the performance of groups fostered by the government? What are the real extent and causes of indebtedness? What are the causes of land sale and how is the decision taken to give up farming? How does the world view of the peasant change? What are the socio-economic trajectories of households over the generations (how does accumulation work and does it endure, what is the degree of social mobility)? The answers to these questions will, of course, vary over time.

¹⁶ This prompted Vandergeest (1987) to state that “what is required in future work is less deductive theorising on the mode of integration into the market from a point of view of the logic of the centre, and more inductive research ‘from the periphery’ through which we can more clearly understand how peasants have a hand in shaping the trajectory of capitalist development.”

Chapter 3

Ethnic groups in the central plain of Thailand: the setting of a mosaic

Jean Baffie

3.1 Introduction

Rough ethnic maps of Thailand present a central region almost entirely Thai. For example, the map on ethnic groups, published in a 1972 US army book, only mentions the presence of Chinese—in large numbers—and Mon south of Lop Buri along the Chao Phraya River (*Peninsula Southeast Asia*, 1972: 414–15). The *Map of Thai speaking ethnic groups*, which was published in 1985 by the CeDRASEMI Research Institute of Paris, gives a more reliable idea of the presence of Lao, Lao Phuan, and Lao Song in the provinces of Nakhon Pathom, Suphan Buri, Ayutthaya, Prachin Buri, etc., but the region of Bangkok, Nonthaburi, Pathum Thani, Samut Prakan, Samut Sakhon, Samut Songkhram seems only peopled by Siamese Thai (Clément *et al.*, 1985). A crude map of “Ethnic groups of central Thailand” published in a 1978 geography handbook mentions only Siamese, Mon, and Khamu (?), and the last two groups are situated in the Mae Klong upper basin. The author, W. Donner, does not hesitate to add: “There is hardly a region in Thailand that is more homogeneous with respect to its ethnic composition. The central plain proper is exclusively settled by Siamese, apart from a few Chinese shopkeepers in the towns” (Donner, 1978: 254).

Monographs on single central provinces or districts usually provide a quite different view. In a Thai language booklet on Nonthaburi, a province now incorporated in the Greater Bangkok Region, we find, for instance: “Local people are from several races, that is Mon, Thai Muslims, Indians, Burmese, Chinese and Thais and those who believe in Christian faiths such as the Catholics. As for the

Thai people from Mon ancestry they are very numerous.” (Klum rongrian, 1977: 30). Regarding Nakhon Nayok, another province situated northeast of Bangkok, an introduction to a collection of local customs openly states that “the province of Nakhon Nayok has several races in diverse localities such as Thai, Phuan, Lao, Mon, Chinese and Muslim. They are scattered in four districts: in Muang district one half of the population is Lao . . . from Vientiane, in Pak Phli district the majority of the population is Phuan or Lao Phuan . . . in Ban Na district the population is composed in majority of central Thais, and in Ongkharak district the majority of the inhabitants are Muslims¹, but people of Mon race are scattered in places close to Pathum Thani province where they had lived 50–60 years ago” (Sun watthanatham, n.d.: 1). A recent publication of the Lao Song of Uthong district, Suphan Buri province, gives a third example. It shows that in this district northwest of Bangkok one can find Thai, Chinese, Vietnamese, Lao Song, Lao Wiang, and Lao Khrang². Only 3 of 13 sub-districts are said to be inhabited by ethnic Thai (Manita, 1998: 9). The impression of a mosaic is even better given by a research on Ban Pong and Photharam, two districts in Ratchaburi province. Ethnic groups (Thai, Mon, Chinese, Lao, Khmer) are indicated by number of families at the level of the villages or sub-districts (Niwat, 1992: 203).

Books published in the first three or four decades of the 20th century also were more straightforward on the subject. The first geography textbook (published in 1925) indicates that the central plain was inhabited by about 3.5 million people in 1915. The ethnic groups or nationalities mentioned were Thai, Chinese, Japanese, Cambodian, Mon, Vietnamese, *Khaek* [Muslim], Burmese, *Tong Su* [Pow Karen], and European (Krom Tamra, 1925: 88, 90). A book for the general public published fourteen years later, gives a slightly different list of groups including “the indigenous Thais, the very numerous Chinese of the different linguistic groups, the *Khaek*, the Vietnamese, the Cambodian, the Burmese, the *Tong Su*, the Japanese and the European.” (“Suan Pleng”, 1939: 9). During the year 1934, a number of members of parliament gave lectures on the situation in their provinces. Many did not hesitate to list the diverse ethnic groups: “Thai, Lao Wiang, Lao Song, Lao Doem, Mon, Khmer, Karen, Chinese” in Ratchaburi, “Thai, Westerners, Muslims, Chinese, Burmese” in Nakhon Sawan, etc. (*Pathakatha*, 1935: 17, 89).

After that period, particularly during the 1940s, nationalistic governments attempted to obscure the multi-ethnic nature of the society of Thailand, probably because many members of the ruling elite were of foreign (i.e. Chinese) descent and because the dominant discourse at that time (among allies in central Europe) was centred on the purity of blood. In 1939, it was decided to change the names of

the districts and sub-districts which had names of non-Thai ethnic groups as components, such as *amphoe* Ban Thawai, *tambon* Sam Chin or *tambon* Ban Yuan Samsen (*Thetsaphiban*, 39, 7, 1939: 1978–82).

More accurate estimates, censuses, and statistical data were available in Thailand from the beginning of the 20th century. Based on an official but superficial 1902 census, a detailed estimate was made by W. A. Graham in which major ethnic groups are given (Dilok, 1908: 19).

Table 3.1 Estimate of population of ethnic groups for six circles (*monthon*) around 1902

Circles	Bangkok	Nakhon Sawan	Ratchaburi	Nakhon Chaisi	Ayutthaya	Prachin Buri
Siamese	302,000	200,000	59,000	100,000	189,000	181,000
Lao	15,000	70,000	35,000	20,000	50,000	50,000
Chinese	200,000	10,000	40,000	43,000	50,000	50,000
Mon	80,000	-	40,000	-	10,000	-
Malay	30,000	-	10,000	-	15,000	-
Cambodian/ Vietnamese	20,000	-	-	5,000	10,000	40,000
Shan/Burmese	3,000	-	-	-	-	3,000
Karen/Hill Tribes	-	20,000	80,000	-	-	-

Source: Dilok, 1908: 19 (from W. A. Graham).

From January to May 1904, a first census was carried out in twelve of the eighteen circles. As it took place before the rise of Thai nationalism, “races”—i.e., ethnic groups—were mentioned. Circles covering the central plain included Ayutthaya, Nakhon Chaisi, Ratchaburi, Nakhon Nayok, and Nakhon Sawan. Following is a summary of the results, taken from research done by V. Grabowsky.

Other censuses have been regularly carried out in Siam during the first half of the 20th century but their reliability is not fully established and comparisons are possible only in a few cases. If we try to compare the 1904 census (Table 3.2) with the 1932 census, we notice that some “races” (Mon, Karen) are not mentioned in 1932 since the census is supposed to indicate nationalities instead of “races.” Oddly enough, the 1932 statistics are aggregated in some cases (Indian and Malay,

Table 3.2 Population of selected circles (*monthon*) by “races” in 1904

	Ayutthaya	Nakhon Chaisi	Ratchaburi	Nakhon Sawan
Chinese	18,615	33,992	38,767	6,283
Malay	5,235	-	1,380	-
Khmer	-	3,135	19,886	-
Mon	2,532	6,822	12,806	2,943
Karen	-	1,232	6,288	10,819

Source: V. Grabowsky, 1996: 63–65.

Cambodian and Annameese). Even when comparisons are allowed it is not clear why the Chinese population in Nakhon Chaisi and Ratchaburi circles is shown to decrease, after almost three decades of massive Chinese immigration to Siam.

Table 3.3 Population of selected circles (*monthon*) by nationality in 1932

	Bangkok	Ayutthaya	Nakhon Chaisi	Ratchaburi	Nakhon Sawan
Siamese	645,806	814,703	445,423	550,473	488,057
Chinese	241,277	23,843	24,762	25,426	10,038
Indian and Malay	31,800	11,255	185	2,788	484
Cambodian/Annameese	634	6,697	3,285	117	94
Shan and Burmese	490	28	1	331	1,237
Japanese	213	2	0	0	0
White Race	1,354	13	9	74	7
Others	43	98	877	148	13,054

Source: Department of Statistics, 1933: 46–47.

The 1937 census is the first one to indicate ethnic groups by provinces and not by circles. Table 3.4 covers 22 provinces, with Bangkok and Thon Buri appearing as two distinct provinces. Comparisons with previous censuses suggest that this latter census is in many cases far from reliable³.

Table 3.4 “Races” in selected provinces of the central part of Thailand in 1937

	Thai	Chinese	Viet	Khmer	Burmese	Indian	Javanese	Malay	Total
Bangkok	536,251	346,701	375	32	66	3,681	875	238	889,538
Thon Buri	289,343	56,630	58	14	56	1,408	70	128	347,816
Nonthaburi	123,274	4,451	10	2	0	46	17	817	133,623
Pathum Thani	131,103	11,309	32	10	4	22	0	1	142,488
Samut Prakan	148,690	34,154	3	3	0	239	4	40	163,137
Chachoengsao	223,403	18,645	103	6	1	664	9	52	242,898
Nakhon Nayok	112,019	4,937	7	11	0	27	0	1	117,004
Ayutthaya	361,384	12,274	43	2	0	179	3	0	373,889
Lop Buri	200,266	1,734	6	0	0	34	0	1	202,141
Saraburi	197,974	9,002	17	1	0	54	1	0	207,051
Sing Buri	112,118	3,537	0	1	0	13	0	0	115,669
Ang Thong	145,921	4,540	6	2	2	38	0	0	150,515
Chai Nat	116,748	4,152	15	3	2	39	0	2	170,962
Uthai Thani	101,615	2,867	49	0	2	17	0	0	104,550
Nakhon Sawan	364,667	14,155	33	0	20	189	0	0	379,077
Samut Sakhon	102,160	11,488	1	3	0	22	0	0	113,673
Nakhon Pathom	244,453	29,123	3	0	0	82	2	0	273,683
Suphan Buri	321,811	19,195	6	1	1	25	0	0	341,039
Phetchaburi	172,653	7,151	9	1	2	432	0	3	180,251
Ratchaburi	278,188	23,227	50	4	2	62	0	3	301,563
Samut Songkhram	116,898	9,667	3	2	1	5	0	0	126,592
Kanchanaburi	131,546	9,102	3	3	81	48	3	11	140,812

Source: Krasuang Mahatthai (Ministry of Interior) 1941, 5: 156–313.

3.2 Multi-ethnic states in historical central Siam

It is only quite recently that Thai historians dare investigate ethnicity in the early stages of the history of the region. Before, they just mentioned the languages of the inscriptions (Indian languages, Khmer, Mon) and the art style in favour: Dvaravati art style meant Mon style, and Lop Buri style was equivalent to Khmer (or Khom) style.

From the 1980s onward, some Thai historians (as well as linguists and art historians) have formulated new visions of these early periods. From the 6th to the 11th centuries, the major part of central Thailand was occupied by the state of Dvaravati. Because of its art style and the language of its inscriptions it was admitted that Mon peopled this area. Thida Saraya tried to demonstrate that Dvaravati was a multi-ethnic state, a melting-pot of which Mon and Tai peoples were the majority but which also included Indians, Chinese, Vietnamese, and many other minority groups (Thida, 1989: 31–3, 166–67, 173, 247–48). According to Thida, this mixed ethnicity was the basis of all the following societies and cultures that later occupied central Siam.

The heterogeneity of the society was increased by the practice of deporting neighbouring populations to the core of its own principality. “*Kep phak sai sa kep kha sai muang*” (put the vegetables in the basket and the people in the kingdom) was the usual method to increase population of ancient kingdoms in continental Southeast Asia before the 20th century (Kraisri, 1978). Indeed, one of the most important reasons to engage in war was to invade neighbouring kingdoms and, when troops returned—be they victorious or defeated—to bring back as many civilian families as possible. When reading the official chronicles we sometimes must guess that the true objective was not victory at war but rather the necessity to take war captives to repopulate the country, particularly the fertile rice-growing central plain. Even more than having rich land, controlling a large manpower was the real wealth in these times (Akin, 1975: 94–95).

The city of Ayutthaya, capital of a kingdom from 1351 to 1767, was a very cosmopolitan place, especially in the 17th century when many European missionaries, merchants, ambassadors, adventurers, and soldiers made the journey to Siam. Several maps drawn by missionaries indicate where the camps (or villages) of the Chinese, Malay, Macassar, Mon, Japanese, Annamese, Portuguese, French, etc., were situated. Articles on foreign settlements in Ayutthaya are frequently published in Thai magazines (Khanita, 1973, 1984; “Foreign settlements”, 1978.). The Portuguese and the Japanese villages have been rehabilitated.

Bangkok of the 19th century was not different. L. Fournereau, who visited the city in 1891–92, compared Bangkok to the Tower of Babel (“All the races of Asia are present, here”) and mentioned Siamese, Chinese, Hindu, Annamese, Cambodian, Laotian, Mon, Karen, Chong, Lawa, Malay, Burmese, and most of the nations of Europe (1894: 16).

A growing contingent of contemporary ethno-historians seem to think that Thai is a useful “ethnic” name to designate the majority of the population of the central plain, but that it is also a political creation. Most of the people that we call “Thai” are probably from mixed Lawa, Khmer (Khom), Mon, Lao, and Indian ancestry. “Formerly, the Mons, the Lawa and the Khmers formed one single nation” asserted Prince Damrong Rajanubhab, the foremost (royal) scholar of the first half of 20th century, in a classic booklet on Lop Buri (Damrong n.d.: 2).

3.2.1 Lawa

If Thai contemporary researchers hesitate to mention the ethnicity of people who preceded the Thai along the Chao Phraya River, it was different in the past. Thus, a guidebook published in Bangkok in 1930 states: “What is now Siamese territory was in remote times inhabited by Lawas and other tribes belonging most probably to the Mon-Khmer family . . . their name can still be traced in the name of Lavapuri (Lop Buri), which is one of the most ancient sites of Siam” (*Siam Guide Book*, 1930: 2). According to one of the most distinguished scholars of the 1960s, from c. AD 150 Nakhon Pathom used to be the capital city of a Lawa kingdom which later took the name of Dvaravati (Wichitmatra, 1966: 32, 34).

Today, the Lawa or Lua number less than two thousand in Thailand and live mostly in Mae Hong Son, Chiang Rai, and Chiang Mai provinces at the northernmost part of Thailand. They are linguistically related to the Mon-Khmer family. However, in the central region, the “Tribal population summary” mentions the existence of three Lua villages, with 22 households and 101 persons in Uthai Thani and two villages with 27 households and 135 persons in Suphan Buri (McKinnon and Vienne, 1989: 424–26).

3.2.2 Mon

“The Lawas may be considered as rather rough country cousins of the Mons” wrote the two amateurish—but usually reliable—ethnologists of the period from 1930 to the 1960s (Kerr and Seidenfaden, 1950: 13). According to the old school of thinking

it was either the Lawa or Mon that controlled the central region of Siam—around Nakhon Pathom—before the coming of the Thai (Subhadradis, 1969: 9).

The Mon communities could be found as far as Prachin Buri province where one encountered a village named Ban Mon in Rop Muang sub-district. Quite often topographical elements in the provinces indicate places that used to be inhabited by Mon—as in Bangkok and Thon Buri with *Ban* (village) Mon (or *Ban Raman*), *khlong* (canal) Mon, *saphan* (bridge) Mon. Thus, for instance, we find a *Tha* (harbour) Mon village in the Hom Kret sub-district of Nakhon Chaisi. But in most cases no available document gives more information on the origins of these communities and the dating of the place names. In most cases, the Mon communities designated by these toponyms were settled during recent centuries.

3.2.3 Khmer

Pre-Sukhothai northern, central, and eastern central regions of Siam were under Khom rule. The problem is that not all Thai historians are ready to accept a direct link of descent between ancient Khom and modern Khmer.

A recent article by a professor in linguistics at Thammasat University formulated the interesting hypothesis that Ayutthaya was a bilingual society where people used both Thai and Khmer languages in their daily life. At the end of the Ayutthaya period there was a language shift and the Thai language alone was spoken, but a Thai so modified by the influence of Khmer that it distinguished itself from the other Tai languages of the region (Wilaiwan, 2001). Going a step further, it could be hypothesised that Khmer speaking people—or a variety of ethnic groups with a probable majority of ethnic Khmer—were living in the Chao Phraya Basin when the Thai made their appearance as another ethnic minority which eventually gained political power. Erik Seidenfaden (1967: 97), in his famous, *The Thai peoples* talked of the “Thai of the Menam plain (the Siamese) sometimes called Thai Khom (because of the heavy mixture of Môn-Khmer blood in their veins).”⁴

3.3 Economic migrants: the Chinese

Recent censuses in Thailand do not record ethnic groups. However we can probably get a good indication of the distribution of the Chinese population in Thailand from the number of Chinese nationals for every province, especially in the census following the last major migration in the years 1947–50.

Table 3.5 Chinese nationals in the provinces of the central plain of Thailand (1960)

Province	Number	Percentage	Province	Number	Percentage
Bangkok	167,930	41.1	Nonthaburi	3,522	0.9
Thon Buri	36,871	9.0	Kanchanaburi	3,513	0.9
Chon Buri	13,941	3.4	Samut Songkhram	3,155	0.8
Nakhon Pathom	9,400	2.3	Saraburi	3,148	0.8
Ratchaburi	8,298	2.0	Phetchaburi	2,887	0.7
Suphan Buri	7,345	1.8	Ang Thong	1,826	0.4
Nakhon Sawan	6,934	1.7	Chai Nat	1,805	0.4
Chachoengsao	6,426	1.6	Nakhon Nayok	1,727	0.4
Samut Prakan	5,026	1.2	Lop Buri	1,601	0.4
Ayutthaya	4,730	1.2	Sing Buri	1,495	0.4
Pathum Thani	4,124	1.0	Uthai Thani	1,013	0.3
Samut Sakhon	4,087	1.0			

Source: Nonsi, 1971: 8–9 (data are from the 1960 census).

According to these statistics, more than 73% of the Chinese nationals in Thailand were living in the central provinces. Just a little more than 50% were in the Bangkok–Thon Buri area, and as many as 23% were in the central region, particularly in the west and south-southeast of Bangkok.

Other data recorded around 1970 give an idea of the dynamism and the strength of the identity of the Chinese in the provinces. Official statistics show that 115 Chinese associations had been registered in the Bangkok–Thon Buri area, but only 17 in the other provinces of central Thailand (4 in Suphan Buri and Sing Buri, 2 in Chachoengsao and Chon Buri, and 1 in Chai Nat, Nakhon Pathom, Nonthaburi, Samut Sakhon, and Saraburi). Associations were much more numerous in the southern provinces (18 in Phuket, 4 in Ranong and Nakhon Si Thammarat, etc) (Sawek, 1971: 94–96). No fewer than 166 Chinese language schools could be found in Thailand at that time, of which 50 were in Bangkok–Thon Buri, 16 in the northeast, 25 in the south, 25 in the north, and 50 in the central provinces. Central provinces with the most numerous Chinese language schools were Nakhon Pathom (6), Chon Buri (5), Pathum Thani (5), and Ayutthaya (4) (Sawek, 1971: 83–91).

But these were only officially registered schools and it is known that a quite large number of small illegal schools were also active.

Thailand counts only 17 genuine Mahayana Chinese pagodas: 9 are in Bangkok, 2 in Chonburi province, and one each in Nonthaburi, Chachoengsao, Kanchanaburi, Chanthaburi, Hat Yai, and Chiang Rai. The Department of Administration of the Ministry of the Interior accurately records the various Chinese shrines (*san chao*) of Bangkok and the provinces. In 1994, 78 *san chao* were recorded for Bangkok. Then came the province of Nakhon Pathom with 53 *san chao*, Chon Buri with 49, Phetchaburi and Chanthaburi with 30, Ratchaburi with 28, Ayutthaya with 25, Samut Songkhram with 23, Songkhla with 22, Rayong with 21, Samut Sakhon, Chachoengsao, Suphan Buri, and Kanchanaburi with 18, Trang with 17, and Nakhon Nayok with 10 (Krasuang Mahatthai, 1994: 22–23)⁵. This indicator seems to be quite reliable regarding the southern and southeastern regions as it is doubtless that Songkhla (with Hat Yai) and Trang are the most Chinese provinces of the south, and Chon Buri and Chanthaburi the most Chinese provinces of the southeast⁶.

From these data, we assume that the provinces of Chachoengsao, Nakhon Pathom, Ratchaburi, Suphan Buri, Samut Prakan, Ayutthaya, Phetchaburi, Samut Sakhon⁷, Samut Songkhram, and Nakhon Sawan⁸ are certainly the most Chinese of the central plain provinces of Thailand⁹.

It is less easy to tell with a sufficient degree of assurance when the Chinese established themselves in these various provinces. Of course, they almost all came of their own will, one of the exceptions being the peculiar case of the traffic in Chinese—usually Cantonese—prostitutes. At times, Chinese families settled in neighbouring countries were brought to Siam with other indigenous families. We know, for instance, that, in the early 1830s, 500 Chinese families were brought from Cambodia to Bangkok, then settled in Nakhon Chaisi (*Prawat Chaophraya Badindecha*, 1961: 51).

Chinese settlers inhabited the region of Bangkok–Thon Buri–Nonthaburi before the capital was moved from Ayutthaya (Sanong, 1972: 25). When King Taksin resided on the western side of the Chao Phraya River, sources say that a Chinese village of which *phraya* Ratchasetthi was the leader occupied the site of the present Grand Palace (Wichitmatra, 1966: 57). Almost all the Europeans and Americans who went to Bangkok in the early 19th century and gave estimates of its population exaggerated the number of inhabitants, especially, the number of Chinese. Having examined most of these estimations, and the calculations made after the 1882 postal roll, Terwiel (1989: 233) concluded that the population of Bangkok during the first half of the 19th century “may well have ranged between

50,000, and 100,000" but declined to give an estimate of the ethnicity of that population. Other authors have used the same postal roll to calculate the population and ethnic distribution in Bangkok, but they have reached quite different conclusions. Sternstein (1982: 80) calculates less than 20% Chinese against nearly 78% Thai in the city of Bangkok proper, while Wilson (1989: 54) reckons 47% Chinese and 47% Thai in the inner city¹⁰.

B. J. Terwiel compiled most available data on the central region in the first half of the 19th century and, as an anthropologist turned historian, was most interested in ethnic groups. In the south—i.e., from Bangkok to the Gulf of Siam—"Chinese gardens of vegetables" are mentioned only in a map dated 1835 for the region close to Bangkok (Terwiel, 1989: 48). In the southwest—i.e. from Bangkok to Burma—there was already a strong Chinese presence, particularly along the Mae Klong River where missionaries found Chinese (Teochiu) villages and settlements (Terwiel, 1989: 67–68). They were cultivators, but several thousands of them were workers in the thirty or so sugar factories situated near Nakhon Chaisi. Actually, sugarcane plantations in Nakhon Chaisi and Chachoengsao are said to have been introduced to Siam by Teochiu Chinese in the early 1810s (Tanabe, 1977: 53).

In 1842, three Chinese secret societies of about 1,000 men each rebelled in Nakhon Chaisi and Samut Sakhon. Two were rapidly suppressed but the third one became a band of robbers (Thiphakorawong, 1961: 72). Six years later, trouble emerged again with a Chinese secret society in Samut Sakhon. In February 1848, about 400 rebellious Chinese were killed before they could escape to English controlled territory (Thiphakorawong, 1961: 123–26). However, on the whole, Terwiel concludes that in the early 19th century, there were only a few concentrations of Chinese in this region west (and northwest) of Bangkok, for instance near Nakhon Chaisi, but that their presence grew stronger later (Terwiel, 1989: 115).

During the reign of King Rama III (1824–51), to the east of Bangkok, Chinese were especially numerous in the region of Chachoengsao where many were employed in the sugarcane industry. On April 8, 1848, in Chachoengsao, members of a Chinese secret society robbed a sugar factory and killed one of the owners, also a Chinese. They resisted the local authorities and, on April 10, took over the city. Two royal armies and more than 10 days were necessary to subdue the revolt. Thousands of Chinese were killed by the Thai troops sent by Bangkok, and by ethnic Lao provincial troops and villagers who joined in the massacre (Thiphakorawong, 1961: 126–30; Kitcha, 1962: 47–56; Sunthon n.d.: 54–55).

North of Bangkok, in the first half of the 19th century, Chinese traders were active in most towns, but were exceptionally dominant in only a few places like

Sing Buri, Phrom Buri, and Tha Chanuan, now a sub-district in Chai Nat province (Terwiel, 1989: 151).

There were not many Chinese in the upper central provinces before the reign of King Rama III. In Chai Nat, for instance, it was under Rama III that the position of *nai amphoe chin* (Chinese head of the district) was created to assist local authorities when the Chinese community became too large (Supharat, 1993: 103).

The first Chinese communities in Siam, during the Ayutthaya period, were Cantonese and especially Hokkien from Fujian province (Yuwadi, 2000: 37). King Taksin (1767–82) being a Teochiu, the Teochiu group gained much favour from the authorities during his reign. By 1909, Teochiu already made up more than 53% of the Chinese in Bangkok (Suphang, 1991: 2). Hainanese Chinese like to say that, since they were late-comers in Thailand, they had to settle upcountry, from Nakhon Sawan to the northernmost provinces. However, the typical shrines to *Chao Mae Thap Thim*, the most popular Hainanese goddess in Southeast Asia, are present in the cities of the central plain. For instance, many Hainanese travel to Khunhlon sub-district, Phraphutthabat district in Saraburi every first new moon of the twelfth month to pay respect to their goddess. Shows of Hainanese *ngiw* (Chinese theatre) are also played (Chuam, 1986: 15). Hainanese actively participated in riverine commerce along the Chao Phraya and major canals of central Thailand (Hafner, 1974: 10). In his 1969 study Stephen Tobias reckoned the Chinese of Ayutthaya were 75% Teochiu, 12% Hainanese, and 6% Hakka, with Cantonese and Hokkien being too few to have any impact (Tobias, 1971: 69). In Ayutthaya (and the rest of the country), Teochiu dominated rice milling and small trade. Hainanese dominated saw-milling and operated restaurants and coffee-shops while Hakka were known as tailors and dealers in cloth and hardware. In the Ban Pong and Photharam districts of Ratchaburi province, Hainanese and Hakka Chinese grow vegetables, while Hainanese are also hairdressers and wood specialists (Niwat, 1992: 203).

At the beginning of the 20th century, in the Nakhon Chaisi district of the province of Nakhon Pathom, Chinese seemed to have cultivated rice even if this is contrary to the common belief that wet paddy growing was never done by Chinese (Suthon, 1975: 65). Of course, Chinese merchants were already rice millers and middlemen in the rice trade. Authors also talk of an ethnic Chinese monopoly in market gardening in the provinces surrounding Bangkok and those situated further west but well connected with the capital by waterways (Hafner, 1983). And Chinese almost everywhere are shopkeepers. In urban places, his house is what is called in English a “shop-house” (*tuk thaew*) where the ground floor is a shop and the other floors are living quarters and storerooms.

In places of the central region where no Vietnamese are known to be present but where Christian communities exist, those Christians—Catholics or Protestants—are nearly always of Chinese descent. For instance, in 1977, 0.18% of the population of the province of Nonthaburi were of Catholic faith—in the Ban Bua Thong and Nonthaburi town districts—and were most probably Chinese (Klumrong, 1977: 31). More than 100 years before, on December 22, 1842, a French missionary, M. Albrand, began a letter with “we have now Chinese Christians all over the kingdom” (*Annales de propagation*, 1844: 271). The Maitrichit Chinese Baptist Church was founded in 1835 and, in 1868, the American Baptist Mission decided to concentrate on the Chinese rather than the Thai.

The Chinese in Thailand are a very peculiar ethnic “minority.” During the absolute monarchy they were privileged people paying only one-fifth of the tax due by the Siamese and other ethnic groups (Dilok, 1908: 53). A former governor of Phetchaburi—M. Chaowas Sudlabha, a civil servant of Chinese ancestry who was later elected member of parliament for the province of Lop Buri—wrote, in 1985, “that in no other country in the world Chinese have been so well treated. In this country, the Chinese have been promoted noblemen, senior officials, members of governments, army commanders, even king” (Chaowas, 1985: 5). They have been generally so successful not only in the fields of commerce, industry, banking, but also in politics, religion, university, etc., that nowadays foreign scholars are the only ones to designate them as an “ethnic minority.”

3.4 Deported ethnic groups and refugees from neighbouring countries

3.4.1 Mon

With the exception of a few villages in some northern provinces (Chiang Mai, Lamphun, Tak) Mon people in Thailand live in provinces of the central region. According to the only available census for the years 1969–72, 30% of the Mon in the central region live in the provinces of Pathum Thani and Nonthaburi which belong to the Bangkok Metropolitan Region and more than 50% live in the four seaside provinces on the south and southeast of Bangkok (Samut Prakan, Samut Sakhon, Samut Songkhram, and Ratchaburi)¹¹.

In the past, Western scholars mentioned only three great immigrations of Mon into Siam (Halliday, 1954: 73). However, Thai sources seem to remember many more occurrences of Mon seeking refuge in Siam or being sent as prisoners of war. In a recent work, an author enumerates nine kings that permitted major migrations

Table 3.6 Distribution of the Mon in central Thailand in 1969–72

Province	Villages	Persons	Province	Villages	Persons
Pathum Thani	151	22,230	Samut Prakan	27	3,486
Samut Sakhon	44	20,312	Ayutthaya	18	2,071
Ratchaburi	47	15,480	Nakhon Pathom	7	1,869
Bangkok	33	8,212	Uthai Thani	15	1,514
Nonthaburi	18	6,734	Samut Songkhram	6	1,190
Lop Buri	11	4,378	Phetchaburi	5	991
Thon Buri	9	3,543	Saraburi	8	419

Source: *Anuson*, 1996: 26–27; Purakasikara, 1998: 12.

of Mon: six sovereigns during the Ayutthaya period, King Taksin (1767–82), King Rama II (1809–24) and King Rama III (1824–51) (Vadhana, 1998: 10–11).

R. Halliday, a pioneer in Mon studies, wrote that “they are found almost all over the country” (Halliday, 1954: 75). As early as 1686, a French visitor wrote that Mon war captives peopled nearly half of the kingdom (Choisy, 1741: 536). Indeed, less than 30 years before, a large number of Mon—maybe as many as 6,000 people (*Nitthasakan*, 1979: 1)—had sought refuge in Siam and had been settled near Samkhok, in Pathum Thani. And this was not even the first migration of modern Mon into Siam. The following is a list of more than ten migrations recorded (Vadhana, 1998: 10–11):

1. In 1584, under King Maha Thammaracha, as many as 10,000 Mon came to Siam as refugees and were settled in several villages around the city of Ayutthaya.
2. Under King Naresuan two migrations of Mon took place, the first one in 1593 and the second one in 1595.
3. In 1641, under King Prasatthong, Mon families amounting to more than 20,000 people sought refuge in Siam, and were settled in Nakhon Sawan and near Ayutthaya.
4. Under King Narai, two migrations have been recorded. In 1660, about 10,000 Mon came as refugees and were established at Samkhok, now in Pathum Thani province.
5. Two years later, in 1662, a number of Mon families were deported as prisoners of war and settled in Nakhon Nayok, Ratchaburi and Kanchanaburi.

6. At least 4 migrations took place under the reign of King Baromakot (1732–58). In 1744, a Mon governor in Burma conducted 300 Mon families to Siam. They were settled in Ayutthaya. We do not have details on the other migrations that occurred in 1755, 1756, and 1758. Since that period, Mon families have taken residence in Bangkok and the provinces of Pathum Thani and Nonthaburi, specially in Pak Kret and Samkhok.
7. In 1760, a few years after an independent Mon state fell to the Burmese, about 1,000 Mon who refused to submit to the conquerors went to Siam and settled in Kanchanaburi.
8. In 1774, under King Taksin, a major migration took place under the conduct of Phraya Cheng, a hero of the Mon of Thailand. They peopled the regions of Nonthaburi and Pathum Thani. In Nonthaburi, for instance, newly arrived Mon families settled down in Tha Sai, Ban Talat, Ko Kret, Bang Phut, and Bang Ta Nai sub-districts, where they succeeded in keeping alive many of their original customs and handicrafts (ceramics, basketry, cakes).
9. In 1815, under King Rama II, who had Mon blood from both sides, political asylum was granted to 30,000–40,000 Mon after a failed revolt in the Martaban region of Burma. These “New Mon,” as they were called, were settled in Bangkok, Pathum Thani, Nonthaburi, Samut Sakhon, and Ayutthaya. In the same year, the king sent 300 Mon from Pathum Thani to defend the new port town of Samut Prakan.
10. Under King Rama III (1824–51) about 3,000 Mon families migrated to Kanchanaburi and were later established in Bangkok near Chana Songkhram pagoda.

Mon families sometimes had a long journey before settling down definitively in a province. For instance, the Mon of the Bang Kradi village in Saem Dam sub-district of Bang Khun Thian fled Burma during war and went first to Mae Hong Son, the northernmost province of Thailand, then to Ayutthaya, Bangkok, then Kanchanaburi before settling in Ban Kradi, a district of Bangkok bordering the Gulf of Thailand (Sun wichakan, 1996: 23).

Mon influence was very strong under Kings Taksin, Rama I (1782–1809), and Rama II (1809–24). King Rama I had Mon ancestors and married a Mon girl from Amphawa (now in Samut Songkhram province). The Mon of Thon Buri probably helped Rama I to ascend to the throne of Siam (Baffie, 1990: 72). This king twice attempted to liberate the Mon country from Burmese domination. He failed but Mon families were always welcome on Thai soil. Mon families arriving in Thai

soil were usually met at border towns by higher officials and royalty and conducted to places of choice. It was as if portions of Mon territory had been displaced to Thai soil. The villages had the same Mon names they had in Burma, and language, administration, law, and customs hardly changed.

In contrast with the Cambodians and the Lao people of Thailand, who share the same Buddhist beliefs, the Mon have received the privilege of setting up their proper Buddhist sect, with monks using texts in Pali and Mon languages. In some districts such as Samkhok in Pathum Thani, Mon are a majority with 53% of the population against 40% Thai, 5% Malay-Muslim, and 1% Chinese. In the district town of Pathum Thani, Mon are still 40% but Thai are the majority, with 52%, 5% Muslims, and 3% Chinese (*Prawat muang samkhok*, 1971: 22, 44).

Mon in Thailand are wet paddy cultivators like the Thai peasants. Living close to Bangkok some prefer to specialise in gardening and cultivate fruits and vegetables. Mon potters are famous all over Thailand and on weekends many Thai tourists visit the kilns on the Mon island of Ko Kret in Nonthaburi province. Mon jars are especially famous. For a long time Mon seem to have been specialists in brick making to such a degree that in Thailand locally made bricks are called “Mon bricks” rather than Thai bricks (Sayam, 1990: 15–19). Mon are also well-known all over central Thailand as experts in thatching with nipa leaves. As no discrimination has ever been made against them, many Mon have entered government service (Sucharitlak, 1995: 11–12).

Brian L. Foster, who studied the Mon of Thailand in the early 1970s, wrote in 1973 that Mon society and culture had disappeared in many areas and were highly attenuated in most others. He estimated that “the possibilities for the further retention of Mon ethnicity in Thailand was not favourable” (Foster, 1973: 220, 223). Illegal or semi-legal immigration of Burmese nationals—among which ethnic Mon seem to be quite numerous—for the last ten or fifteen years may have an effect on a possible “remonisation” of the Thai of Mon ancestry, also encouraged by the necessity of tourism promotion.

3.4.2 Malay

From the end of the 18th century or the beginning of the 19th century we know that the majority of Muslims in central Siam have been ethnic Malay¹². Statistics from the Department of Religious Affairs are available for a long period. Table 3.7 shows the number and percentage of Muslims in the central provinces of Thailand for 1960, before the modernisation and industrialisation of the economy, the

Table 3.7 Muslims in selected provinces of central Thailand in 1960

Province	Number	Percentage	Province	Number	Percentage
Bangkok	90,830	5.75	Pathum Thani	7,725	4.07
Chachoengsao	19,462	6.03	Nakhon Nayok	6,880	4.41
Ayutthaya	18,906	3.94	Samut Prakan	4,605	1.96
Thon Buri	13,275	2.37	Phetchaburi	4,301	1.80
Nonthaburi	12,016	6.12	Ang Thong	2,034	1.02

Source: Krasuang Suksathikan, *Krom Satsana* 1965: 184–86. In all other provinces, the percentage of Muslims is under 1%.

subsequent interregional and inter-provincial migrations, and the development of international tourism.

In 1960, more than 80% of the Muslims of central Thailand inhabited Bangkok–Thon Buri and nearby provinces. Besides these provinces and those of Ayutthaya, Phetchaburi, Chon Buri, and Ang Thong, other places of central Thailand had only a few Muslim families. Since then Muslim populations have certainly increased. For instance, Chai Nat province has gained almost one hundred Muslim inhabitants between 1960 and 1980, from 158 to 256 (Samnak Nayok Rattamontri, 1983: Table 3.2). But we do not know their ethnic affiliation: Malay or South Asian?

Strangely enough, in an article on Muslims in the kingdom of Ayutthaya, an American specialist of Islam in Thailand mentions Persian¹³, Indian, Indonesian, Cham, and Chinese Muslims but fails to say anything about the Malay communities. He concludes that “the Iranian, Indian, Indonesian, and Cham Muslims settled in Ayudhya and at times intermarried Thais to create the original nucleus of the Muslim population in the central Thai region” (Scupin, 1980: 71). However, “ethnic” maps of Ayutthaya drawn during the 17th century show the emplacement of a Malay village at the southeast of the city, located between the Cochinchinese and Portuguese villages and the settlement of the Macassars. We know that at least once, under King Prasatthong, after a suppressed revolt in Pattani in 1636, Malay families were sent to central Siam (Nantha, 1970: 133). In 1686, when the larger part of the Muslims near Ayutthaya raised a revolt, we are told that 300 Malay refused to join but other Malay took part (Turpin, 1771: 34–35). However, the approximate estimate of three or four thousand made by La Loubère in 1687 is probably exaggerated (La Loubère, 1691: 112).

From the large array of data compiled by Terwiel for the first half of the 19th century, we can conclude that several Malay villages were already established (and still are) in the south of Ayutthaya. However, during field research trips in this region at the end of the 1980s, we learned that not all of these Muslims had Pattani Malay ancestors. Some of these villagers probably have Cham (or Persian) origins.

In the province of Ayutthaya today, at least two districts have sizeable Muslim communities. As much as 44% of the population of Lat Bua Luang district is of Islamic faith, and there are more mosques (15) than there are Theravada Buddhist pagodas (13). In Wang Noi district we find 5 mosques against 19 pagodas (Krasuang Mahatthai, 1983: 121, 125). However, these districts are close to the provinces of Nonthaburi and Pathum Thani, where Muslims of Malay ancestry are numerous. Muslims of the Bang Kraso sub-district and Talat Kaew village in Tanaosi sub-district of Nonthaburi have settled there during the Ayutthaya period (Krom Sinlapakon, 1948: 81; *Nonthaburi*, 1992: 13).

The oldest mosque of the Bangkok region, the Ton Son Mosque on the Thon Buri side of the river, also dates back to the Ayutthaya period (Khana kammakan, 1982: 451–52). In Bangkok proper¹⁴, a few Malay settlements used to be scattered in central districts. Chakkraphong mosque in Phra Nakhon district, Mahanak mosque in Pom Prap district, Darul Aman mosque on Phetchaburi Road, and a few other mosques on both sides of the Chao Phraya River were the heart of historical Malay settlements in Bangkok. But more frequently Muslim of various ethnic origins are registered in a mosque roll. A good example is Luang Kocha mosque on Song Wat Road in Chinatown, where Tamil, Yunnanese Chinese and Malay—some from the Thon Buri side of the river—come to pray and attend religious ceremonies. Information is usually posted on the walls in three or four languages.

In 1786, King Rama I asked his troops to punish the sultan of Pattani who had refused to recognise the sovereignty of Siam. The sultan was defeated and a large number of Muslim families—4,000 persons in all (?) (Kettani, 1986: 139)—were brought to central Siam as war captives and scattered in places such as Bangkok (Mahanak Canal, Minburi, and Nong Chok), Thon Buri (Ban Khaek), Nonthaburi (Pakkret), Nakhon Nayok, Chachoengsao, Phetchaburi, Ayutthaya, and the seaside provinces of Trat, Chon Buri, and Rayong (Ong-at, 1994: 29; Sorasak, 1996: 65). We know also that in the early 1820s about 1,000 Malay from Kedah were sent to Bangkok to become slaves of the Siamese king and higher officials (Ahmat, 1971: 988–99). Malay of the Tha It sub-district of Pak Kret district, Nonthaburi province, are from Saiburi in southern Thailand and were displaced under the reign of King Rama III (1824–51) (Sanong, 1972: 24). Today, in Nonthaburi province, Malay are

present in a larger number in Bang Bua Thong district, but can also be found in the Tha It sub-district of Pak Kret district, and the Talat Khwan and Suan Yai districts of the Nonthaburi town district. In 1977, a source indicated that about 6% of the population of the province of Nonthaburi were Muslims (Klum rongrian, 1977: 31).

At the beginning of the reign of King Rama V (1868–1910), or more probably when *chaloai* (prisoners of war) were emancipated, these families moved to places near Bangkok, especially along the Saen Saep Canal up to Min Buri (Sai Kong Din sub-district) and in Nong Chok. In 1976, for instance, 27 mosques had been officially registered in the Phra Khanong district of Bangkok, 26 in the Min Buri district and 27 more in the Nong Chok district (Thamniap, 1976: 639–44). According to Ong-at (1994: 17), the oldest mosque in Min Buri, Kamalul Islam mosque, was built around AD 1844. No fewer than 50 mosques have been recorded for Chachoengsao province east of Bangkok of which 36 are in Ban Bang Nam Priao district.

Regarding provinces with smaller Muslim communities, only very meticulous documentary research and in many cases only field research could allow us to determine their origins, but only if the communities are prepared to reveal it. Often the communities prefer to conceal what they consider as factors of possible segregation, particularly if they do not belong to the Malay group. For example, at the end of the 1970s, the province of Samut Prakan had 8 mosques. The oldest one, in Phra Padaeng district, had been erected in 1920. In some villages or urban neighbourhoods Muslims are from a large number of ethnic groups.

3.4.3 Chams, Macassar, and Javanese

Although most of the central plain Muslims are Malay having their origins in southern Thailand and provinces now included in Malaysia, we know that during the second half of the 17th century Cham and Macassar settlements could be found in the southeast of Ayutthaya. As early as 1594, Cham military men are mentioned as part of the Siamese army. According to Khmer and Siamese chronicles, in 1658, Cham princes with 773 Cham (or families) from Cambodia took refuge in Siam. The *Krom asa Cham* or regiment of Cham volunteers was soon to be institutionalised as a branch of the navy. It was only abolished during the very first years of the 20th century when the navy was modernised. However, at least from the reign of Rama I (1782–1809), Malay served as sailors and officers in this regiment. From the early Bangkok period, their garrison village, Kampong Asa Cham—later called Ban (Khaek) Khrua—was situated along Mahanak Canal in the east of Bangkok. In 1812–13, thousands of Cham prisoners-of-war were sent to Siam where they

increased the population of Ban Khrua that formed almost three separate villages. A number of other Cham families settled in Ban Khrua during the first years of the 20th century (Baffie, 1987: 9–14).

The failed Muslim revolt against King Narai of Ayutthaya in 1686 is well documented because of the presence of a large number of Europeans—Frenchmen in particular—in Siam at that time. At the head of the conspiracy was a Macassar prince with about 300 of his followers who had sought refuge in this country when the influence of the Dutch became too oppressive in their native Celebes. The plot aimed to kill the king, take over the kingdom, and give the population the choice between death and conversion to Islam (Forbin, 1991: 69–70; Turpin, 1771: 34). The French troops that had been placed under the service of the Siamese king helped suppress the rebels of whom almost none could escape.

Muslim Javanese came and settled in Thailand—essentially Bangkok—from 1862 to 1945, when Indonesia got its independence from Holland. There were only 163 Javanese in Bangkok in 1870, 1,980 in 1915, and 2,116 in 1920. Javanese were then probably the second Muslim minority in Bangkok after the Malay (Kannikar, 1998: 36, 58). About 50% of them inhabited the three districts of Ban Thawai (Yannawa), Bang Rak, and Sathon, where four of their five mosques were built, the exception being *Indonesia* mosque, built in 1949 in the Wireless Road neighbourhood. According to statistics for the 1927–32 period, Javanese in Bangkok were shopkeepers (49%), gardeners (27%), labourers (10%), and drivers (Kannikar, 1998: 62–65). As in the case of many other Muslims living in downtown districts of Bangkok, Javanese progressively moved to larger Muslim communities in the suburbs: Bang Kapi, Min Buri, Nong Chok districts in the east, Nonthaburi and Pathum Thani provinces in the north.

Muslims make up approximately 30,000 of the estimated 100,000 South Asians in Thailand. Most of these Pakistani, Tamil, and Bengali live in Bangkok—near the French Embassy and at the junction of Silom Road and Charoen Krung Road—and a few towns in southern and northern Thailand. In central provinces, South Asians are few but locally very influential. For example, in June 1980, a serious conflict exploded in the Chainarai sub-district of Lop Buri between villagers and the family of a Pakistani-born rancher (*Bangkok Post*, 23 June 1980: 2).

3.4.4 Vietnamese

Using statistics of 1960 and 1965, Peter A. Poole found fifteen settlements of Vietnamese in the central plain. All are not as well known as those of Bangkok, of

the northeast (Nong Khai, Sakon Nakhon, Nakhon Phanom, and Ubon Ratchathani provinces), or of the eastern coast (Chanthaburi, Rayong, and Trat provinces) but they are scattered in many of the central provinces, mainly Ayutthaya, Sing Buri, Suphan Buri, Nakhon Sawan, Lop Buri, Nakhon Nayok, Nakhon Pathom, Nonthaburi, Samut Prakan.

Table 3.8 “Old Vietnamese” in central Thailand in 1960–65

Village or district	Province	Number	Village or district	Province	Number
Samsen	Bangkok	3,000	Ban Mi	Lop Buri	397
Phrom Buri	Sing Buri	1,040	Phak Hai	Ayutthaya	334
Song Phi Nong	Suphan Buri	935	Ban Lao	Nakhon Nayok	180
Bang Pa-in	Ayutthaya	850	Bang Bua Thong	Nonthaburi	75
Sena	Ayutthaya	790	Nakhon Chaisi	Nakhon Pathom	50
Bang Sai	Ayutthaya	530	Pak Nam	Samut Prakan	40
Ayutthaya	Ayutthaya	500	Pak Lat	Samut Prakan	20
Nakhon Sawan	Nakhon Sawan	500			

Source: Poole, 1970: 30 (table 2).

We know from missionary sources that in 1662–63 about 300 Vietnamese Catholics lived in Ayutthaya (Forest, 1998: 168). In 1686, there were 200 Catholics among the 300 inhabitants of the Vietnamese village of Ayutthaya (Forest, 1998: 227). After 1739, a second Vietnamese Catholic camp *de facto* came into existence in Ayutthaya when, for security reasons, Cochinchinese families from Chanthaburi were settled in the former Japanese camp (Forest, 1998: 276, note 29, 307). After the fall of Ayutthaya in 1767, those Vietnamese Catholics who were not made prisoners of war and deported to Burma escaped to Hà-tiên on the gulf of Siam or joined the troops of *phraya* Tak (Sin) and moved to Bangkok at the place known as *Ban Yuan Samsen*, the Samsen Vietnamese village.

However, most available sources seem to agree that almost all of the Vietnamese to be found nowadays in Thailand settled down in the central plain during the Thon Buri–Bangkok period (from AD 1767). During the reign of King Taksin (1767–82) some Vietnamese close to Nguyễn Anh, the future emperor Gia-Long, then in war against the Tây-són rebels, took refuge in the capital city of the

Siamese. They must have been quite numerous if we judge from the fact that they founded two Mahayana Buddhist pagodas in the Ban Mo–Pahurat area of Bangkok where they resided (Sa-nguan, 1971: 149). However, even during the Ayutthaya era, not all the Vietnamese living in the kingdom were Christians. European missionaries were less inclined to record the presence of Buddhist Vietnamese who could have been war captives, mercenaries, or traders. These Buddhist Vietnamese were granted the right to create a separate sect, the *Anam Nikai*, which had authority over a dozen pagodas.

During the reign of King Rama I, Nguyễn Anh and his supporters used the kingdom of Siam as a place of refuge and a supply base. In 1785–87, Nguyễn Anh and his Vietnamese served with the Thai army and fought against the Burmese during the war of 1786 and against Malay pirates who plundered the eastern coast. When, in August 1787, Nguyễn Anh returned to Vietnam, it is believed that a number of his supporters chose to stay in Bangkok.

During the reign of King Rama III, several cases of free or forced migrations of Vietnamese to Siam were recorded.

1. In 1833, Siamese troops under the command of the famous *Chaophraya* Bodindecha (Sing Singhaseni) proceeded to Vietnam to fight Emperor Minh-mang's troops. The Siamese army was not successful but, as was the custom, took as many civilian families as possible when it retired from Vietnam. Christian Vietnamese were settled down in Samsen. Men had to serve in the artillery unit of the Second King's army. Buddhist Vietnamese were sent to the west at Pak Phraek in Kanchanaburi, a first line city close to Burma. These Vietnamese built two Mahayana Buddhist pagodas in Kanchanaburi.
2. In 1834, following the failure of a revolt backed by the Catholics, Emperor Minh-mang of Vietnam started to repress the missionaries and their supporters. Most of the Vietnamese families which took refuge in Siam settled down in the region of Chanthaburi on the eastern coast, but some families found their way to the Vietnamese village of Samsen in Bangkok.
3. Between 1833 and 1840, during wars with Vietnamese troops in Cambodia, more than 2,000 Vietnamese prisoners of war were captured by Cambodian allies and sent to Bangkok where they joined previously deported ethnic Vietnamese in Kanchanaburi (Pussadee, 1998: 37).

We do not know precisely how and when Vietnamese communities were scattered in the central provinces of Siam. Under King Rama IV (1851–68), a number of Buddhist Vietnamese were permitted to move from Kanchanaburi to

Bangkok and to settle down along Phadung Krung Kasem Canal where they built the Somananam Borihan pagoda (Khananam, 1954: 7).

Some Vietnamese Catholics seem to have remained in Ayutthaya or went there after the fall of the ancient capital. In 1955, a French missionary disclosed that the Ayutthaya parish was not a large one and only housed “700 Christians, who were Annamese or descendants of Annamese” (CB, 1955: 87).

Regardless of whether they are Buddhist or Christian, Vietnamese in Thailand have generally been integrated into Thai society. It is quite possible to be an army general, university professor, or politician, when of Vietnamese ancestry.

3.4.5 Khmer

The Khmer are not easily distinguishable from the Thai. In the 1950s and the 1960s, several authors mentioned small settlements of former Khmer prisoners of war in the central plain, especially in the provinces of Ratchaburi, Kanchanaburi, Chachoengsao, and Chon Buri (Kerr and Seidenfaden, 1950: 20; Schrock, 1970: 236). The Royal Chronicles of the First Reign indicate that, in 1771, King Taksin took Khmer noblemen and 10,000 families from the regions of Barai, Phothisat, Battambang, and Siem Reap and settled them in Thon Buri (i.e. Bangkok) and Ratchaburi.

In 1833, General *Chaophraya* Bodindecha returned from wars in Cambodia with 3,000 families of captives. Some of the ethnic Khmer were settled in Prachin Buri province before reaching Bangkok. The Cham (or *Khaek Khrua*) families went along Mahanak Canal to Kampong Cham that was the official village of that ethnic group in the east of Bangkok. Some Chinese families from Cambodia were settled as *phrai luang* (royal serfs) in charge of shipyards along the Nakhon Chaisi River. As for the majority of the ethnic Khmer, they went to the Ban Bang Kung sub-district of Ratchaburi province as *phrai luang* or *chaloai* (war slaves). Indeed, in the 1904 Census, Ratchaburi Circle was—before Nakhon Chaisi Circle—the first territory inhabited by Cambodians (cf. Table 3.2). One year before, Raquez estimated their number at “40,000 to 50,000” which was grossly exaggerated (Raquez, 1998: 166). Once they were liberated from their condition a few years later, most chose to move to other places in Siam (Chuan, 1971: 22–23). Nevertheless, we know that *Ban Khamen*¹⁵ (Cambodian village) remained for a long time the name of the Nakhon Chaisi railways station.

We know for sure that Khmer families had been settled down in Prachin Buri province, for instance at Ko Khet village, Nong Phrong sub-district, Si Maha Pho district, that we visited several times in the 1980s. The village had received war

captives in 1771 and 1865, then refugees in 1907, when the Siamese government had to return the three western provinces to Cambodia (Damrong, 1978: 6–8).

Other toponyms such as Ban Khamin in the district of Bangkok Noi of Thon Buri also denote a Khmer settlement. Names of towns and provinces such as Nakhon Nayok and Chachoengsao have probable Khmer origins (*Ekkalak thai*, 1981: 6). Before districts and sub-districts which included foreign ethnic names were given more ethnically neutral appellations, there was a Ban Khamen (Cambodian village) sub-district in the Pom Prap district in a very central part of Bangkok. In Bangkok, we also know that Khmer prisoners of war dug the Banglamphu Canal under King Taksin (1767–82) and were later settled in Samsen, south of the Vietnamese Catholic community.

3.4.6 Thai (Lao) from other countries or other parts of Thailand

During the Ayutthaya period, but particularly under the reign of King Taksin and the first three kings of the Bangkok period, the Lao principalities were a supplier of manpower for Siam that was itself from time to time depopulated by its Burmese neighbour. Entire villages—with rulers, monks, children, elderly—were moved to Siam, but conditions along the journey were so arduous that not all of them arrived.

Thai researchers differentiate up to 6 groups of Lao which were deported to Thailand during past centuries from homelands in northern Thailand (Lanna), Laos, and Vietnam (Bung-on, 1998: 1–4). A map published by Bung-on Piyabhan shows very distinctly the settlements of Lao populations in almost all central provinces of Thailand (Bung-on, 1998: 36).

3.4.7 Thai Yuan or northern Thai

During the Ayutthaya period, peoples from Chiang Mai, Chiang Saen, and other northern places were frequently deported to the capital of Ayutthaya and various other places in central, eastern, and southern Siam. Bung-on (1998: 16) holds that these northern Lao were the first minority in the Ayutthaya kingdom.

People of village No. 1 in the Salarithai sub-district of the Sao Hai district (Saraburi province) attest that their ancestors were deported from the region of Phayao in northern Siam during the reign of King Taksin. A Phayao pagoda and its golden Buddha image are specially famous in this central province (Pho Saemlamchiak, 1979: 77–89).

In 1804, five Thai armies displaced 23,000 families from the northern region of Chiang Saen, a city then under Burmese suzerainty, to Chiang Mai, Lampang, Nan, Vientiane, and Bangkok (Thiphakorawong, 1983: 184). This northern Thai or Yuan population did not stay in Bangkok but was settled down in Ratchaburi province and Sao Hai district of Saraburi province. During the first 100 years, Yuan people of Sao Hai had no problem in practising their own language and following their traditional way of life. Today however, the author of a monograph on their customs jokingly writes that only European scholars seem to be interested in learning the Yuan language (Phinet, 1986: 17).

3.4.8 Lao Song Dam or Black Thai

This group is called by several names in Thailand, the more complete being Lao Song Dam where Song means “trousers” and Dam means “black.” They are so called because Lao Dam women traditionally dress in black clothes, especially black skirts (*pha sin*). Thus, it is accurate to say that Lao Song Dam or Thai Song Dam is the name of Black Thai who have settled down in Thailand (M. Sibutsara, 1987: 172).

Their region of origin is in Vietnam in the area of Dien Bien Phu that is mentioned in Thai chronicles under the name of *muang* Thaeng. In 1778–79, under the reign of King Taksin, the most famous general of the kingdom, *Chaophraya* Mahakasatsuk, the future King Rama I, carried out a punitive expedition against the king of Vientiane. He brought back with him Lao families from Vientiane and Lao Song Dam families from the region of Thaeng. Vientiane Lao were settled down in Ratchaburi and Prachin Buri provinces, while Lao Song went to Phetchaburi province, their first settlement being Ban Nong Prong village (Bung-on, 1998: 31). Other forced migrations took place in 1792, 1828, 1834, 1836, 1838, 1878, 1885, and 1887. As recently as 1975, about 2,000 Black Thai found their way to refugee camps in Thailand. Officially, none of them could settle down in Thailand (Somsong, 1997: 4).

Lao Song war captives were first established in Phetchaburi where climate and landscape were close to what could be found in the Thaeng region, their homeland. When under the reign of King Rama V (1868–1910) they were freed from slavery and dependence, many Lao Song families moved from Phetchaburi with the objective of getting closer to their native area of Thaeng. During these peregrinations they scattered all over Thailand. Today, in the central plain, Lao Song can still be found in 23 villages in 4 districts of the province of Phetchaburi,

in 7 villages in 3 districts of the province of Ratchaburi, in 3 districts of the province of Suphan Buri, in 3 sub-districts of the province of Samut Sakhon, and in 33 villages in 5 of the six districts of the province of Nakhon Pathom (Somsong, 1997: 5–6). Other Lao Song families live in the province of Lop Buri, Kanchanaburi and Saraburi, and in other parts of Thailand (Chumphon, Sukhothai, Phichit, Phitsanulok, Kamphaeng Phet, Loei). The Lao Song who were made prisoners of war in 1838–39 were brought back to Bangkok. Possibly, they formed the Lao community that occupied the place where Wat Pathumwanaram was later built on Rama I Road.

Lao Song Dam distinguish themselves from other Thai villages of the central plain only by their language, a few customs, and their handicrafts well known in Bangkok where a shop managed by American missionaries sells Lao Song items. In Nakhon Pathom, a province neighbouring Bangkok on the west where ethnic minorities are quite numerous, Lao Song—or preferably Thai Song as Lao and Thai refer to the nationality rather than the ethnicity—are the only minority (maybe with the large Chinese community) whose traditions are incorporated in official publications (Wanwisa, 2000: 33–37). Recent research on present day Lao Song Dam indicate that they now regard Phetchaburi as their homeland in preference to territories in Laos and Vietnam (Sams, 1988).

3.4.9 Lao (or Thai) Phuan

Lao Phuan are present in 37 provinces of Thailand or almost half of the total number. They are quite numerous in some mid-northern provinces such as Phichit (15,558 persons), Phetchabun (14,700 persons), Sukhothai (10,385 persons), Uttaradit (9,276 persons), and Phrae (7,676 persons), and some upper northeastern provinces such as Udon Thani (7,340 persons) and Nong Khai (3,675 persons). But more than 54% of the Lao Phuan of Thailand are located in the central provinces. However, the difference between the provinces is considerable: 12,405 Lao Phuan in Chachoengsao and only 15 in nearby Pathum Thani, 16,769 in Lop Buri and apparently no Lao Phuan in neighbouring Ayutthaya.

According to a specialist of the Lao Phuan in Thailand, there used to be two or three Lao Phuan villages in Bangkok, among which Bang Sai Kai produced very good *khaen*, the Lao traditional reed pipe (Wichian, 1974: 17).

The homeland of the Lao Phuan is *Muang Phuan* (Phuan Principality), where the famous Plain of Jars is located, now in the Xiang Khouang province of Laos¹⁶. History keeps records of four major migrations of Lao Phuan to Siam¹⁷.

Table.3.9 Thai Phuan in the provinces of central Thailand.

Province	Population	Province	Population
Prachin Buri	17,416	Kanchanaburi	3,678
Lop Buri	16,769	Uthai Thani	1,543
Nakhon Sawan	14,255	Nakhon Pathom	1,370
Chachoengsao	12,405	Sing Buri	1,272
Suphan Buri	11,919	Chai Nat	468
Nakhon Nayok	11,205	Prachuap Khiri Khan	268
Saraburi	6,764	Nonthaburi	103
Phetchaburi	4,125	Pathum Thani	15

Source: Misathan, 1996: 9.

1. In 1779, under King Taksin, two senior generals proceeded to the Lao states to restore the authority of Siam. On that occasion, they send back to places in central Siam a very large number of Lao families from several ethno-linguistic groups, especially Lao Phuan. They settled down in Phetchaburi, Ratchaburi, Saraburi, and Chanthaburi provinces.
2. In 1792, Prince Nanthasen, a son of the King of Vientiane, then a tributary state of Siam, led about 4,000 Lao Phuan and Lao Song to Bangkok and donated them as a tribute to King Rama I. Those Lao Phuan families established themselves in Bangkok, at the place on which was later built the Chalermkrung movie theatre, while the Lao Song proceeded to Phetchaburi (Wichian, 1974: 22; Bung-on, 1998: 41).
3. In 1804, at the time of King Rama I, five Thai armies assaulted the city of Chiang Saen that was occupied by Burmese troops. The starving local population opened the gates to let the Thai armies enter the city. The walls were pulled down, the city was burnt, and about 23,000 people were moved to five different parts of the kingdom with the five armies. A number of the Thai Phuan who went with the royal army settled down near Bangkok, others went to the province of Saraburi, and many went as far as Ratchaburi, particularly to the sub-districts of Ku Bua, Don Rae, Huai Phai, Nong Pla Mo, Nong Pho, Bangkado, and Rang Bua where they still speak their language and maintain Thai Phuan traditions such as *Pha Chok* weaving ("Phumlang thai yuan", 1997: 17).

4. After a new war broke out between Siam, Laos, and Vietnam in 1826–28, King Rama III ordered general-in-chief *Chaophraya* Thammathibodi to invade Lao states under the control of Vietnam. In 1833–35, at the end of the campaign, Thai troops retired and brought back Lao Phuan families to Bangkok. They were sent to other places. Lao Phuan can be found, for instance, in Bang Nam Chiao sub-district of Sing Buri province where they settled during the reign of King Rama III.

Lao Phuan (or Thai Phuan as they are officially called) seem to have succeeded better than many other ethnic groups in keeping alive a strong sense of identity. Phuan of Thailand are particularly proud of their traditions and language. Highly successful persons of Lao Phuan ancestry can be found in many occupations: they are rich traders, physicians, senior civil servants, generals of the army, scholars, Buddhist monks etc. They have clubs and a foundation that has published in 1989 a dictionary of the Thai Phuan language (Thammamahawiranuwat, 1989: 4–55).

3.4.10 Lao Wiang, Lao (Phu) Krang, Lao Tanaosi, Lao Isan

During the reign of King Taksin (1767–82), some ten thousand Lao Phung Dam or Black-belly Lao people according to the Thai denomination owing to their tattoos, from the Vientiane region (Lao Wiang) who had taken refuge in Nakhon Ratchasima were moved to Saraburi, in the central plain, a place which was much in need of people. Then in 1772, during a military campaign conducted by the future Rama I, a large number of Lao families from the same region were brought as *chaloai* (war slaves) to Lop Buri, Nakhon Nayok, Chachoengsao, and especially Saraburi, places much depopulated by the Burmese a few years before (Rachabanditsapha, 1929: 74; *Muang Saraburi*, n.d.: 7–8; Tri, 1961: 6). Again in 1778–79, several tens of thousand Lao Wiang were removed from the Vientiane region and resettled in Saraburi, in Ratchaburi, in several provinces of the west, and some in Chanthaburi along the eastern coast (Bung-on, 1998: 30).

Under the reign of King Rama II (1809–24), the ruler of Vientiane sent Lao families from the Phu Krang region to Siam. They were settled in Nakhon Chaisi with Lao families of the Phu Krang region previously established there (Bung-on, 1998: 49).

In 1809, about 2,000 Lao from Nakhon Phanom, on the right side of the Mekong River, went to take refuge in Siam. King Rama II sent them to Samut Prakan where they constituted a 860 man strong garrison called Lao Asa Paknam

(Bung-on, 1998: 51). Less than twenty years later, in 1828, these Lao troops requested to be moved to a new place. The new town of Phanat Nikhom, situated to the east of Bangkok between Chachoengsao and Chon Buri, became their new settlement. In 1829, after the famous Chao Anu revolt, another group of Lao families from Nakhon Phanom was sent to increase the population of Phanat Nikhom.

There was such a huge concentration of Lao people that, in time of war between Vientiane and Bangkok, that population could be a major threat. In 1827, *Chao Anuwong*, the ruler of Vientiane requested that the families deported in 1778–79 at the time of King Taksin be returned to Vientiane. King Rama III rejected a proposal that would have depopulated an entire region. *Chao Anu* then tried to reach Saraburi to free some ten thousand Lao slaves who would have strengthened his own army (Terwiel, 1983: 131; Wyatt, 1994: 206). But, the failure of *Chao Anu* led to the massive depopulation of the Vientiane region. Siamese troops and their allies moved 60,000 more persons (Bung-on, 1998: 59).

In 1829, about 1,500 Lao were settled near the ancient capital of Ayutthaya in two operations. In 1830, as many as 16,000 Lao from Vientiane and several places in both the left and right sides of Mekong River were sent to central Siam to reinforce older settlements (Bung-on, 1998: 62). Other smaller deportations are mentioned for the years 1837 and 1844.

From the next reign, wars and deportations of population rapidly ceased because of the European success in colonising the neighbours of Siam. In 1861, King Rama IV settled a number of Lao Wiang families in the region of Phanom Sarakham, now in Chachoengsao province. This was the last recorded arbitrary displacement of Lao population in Siam (Bung-on, 1998: 67).

The north-northeast/south-west movement of population had a limited counter movement in the opposite direction when Lao slaves escaped and tried to go back to their homelands. But, some of them were captured a second time during the following wars and Siamese invasions.

Not all the migrations were forced. In 1759, for instance, during a Burmese-Thai war, the population of the region of Tanaosi (Tenasserim), in Burma—composed of ethnic Thai¹⁸ but maybe also ethnic Mon—were attacked by Burmese troops and chose to leave their villages. They moved to Nonthaburi province north of Bangkok in a place that used to be known as Bang Tanaosi sub-district, and that is now Suan Yai sub-district. (Krom Sinlapakon, 1948: 81; *Nonthaburi*, 1992: 113 ; Sanong, 1972: 24).

3.4.11 Hill People

When they have not been changed, toponyms may be a good indication of the ethnic origins of inhabitants. But only field research could tell why, for instance, villages with the names of Ban Lawa and Ban Kariang can be found in the Ban Na district of Nakhon Nayok province where neither Lawa nor Karen have been officially recorded (Pho, 1983: 98, 105).

3.4.12 Karen

Karens—or *Kariang* in Thai¹⁹—are the largest ethnic group considered as a hill people (*chao khao*) by the Thai administration. Over the past two centuries, they have moved eastward from Burma into Thailand. Today, they can be found in several provinces of central Thailand, although usually in very limited numbers. The “Tribal population summary” prepared in September 1988 by the Tribal Research Institute of Chiang Mai revealed that there were 85 Karen villages with 15,194 people in Kanchanaburi province, 26 villages with 4,537 people in Ratchaburi province, 24 villages with 2,033 people in Uthai Thani province, 14 villages with 2,293 people in Phetchaburi province, 11 villages with 1,157 people in Suphan Buri province, and 1 Karen village with 186 people in Prachuap Khiri Khan (McKinnon and Vienne, 1989: 424–27). We do not know the reliability of this census. Another census for the same year by the Department of Welfare gave for example 17,828 Karens for the province of Kanchanaburi in 135 villages (Suthini, 1990: 2)²⁰. Records in 1986 preferred to use the expression of clusters of houses (*yom ban*) and found 18 of them in Uthai Thani province (10 in Ban Rai district and 8 in Huai Khot district) (Krasuang Suksathikan, 1987: 105).

In Kanchanaburi, almost all the Karen villages are in the western mountainous districts of Sangkhalaburi, Thongphaphum, Sisawat, and Saiyok. In Ratchaburi, Karen people can be found in the districts of Wat Phleng and Ban Kha. These southern Karens used to be called “White Karen” by northern people.

We have reliable records of only two cases of migration of Karen people to Thailand as refugees.

1. In 1775, after a Mon-Burmese war in which Karen had been allies of the Mon, a large number of Karen families took refuge in Siam to escape Burmese repression.

2. A little more than a century later, in 1885, when the English took over the upper part of Burma, a Karen leader decided to flee and settle in Siam with his followers.

According to Thai authors, the Karen people came to this part of Asia before the Thai but after the Lawa (Bunchuai, 1963: 66). The Karen seem to have been well integrated in Siamese society of the kingdom of Ayutthaya. We know, for instance, that one of the armies of King Naresuan (1590–1605) had a Karen general whose Thai name was *Saen Phumlokkaphet* (Damrong, 1971: 172). In March 1941, the governor of Ratchaburi province reported to the Interior Ministry about a visit to Suan Phung and Yang Hak sub-districts where Karen were numerous. He explained that the Karen and Thai “had the same kind of complexion, identical nose, same black hair, were of comparable height, that many follow the same Buddhist beliefs and, consequently, they can be considered to be of the same family and nation.” Karen villages were even cited as exemplary because of the rarity of crimes (Nikonbodi, 1941: 1922–23). Half a century later, these Suan Phung Karen speak Thai, are Buddhist, have found new jobs, watch TV, and intermarry (Koson and Niphaphon, 1994: 12).

As enemies of the Burmese, the Karen—just like the Mon—used to play a strategic role as a buffer zone or front line in the western provinces where they had settled. Like the Mon, Karen detachments were sometimes used in spying missions inside Burmese territory. Also, the products they sent to Thai kings (eagle wood, rhinoceros horns, elephant tusks, sappan wood, spices, etc.) were very important in the export trade of Siam before 1851 (Renard, 1980: 19).

3.4.13 Gong or Ugong (Lawa)

Gong people speak a language of the Tibeto-Burmese family. However, the Thai usually confound them with the Lua or Lawa. In Thailand, we used to find them in three provinces of the central region, Kanchanaburi, Suphan Buri, and Uthai Thani. A linguist of Mahidol University did field research on the Gong villages of Ban Lawa Kokchiang, Ban Lawa Wang Khwai in Suphan Buri province, and Ban Lawa Khok Khwai in Uthai Thani province where the Gong still speak their own language (Mayuri, 1997: 5). A census done in 1995 reveals that there are only 507 Gong left in three villages of the Dan Chang district of Suphan Buri province and two villages in the Hua Khot district of Uthai Thani province. Those of Kanchanaburi have been completely assimilated. Gong families were brought

from Burma by Thai armies about 200 years ago and, as war captives, received the status of *chaloei* or war slaves.

3.5 Ethnic groups and assimilation under nationalistic administrations: from the mosaic to multiculturalism?

Early European and American travellers were impressed by the ethnic diversity of the inhabitants of Siam. At the beginning of the 1830s, for instance, E. Roberts, an American envoy, observed: "Siam appears to be a place of refuge for the surroundings nations, and is composed of a great variety of people, viz.: Siamese, Laos, Cambodjans, Malays, Kariangs, Lawas, Kas, Chongs and Semangs, Chinese, Mohammedans, and Hindoos of western India, Peguans, and Portuguese" (Roberts, 1837: 308).

With the exception of the Chinese, most of the Mon, the Christian Vietnamese, the last arrivals of the Cham, and the Karen, the ethnic minorities of the central Plain were war captives or *chaloei*. Many of these slaves had to join the navy (Mon, Cham, Malay) or the field artillery (Vietnamese) and their life was not very arduous. As the kingdom was strongly in need of these military specialists, they were considered more like professional soldiers and even received a form of wage. However, they were not legally free to move from their villages and could not choose to work in other fields. All the young men of the garrison village of Kampong Cham (later called Ban Khaek Khrua or Ban Khrua) had to serve with the *Krom asa Cham*, a regiment of the navy. Fifteen years after the 1874 decree on slavery was promulgated, slaves started to be freed. Some families chose to change place of work and to go and join other communities of the same ethnic group or to move and settle in districts where their traditional skills were needed. Thus, the ethnic mosaic of the central Plain became more intricate.

That great diversity started to be a major problem only when, at the end of the 19th century, European countries asked for the implementation of a strict policy of extra-territoriality with protection given to all Asian "*protégés*." These *protégés* were supposed to be people born in Asian countries colonised by France, Britain, or Holland but members of almost any ethnic minority could be registered as a *protégé* in foreign consulates. The Chinese were specially numerous, but it seems for instance that many Mon of Thailand became French—and not English—*protégés* (Khana wicha, 1980: 33). This was the European way to exercise a form of control on Thai manpower.

Today's Thai scholars present two modes of thinking on the question of ethnic minorities in Thailand. On the one hand, influenced by post-modernist theories,

some—most of the historians—no longer believe that something like a pure Thai ethnic group ever existed in Thailand (Cholthira, 1999). Ultra-nationalistic politicians and intellectuals constructed discourses about a “Thai race.” Those designated as Thai actually were a mixture of many more or less indigenous groups (Khmer, Mon, Lawa). For them, probably most of the central Plain Thai are no more than thaicized Mon, Khmer, Lawa or maybe Karen²¹. They may go as far as denying the pertinence of the concept of ethnic group or are reluctant to identify pre-Ayutthayan states in ethical terms.

On the other hand, more and more scholars—anthropologists, political scientists—are in favour of a politics of multiculturalism. They believe in the existence of various ethnic groups and cultures and think that it is neither possible nor desirable that they be assimilated and disappear. As evidence, those scholars keep in mind the very peculiar situation of the Chinese who no longer wish to maintain the myth of their complete acculturation to the Thai. In a way, they wish to go back to the pre-nationalist period when peoples of various cultures and ethnic origins had no problem co-existing. In a 1854 note to John Bowring, King Mongkut presented himself as the sovereign of the Kingdom of Siam, but also “of the Laosshiangs on the North Western, Laos Khaos on the Northern and North Eastern, Khars Chhongs on the Eastern, Cambodia, or Camboja on the South Eastern, and most parts of the Malay peninsula on the South-Western, and the Karriangs on the Western direction” (Coedès, 1927–28: 13). The various ethnic groups of Thailand could only benefit from an approach that could be some day implemented as official policy.

Ethnic minorities of the central Plain have already been exploited as an international and domestic tourism attraction since we know that Thai people also fancy strange looking “tribes” (Baffie, 1989). Tourist oriented magazines frequently present articles and photos on more or less exotic ethnic groups. Provinces with populations renowned for their pretty women such as the Karen and specially the Mon ethnic groups draw scores of Thai tourists particularly at times of festival. In one case—an article in Thai and English published in April 1989 in *Kinnaree*, a Thai Airways International magazine—the Thai Song Dam tribe is said to have settled in Phetchaburi province “for more than 2,000 years” while the title of the article asserts: “A culture that never dies” (Manisa, 1989: 75–77).

A panorama of ethnic groups is always historically dated and subject to change. As some sources used in this articles are ancient, we will have to wait for new in-depth studies to see how the ethnic landscape of the central plain is changing. Since the early 1960s, ethnic Lao from northeastern Thailand have

migrated to the central region (Phasason and Phenphon, 1989: 24–25). Not all of them have permanently settled but they are fishermen in Samut Prakan, and workers in Nonthaburi and Bangkok. Indeed, Bangkok is sometimes called a “Lao Isan city.” For the last ten or fifteen years, Burmese nationals—of several ethnic groups—have illegally migrated to central Thailand²². In Bangkok, Burmese women compete with the Lao Isan in the maid sector and a large majority of beggars are illegal migrants from Cambodia (Manop, 2001: 2). Chinese migration to Thailand, although illegal, has probably never ceased, and has been more vigorous in the last twenty years²³. The ethnic mosaic is not going to disappear.

3.5.1 An ethnic division of labour in change

As a general rule populations deported from neighbouring countries into the central plain of Siam were supposed to carry on their traditional occupation, which in most cases was wet rice agriculture. Among the exceptions were war captives who were considered experts in a field in which Thai people had limited knowledge and skills. Thus, since the Ayutthaya period the navy included a majority of Malay, Cham, Mon, and Chinese sailors and naval officers while Vietnamese were to be found in the artillery. Many who were competent in these fields opted for staying in the army and the navy even when they were free to enter other occupations. Some tried to work in different but related works. For example, not a few Cham and Malay naval officers left the navy to establish companies operating the transportation of people on the rivers and the Gulf of Siam down to Cambodia and Singapore. As for the Chinese, they controlled most of the transportation of goods along the rivers and the canals of the central plain.

Thai, Lao Song, Phuan, and Mon families are wet rice farmers. The Chinese own the larger rice mills and are the traders. They had been sugarcane growers in the 19th and early 20th centuries, but if they still own most of the sugar refineries of the central plain they usually hire Thai and Lao peoples from other regions to work in the fields. They are also known to own many of the gardens and orchards located around Bangkok. However, Mon and Malay gardeners are not infrequent north, west, and east of Bangkok.

Dairy farmers are frequently Chinese and Muslims from South Asia. Coastal water fishermen, fish sauce producers, shrimp farmers were Chinese (but hired Isan people to do the arduous jobs), but the labour force is now provided by Burmese migrants. Occupations related to wood are a speciality of Hainanese Chinese.

As for handicrafts, the Mon are famous all over Thailand as potters: they produced many kinds of jars, pots, ceramics, bricks, and tiles, particularly in Ko Kret, Nonthaburi. Cham, Lao Song and Karen are known as skilled weavers of silk or cotton fabrics. Basketry and bamboo furniture making are still practised in Lao villages and some artefacts are praised by local and international tourists (Sams, 1988).

Chinese own most of the private transport companies. They are the major traders and industrialists. In urban areas, they are shopkeepers, but also medical doctors, pharmacists, lawyers, government officials, and politicians. The ascension of the social ladder by the central plain Chinese has been a phenomenon generally observed by Thai social scientists, especially political scientists. Among well-known politicians of Chinese origins of the 1970s to the 1990s we find a lawyer from Chon Buri, a contractor from Suphan Buri, both former prime ministers, and "godfather" (*chao pho*) figures from Phetchaburi and Samut Prakan.

3.5.2 Ethnic mosaic or melting-pot?

Concepts of ethnicity, ethnic groups, and culture have been recently much less used by social scientists. To be politically correct or post-modernist the researcher should be careful not to employ terms that could be judged racist or xenophobic. Things seemed easier in the 1970s when "minority group" (*chon klum noi*) was considered a new concept in Thailand and a sociologist from Chulalongkorn University clearly identified majority groups as dominant groups and minority groups as subordinate groups (Arong, 1978). Ethnic minorities were then viewed as problems, particularly with regard to security. Nowadays, there is little doubt that new fashionable concepts like cultural hybridisation or multicultural identity could be useful to characterise the situation in Thailand, although the ethnic landscape continuously and rapidly metamorphoses.

Ancient records and law texts indicate that Thai authorities had no policy of assimilating the various ethnic groups settled in their territory. There was a limited integration by the top. It sufficed that the leaders of ethnic villages and of ethnic regiments or squadrons could communicate in Thai and knew the laws and customs of Siam. The villagers could carry on their traditional way of living, owing to the Thai kings or the Thai princes and noblemen only a few months in corvée work or more often military service. Inter-marriages probably occurred in few cases as only Chinese and foreigners were free to travel around the country without any restriction. Ethnic leaders, made noblemen by occupying an official position in the country administration, had more opportunities to marry into other ethnic groups.

At the beginning of the 20th century the slaves had been freed of many bonds. Many chose to change occupation and move to better places. In a number of cases, isolated populations had the desire to reunite with other villagers of the same ethnic group. In other cases, populations deported from neighbouring countries tried to settle closer to their motherland.

Integration or assimilation has taken place when cultural—particularly religious—differences with the Thai were not considerable. In some cases, Thai men would discover only during the marriage ceremony that their wife was Phuan, Song, or Mon. Moreover, Mon or Phuan girls are generally regarded as prettier than northeastern or southern girls and marriages with either of them are praised in the Thai community.

Intermarriages occurred between Thai and different groups such as Catholic Vietnamese and Muslim Malay. Usually the non-Christian or the non-Muslim openly abnegates his or her religion. However, these marriages are frequent only when the Muslim or Christian communities are too small in number and are not well accepted.

In the 1940s and 1950s Siam or Thailand was assumed to be a country with a high degree of assimilation of its ethnic minorities. As an observer who had spent a quarter of a century in Siam wrote in 1945: "In quite modern times there has been a considerable mixture through intermarriage between Chinese immigrants and Siamese women" (Crosby, 1945: 7). In fact, many Chinese had two wives, one in China and the other in Siam. What is quite peculiar to Siam is that the offspring of Chinese men and Thai women never constituted a separate group with a mixed culture. More studies of these *luk chin* (literally children of Chinese) are necessary, but usually those in trade and finance considered themselves as Chinese while those in government positions tried to hide their partly Chinese origins. These *luk chin* were born particularly during the reigns of Kings Rama V to Rama VII (1868–1935). When in the 1920s Chinese women other than prostitutes started coming to Siam in large numbers, Chinese men turned to them as official spouses and mothers of their children while keeping local women as minor wives (*mia noi*) or mistresses. Children produced by minor wives and Chinese men have been more numerous than previously suspected. However, in most cases it seems that they have grown up as Thai rather than as Chinese.

The consequence is that for the most recent periods the proportion of intermarriages between Thai and Chinese decreased. From a field study in Sri Racha (Chon Buri province) in 1974, C. Blanc Szanton concluded from intermarriage data that "assimilation [was] not taking place to the degree that has

been commonly predicted . . . despite the virtual lack of continued Chinese immigration" (Blanc Szanton, 1983: 99). However, even in the 1952 research conducted by eminent sinologist G. William Skinner on the leaders of the Chinese community of Thailand, it was found that only 7% of the Chinese had been born from ethnic Thai mothers (Skinner 1958: 228).

Factors other than religion and intermarriages are more positive. Thai language in particular has been spoken by all young people in Thailand since the nationalistic politics of the early 1940s. In an April 1985 seminar, a Thai historian who had done field work in Pak Kret stated that only people aged 35 years and older could speak Mon (Daruni, 1983: 446). Identical assertions could be made for almost all the groups in the central plain, except the recent arrivals. However, mastering a language is a necessary but not a sufficient condition of complete integration. An obvious revival of Chinese culture has taken place in Thailand since the early 1980s. In the first phase, this revival among second, third, and fourth generation Chinese in Thailand was carried out almost exclusively in the Thai language. It is only now that the revival of the Chinese language is manifest.

In the 10 September, 2001 issue of the *Bangkok Post*, two separate articles underlined that "as many as 10% of Thais are expected to die from Aids over the next 20 years" (*Bangkok Post*, 2001e: 4) and that an estimated three millions illegal alien workers could be registered following an August 28 cabinet resolution (Supamart, 2001: 2). If that pessimistic expectation takes effect, no fewer than six million, mainly northern and northeastern Thai—many working far from their home in the central plain—would have been "replaced" by new immigrants from Burma (Burmese, Mon, Karen), Cambodia, India, and China. There is little doubt that, in this very dynamic region of the central plain, the ethnic landscape will be again greatly modified.

3.6 Notes

¹ In 1984, Ongkharak district counted 21 Buddhist pagodas, 20 mosques, 2 Chinese shrines, and 2 Christian churches (*Samnak-ngan*, 1984: 59).

² Lao Khrang or Lao from *Muang Phu Khrang* in today's Laos had been sent to Suphan Buri and Nakhon Chaisi (Nakhon Pathom) under the reign of King Rama III (1824–51) (Bung-on 1998: 4).

³ For instance, in the four provinces that composed Ratchaburi circle we find in 1937 only 563 Indian and Malay, against 2,788 in 1932, 1,380 in the 1904 Census, and 10,000 Malay in the 1902 estimate by Graham. As for the Cambodian and the

Vietnamese in the three provinces of Nakhon Chaisi Circle, they amounted to only 14 in 1937 as compared with 3,285 persons in 1932, 3,135 in 1904, and 5,000 in Graham's estimate. Figures are more realistic for the Chinese. For instance, in the 5 provinces of Ayutthaya Circle, they totalled 31,087 in 1937, against 23,843 in 1932 statistics, and 18,615 in the 1904 census.

⁴ In the 1958 preface the author writes that the original manuscript of the book was sent to the Siam Society in 1956.

⁵ Non officially registered Chinese shrines probably exist. In 1987, for instance, a book mentions 22 *san chao* in a single district of Ratchaburi (Siriwannawiwat, 1987: 104).

⁶ In central Thailand, Chinese cemeteries can be found almost exclusively in two provinces where Feng Shui is most favourable: Chon Buri and Sara Buri. In Sara Buri, for example, not less than 5 cemeteries have been opened in Ban Lam sub-district, Wihan Daeng district ("Amphoe Wihan Daeng", 1981: 44).

⁷ A previous name of Samut Sakhon is Ban Tha Chin, village on the Tha Chin River. The meaning of *tha chin* is "Chinese harbour." Tha Chin is still the name of a sub-district including 6 villages.

⁸ Held since 1963 on the first day of the Chinese New Year, the Golden Dragon Parade of Nakhon Sawan is one of the most famous Chinese festivals of Thailand. The Tourist Authority of Thailand promotes it in neighbouring countries.

⁹ For the 19th century we can be fairly sure that places where opium and gambling farms were the most numerous also counted the largest number of Chinese residents. For instance, in the case of gambling farms, documents indicate that 5 *chang* and 10 *tamlung* was requested for Chachoengsao, 2 *chang* and 10 *tamlung* for Prachin Buri and only 1 *chang* for Nakhon Nayok (Sorasak, 1996: 66).

¹⁰ One of the problems seems to be the limits of the city of Bangkok in this 1882 postal roll. The western part (Thon Buri) covers many villages, clearly different from Bangkok, while to the east the roll extends only to Phadung Krung Kasem Canal and Charoen Krung Road.

¹¹ Strangely enough no data are given in this census on the number of Mon in the province of Kanchanaburi that is located at the border with Burma.

¹² It would be easy to demonstrate that the 1937 census (Table 3.4) is faulty and grossly underestimates the number of ethnic Malay even in southern provinces where their presence cannot be disputed.

¹³ Because of a well known account of a Persian embassy to Siam in 1685 the size of this community has been exaggerated. However, this account mentions

only that 30 Iranian merchants had settled in Siam before the reign of King Narai and that the community had grown to about 100 individuals (O'Kane, 1972: 94–95).

¹⁴ According to some authors, the very name of Bangkok is of Malay origin (Carter 1988: 43).

¹⁵ According to the Royal Institute's gazetteer, in 1833, General *Chaophraya* Bodindecha settled families of Cambodian and Chinese war captives between the Ban Kaeo Canal and the Sampathuan pagoda (Akkharanukrom, 1964: 799).

¹⁶ A study by Snit Smuckarn and Kennon Breazeale compares the culture of the Phuan of Thailand and Laos (Snit and Breazeale, 1988).

¹⁷ Forced migration and captivity of Phuan was practised not only by the Thai armies, but also by the Vietnamese and the Ho Chinese in the 1880s. It has been estimated that at the end of the 19th century the Phuan population had been reduced by three quarters (Evans and Vincent, n.d.: 4).

¹⁸ In 1988, it was reported that about 10,000 ethnic Thai were still living in Burmese Tenasserim (Phaeng, 1988: 99).

¹⁹ Today, Kariang is a rather pejorative word. Thai in European countries sometimes ironically refer to themselves as "Kariang" to emphasise their non-acceptation by foreign societies.

²⁰ In an interesting article on ethnic boundaries among Karens, Hayami Yoko points out the relativity of what is a Karen village (Hayami, 2000). See also several contributions in Keyes (1979) that pose the problem of the identity of the Karen.

²¹ This is probably true in many countries, particularly in continental Southeast Asia. For example, many northern Lao count Khmu among their ancestors (Evans and Vincent, n.d.: 32).

²² There have been new waves of almost always illegal immigration to large Thai cities since about twenty years ago. Indian, Pakistani, and other South Asians are often designated as the most numerous group of "Robin Wood" (illegal immigrants). They are probably only the most visible. Even with the Burmese rivalry, Isan people are far from having disappeared from the Bangkok landscape. In August 2001 a popular Thai magazine suggested that they could form more than 50% of the population of the capital (*Chiwit tong su*, 1–15 August 2001: 13).

²³ Not all these newly arriving Chinese come from mainland China. At the end of the 1970s, Chinese from the three Indochina states—particularly Cambodia—found their way to Bangkok, just as some Chinese families had come from politically and economically troubled Burma a few years before.

Chapter 4

Between concentration and fragmentation: the resilience of the land system in the Chao Phraya Delta

François Molle and Thippawal Srijantr

4.1 Introduction

Access to land is a critical aspect of agrarian systems. Farm land endowments vary with the course of time as the population grows and land is passed down from one generation to the next. Possible land fragmentation is a strong concern in Asian agrarian systems characterised by a high rate of small farms and generally high demographic growth. In addition, the distribution of land among a given population can reveal varied degrees of skew. In general terms, the structure of the land system (the characteristics of, access to, and use of land resources within a given agrarian system) is extremely complex when one considers the different factors that govern its dynamics over time. An egalitarian distribution will be challenged by processes that tend to constantly create disparities: heterogeneity in the family structure, in human resources, or in the socio-cultural structure; heterogeneity in the land itself and, therefore, on the economic return of the products it yields. In a dynamic process, these imbalances will tend to strengthen some farms while others are weakened. Along with the dismantling of traditional subsistence economies and the sharpening of socio-economic differentiation, increasing differences in holdings as well as in capital accumulation or deficit (debts) are believed to translate into the accumulation of more land in fewer hands, following a classical Marxian scenario of polarisation.

The case of Thailand, most specifically its central region and the 1850–1930 period, has aroused considerable scholarly interest and work¹. Although it escaped the rule of colonial powers, Thailand is often believed to provide an example of a

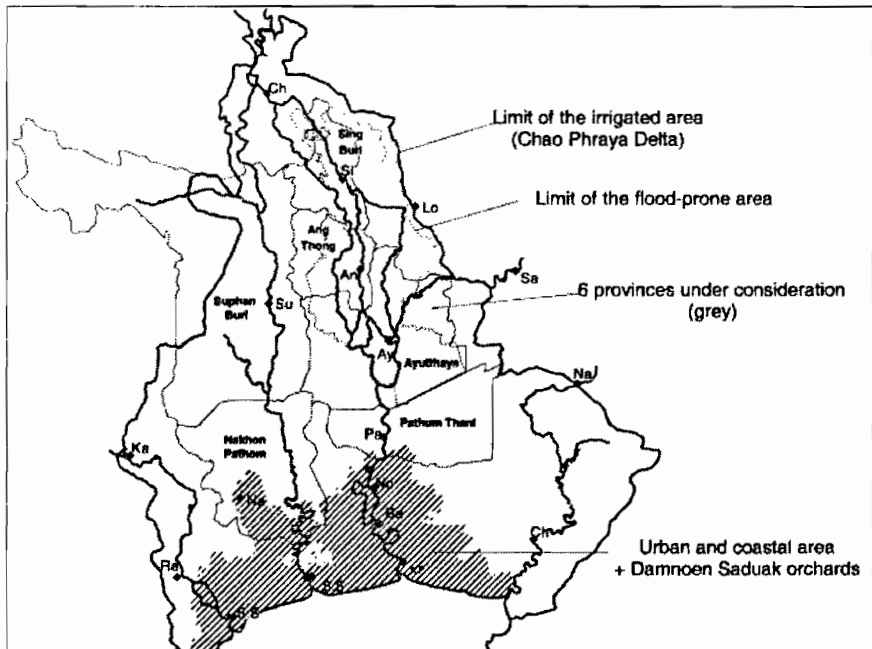
subsistence economy disintegrated by the irruption of market and capitalist forces (Witayakorn, 1983a; Douglass, 1984; Chatthip, 1999). Skewed ownership is often traced back to the early times of land reclamation, when the nobility and high-ranking officials acquired most of the land located in the vicinity of Bangkok, notably on the lower Chao Phraya east bank, including the Rangsit Project. Indebtedness, landlessness, and abuses by landlords are noted all throughout the history of the rural delta, and in particular in times of crises such as 1930 or the late 1960s to the early 1970s (hereafter, referred to as the "1970 crisis"). The 1970 crisis sparked an abundant literature on the different aspects of an agrarian gridlock. Several reports warned that population pressure (compounded by the closure of the upland frontier) and inheritance practices would lead to a tremendous increase of tenancy (Wagstaff, 1970; Ramsson, 1977); that the ownership of rice lands was "passing increasingly and irreversibly out of the local rural community" (Piker, 1975), with tenancy, already at 50% of the total land, doomed to increase (Tomosugi, 1969). Witayakorn (1983a) and Douglass (1984) see this period as the outcome of a deleterious process of capitalist penetration in the central plain.

The present chapter is devoted to assessing how, why, and to what extent the ensuing decades have conformed to these expectations. More generally, it will consider the aspects of land distribution, land fragmentation, tenancy, landlessness, and landowner/tenant relationships within a wider historical perspective and will try to reassess received wisdom on such issues.

In an attempt to avoid the pitfall of aggregated data², we will consider only six provinces. One of these, Suphan Buri, has almost half of its land outside the irrigated delta and will therefore serve as a point of comparison for the five other provinces which are entirely inside the delta zone: Ang Thong, Ayutthaya, Nakhon Pathom, Pathum Thani, and Sing Buri (Figure 4.1). Ayutthaya, Ang Thong, and Sing Buri (most especially the former) have a large share of their areas cropped with traditional rice varieties and low cropping intensity (this "flood-prone area," as it will be called hereafter, is indicated on the map by a dotted line). Other provinces included in the delta have been discarded, either because they are too close to the capital or because they are located in coastal areas, with limited and/or specific agricultural activities (i.e., aquaculture, orchards).

The study first presents a set of historical quantitative data (namely the agricultural censuses of 1950, 1963, 1978, and 1993 complemented with data from population censuses, various village surveys, and local investigations) and subsequently interprets them within a wider framework of social, economic, and demographic changes.

Figure 4.1 Map of the Chao Phraya Delta showing the 6 provinces under consideration



From north to south: Ch: Chai Nat; Si: Sing Buri; Lo: Lop Buri; An: Ang Thong; Sa: Saraburi; Su: Suphan Buri; Ay: Ayutthaya; Na: Nakhon Nayok; Pa: Pathum Thani; Np: Nonthaburi; Ka: Kanchanaburi; Np: Nakhon Pathom; Ba: Bangkok; Ch: Chachoengsao; Ra: Ratchaburi; S.P: Samut Prakan; S.S: Samut Sakhon; S.S: Samut Songkhram.

4.2 Change in farm land and patterns of land tenure

4.2.1 Number of farms and distribution by size classes

While a 14% increase in farm land (residual land brought under cultivation, part of which can be attributed to the implementation of the Chao Phraya Irrigation Project) is recorded between 1950 and 1963, the agricultural land in the delta started to decline in the early 1970s. This “regression of the land frontier” was due principally to urban and industrial growth and to the transformation of agricultural

land into golf courses, real estate, roads, Sunday gardens, etc. Speculation is also responsible for some fallow land, especially along the main roads and near urban centres. With the exclusion of Suphan Buri, the remaining provinces underwent an overall loss of 27% of their agricultural land in a 30-year span, with rates *per annum* as high as 1.4% (in Nakhon Pathom and Pathum Thani).

The total number of farms rose during the 1950–63 interval, with a rate of 100% for Suphan Buri (due to its upland frontier) and an average rate of 20% for the other provinces, then later levelled off and only slightly decreased (-5% over the next 30 years). At the provincial level however, Ang Thong and Sing Buri experienced an increase in the number of farms (+5% and +3%, respectively), while the three more urbanised provinces (Ayutthaya, Nakhon Pathom, and Pathum Thani) underwent a net decrease, especially Ayutthaya (-13%)³.

Although Prince Dilok (1908) reported that at the turn of the century farms in the central valley (probably Rangsit and the flood-prone area) were commonly in the 80–100 *rai* bracket, it is believed that the average farm size may have been attuned to the family labour force until the 1920s, when population pressure on land started to be felt in some parts of the delta and the average farm size started to decline (the population census of 1937 gives an average value of 29.5 *rai* for our five provinces). Table 4.1 reveals the gradual downward trend which has affected all provinces since 1950, giving an overall decrease from 29.0 to 22.1 *rai* between 1950 and 1993⁴. This reduction is higher in Pathum Thani (26%), Ang Thong, and Sing Buri (20%). Nakhon Pathom scores lower but this rate is concomitant with a significant trend towards diversified production farmed on smaller pieces of land.

Table 4.1 Evolution of total farm area and number of farms

Year	1950	1963	1978	1993	1993/ 1950	1993/ 1963	%/ year
Total farm land (<i>rai</i>)	3,657,170	4,182,925	3,708,135	3,051,874	0.83	0.73	-1.05
Total number of farms	126,235	151,690	148,628	144,155	1.14	0.95	-0.17
Average farm area (<i>rai</i>)	29.0	28.0	25.4	22.1	0.73	0.79	-0.79

Sources: Agricultural censuses (respective issues).

Pathum Thani aside, the reduction in average farm size is less severe for farms growing *only* rice than for other farms (from 28 to 24 *rai*/farm between 1978 and

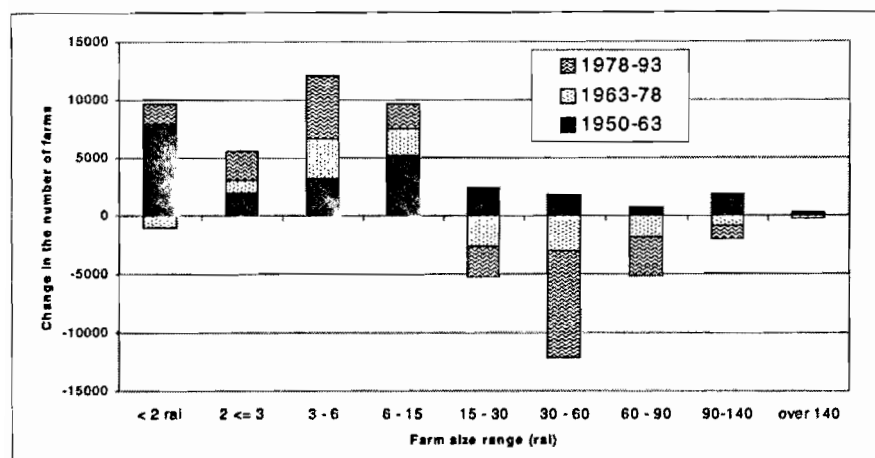
1993), but the absolute and relative numbers of such monoculture farms were in sheer decline (from 68% to 52% of all farms). Sing Buri even registers an increase, due to the consolidation of some very large farms in this province (see later section). The overall decline of rice cultivation is also visible from the falling percentage of farms growing this crop (from 90% in 1963 to 70% in 1993).

These considerations, however, refer to average values and do not tell the whole story. It is necessary to have a closer look at the distribution of farms according to size class. Figure 4.2 shows the change in the number of farms for each size class (five provinces) for each inter-census period: 1950–63, 1963–78, and 1978–93⁵. The 1950–63 period differs from other periods in that all size classes are numerically on the rise. In contrast, the two following periods are marked by a surge of smaller holdings with areas lower than 15 *rai*, while larger holdings are depleted. In addition, the increase in small farms in the 1963–93 is chiefly among non-rice growing farms. This is an important point as it streamlines the vision of poverty associated with very small holdings. This complements the overall picture and allows one to state that both mixed farms and farms diversifying out of rice are increasing in number at the expense of monoculture rice farms.

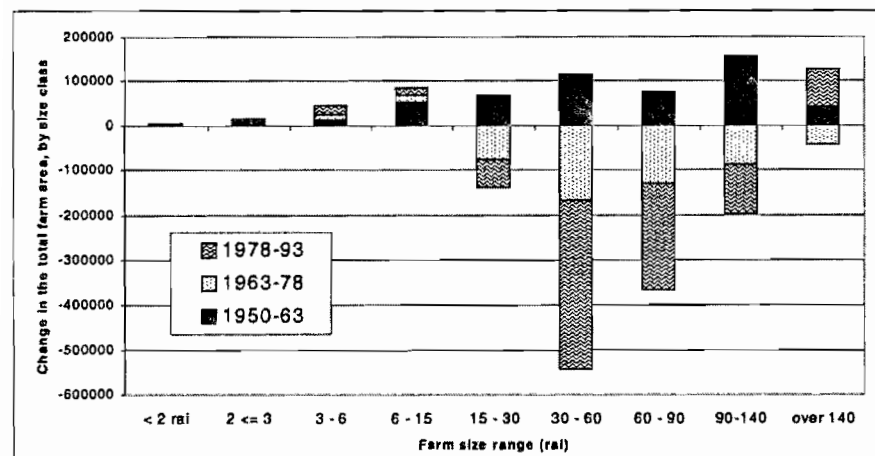
Figure 4.3 reveals how the increase in total farm land during the 1950–63 period has predominantly benefited larger farms. This does not mean that these farms absorbed new land brought under cultivation, but that the overall redistribution process shows both a pattern of land concentration in some larger farms (over 30 *rai*) and a rise of small farms. This land concentration, however, was radically reversed in the two later periods when the total area held by farms over 30 *rai* (and, notably, farms between 60 and 100 *rai*) decreased while the number of smallholdings surged. These smallholdings probably originated from the division of larger ones (either by inheritance or by land sale). An extremely interesting phenomenon also appears in the topmost range. The area farmed by holdings over 140 *rai* increased during the 1978–93 period. A total of 90,000 *rai* was transferred to that category, showing an embryonic development of very large farms. (Another 140,000 *rai* would be added to this category if Suphan Buri was included, suggesting that the trend is even more pronounced in the uplands.) All the provinces, to different extents, show a positive trend on that range, especially Sing Buri and Pathum Thani. Also worth noting is the fact that the absolute number of these farms over 140 *rai* is declining (from 872 in 1963, to 588 in 1993, for the five inner provinces). This means that the average size of these farms has boomed, from 189 *rai* to 352 *rai*.

In 1993, farms under 20 *rai* made up 60% of the total holdings but covered only 21% of the total farm area. On the other hand, the larger farms (over 40 *rai*),

**Figure 4.2 Change in the total number of farms,
by farm size class and 3 inter-census periods (5 provinces)**

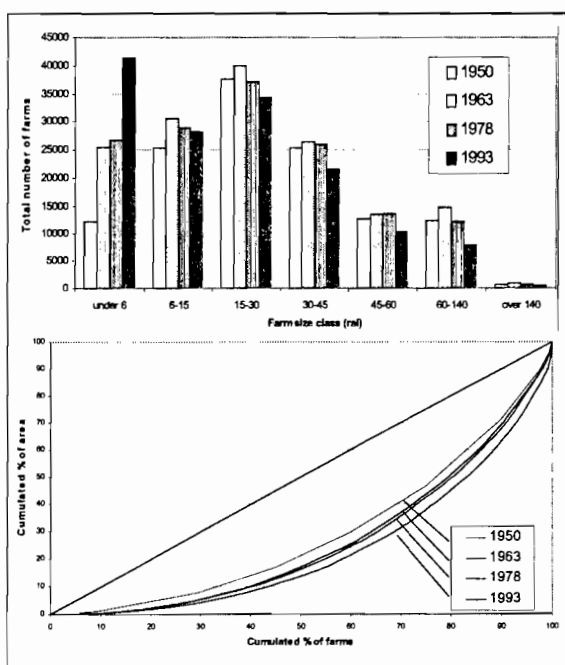


**Figure 4.3 Change in the total farm area,
by farm size class and 3 inter-census periods (5 provinces)**



which comprise only 10% of the total holdings, covered 36% of the total farm land. Figure 4.4 plots the cumulated percentages of both the number of farms and their corresponding areas for the four censuses, and reveals that the change in farm size distribution resulted in an overall worsening of the distribution pattern. The Gini index computed for the four years yields values of 0.41, 0.46, 0.47, and 0.52 respectively. The change in the 1978–93 interval is mostly due to the increase of farms in the 0–6 *rai* range, which shifts the curve to the right. To what extent income disparities are associated with the gradual increase of the Gini index is not readily intelligible. Land productivity must be taken into account. Many small holdings which engaged in cash crop production in the 1978–93 interval are better off than the bigger ones that stayed with rice monoculture.

Figure 4.4 Distribution of the absolute number of farms by size class (5 provinces)



Sources: Agricultural censuses

A last mention can be made regarding the average number of plots per farm. Contrary to expectations, that number has been declining since the post-war period. Zimmerman's estimates in 1930 gave an average of 1.64. This value rose sharply to 2.6 in 1953 (Ministry of Agriculture, 1953), but was later found to be as low as 1.83 in 1978 and further declined to 1.64 in 1993.

4.2.2 Change in land ownership and patterns of land tenure

A holder may operate owned or rented land, or both, and may also lease some land out. The analysis must therefore be deepened in order to assess whether and how the changes in farm size are related to tenure conditions.

Tenancy in the delta dates back as far back as the late 19th century, when the gradual emancipation of their serfs and dependants forced urban landlords (royalty, nobility, high-ranking officials) to rely increasingly on tenants and/or wage labourers to farm the large domains they had acquired. Estimates for Rangsit in the 1910s put the area owned by large absentee landowners at 81% of the total holdings (Supachit, 1989). This tenancy was the result of constraints on peasants' capital and mobility. It can also be attributed to the lingering legacy of ties of bondage (Molle, forthcoming). Outside this landlord area (see Figure 4.1) tenancy was not an issue, as land was available and the grip of urban capitalists was negligible. Around 1930, however, some "congestion" was already felt in parts of the delta with older settlements (Montri, 1930), creating some degree of landlessness.

After WW II, the situation evolved quite rapidly. An agricultural census (1950) and a survey on the total number of rice farmers of the central plain in 1967–68 (Department of Land Development, 1969) provide details on the distribution of farms according to land tenure status: full owner, tenant/owner, and full tenant. The 1967 survey can be used for comparison with later censuses with little bias (thus compensating for the 1963 census, which has poorly defined categories), because the distribution of holdings according to land tenure for all farms and for rice-growers differ by less than 2% (Wagstaff, 1970). Data from 1973 (OAE, 1975) appear somewhat dubious in that full tenancy rates are much lower than in other surveys. Table 4.2 presents the evolution of land tenure types in 1950, 1967, 1973, 1978, and 1993.

Surprisingly, it appears that the percentage of full owners gradually increased over the 30-year span, from around 40% to 61%. The percentages of full tenants underwent a clear decrease from one-third in 1967 to less than one-fourth in the last decade. Lastly, the proportion of owner-cum-tenants fell from 37% in 1973 to a mere 16% in 1993.

Table 4.2 Full owners and full tenants, in percentage of total holdings

Year	1950		1967		1973		1978		1993	
	Full Owners	Full Tenants	Full Owners	Full Tenants	Full Owners	Full ¹ Tenant	Full Owners	Full Tenants	Full Owners	Full Tenants
Total 6 provinces	50	24	45	29	49	15+1	54	21	62	21
Total less Suphan Buri	46	28	39	33	41	20+2	55	24	61	23

Note:

¹ The number after the plus sign shows the "free rental" category.

Sources: Population and agricultural censuses (respective issues); DLD 1967; data for 1973: OAE (1975)

Another way to measure the incidence of tenancy is to look at the shares of total farm land operated by owners and tenants. Table 4.3 shows that for all the provinces without exception, the share of tenanted land significantly decreased during the 1973–78 period. This may be associated with the period of intensification (double cropping, spread of rice High Yield Varieties). With the prospect of attractive profits, land tended to be farmed by owners, and tenancy decreased accordingly. Then over the 1978–93 period, tenanted land declined sharply in Pathum Thani, while rising by a modest 3–4% in the other provinces. The most striking point, however, is that the overall proportion of land under tenancy recorded in the 1930s changed very little over the remainder of the century!

Table 4.3 Percentage of total farmed area operated by tenants (by province)

Province	1930 ¹	1937 ²	1947 ²	1950	1957 ³	1967	1973	1978	1993
Ayutthaya	42	50	15 ⁴	47	47	55	59	51	54
Sing Buri		28	26	24		32	29	28	31
Ang Thong		30	31	26	36	33	34	29	34
Pathum Thani	68	72	14 ⁴	66	59	68	74	64	44
Nakhon Pathom		40	37	35		42	36	27	31
Suphan Buri	8	26	27	18	31	28	29	23	28
Total		43		28		44	42	36	36
Total less Suphan		48		43		50	49	43	41
Total less Suphan and Pathum		40		37		45	44	38	41

Note: Columns in italics are based on sample data; see notes below for details.

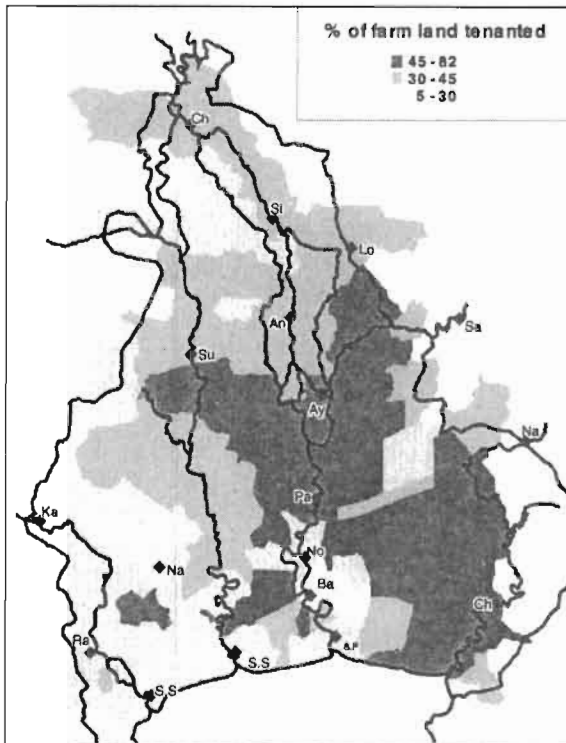
¹ From Zimmerman (1931), on a limited sample.

² From population censuses; 1937 data are estimated assuming that mixed farms have, on average, 50% rented and 50% owned.

³ From Uthit Naksawat (1961, cited in Tomosugi, 1969), the only set of data derived from a limited sample; other data from agricultural censuses.

⁴ Questionable values.

To get a clearer spatial vision of the situation in recent times, Figure 4.5 shows the distribution of tenanted land in 1993. High rates of tenancy, over 45% of total area, are found along the East Bank⁶, the site of early aristocratic landlordism,

Figure 4.5 Tenanted land in the delta (1993)

together with the banks of the Pasak River and the southern part of Suphan Buri. Tenanted land is lower than 30% in the Mae Klong area and in the upper delta between the Noi and Tha Chin rivers. Over the whole delta shown on the map, 37% was under tenancy (against 41% for the vicinity of Bangkok).

4.2.3 Land tenure and farm size

All tenure types show declining average farm sizes. Among full owners, the average farm size fell from around 25 *rai* in the 1950s/60s to approximately 15 *rai*/farm in the 1990s, a decline that may well have been offset by the intensification that occurred during the same period. Full tenants underwent a

similar but smoother process, although they farm a much larger area (24 *rai* on average), which may partly be necessary to achieve sustainability (as the payment of rents decreases the per *rai* income), and partly due to the weight of large full-tenant farms in Pathum Thani and Ayutthaya. Owner/tenant farms are larger still, with an overall average of 40 *rai*, which is enough to make rice farming profitable. Both the owned and rented areas farmed by owner-tenants are rather stable (Table 4.4).

The disparities in average farm area between tenure types indicates that land tenure types are not uniformly distributed within the different farm size classes. In 1978, farms smaller than 10 *rai* were mostly fully owned, while for the 10–30 *rai* range, full owners were only slightly dominant. Among larger farms, tenants exceeded owners. This suggests that farmers willing to cultivate more land had interest to rent it rather than to buy it. Fifteen years later, the proportions were quite similar, except for the 0–10 range, where the increase of small farms is almost totally due to full owners. This is probably the direct result of land fragmentation by inheritance and suggests that small farms succeeded in intensifying and/or that the land market was not favourable to renting land, as smaller farms are less able to afford paying rent than larger ones.

4.3 Interpretation

We may now attempt a reappraisal of the evolution of the land system, based on the above data and on their linkage with the most relevant changes undergone by the delta agrarian system. We will in particular show that images of drastic land fragmentation or land concentration do not adequately describe the situation. Rather, we will emphasise some of the processes at work which have contributed to averting an agrarian crisis.

4.3.1 Demographic change: averting the Malthusian crisis

Although there are significant regional and local variations, the Thai tradition of inheritance follows in general a pattern of equal division among heirs (Dilok, 1908; Kaufman, 1960; Toru, 1968; Wagstaff, 1970). Partible inheritance implies the simple arithmetic of land division. This process had been at work since the very beginning of the reclamation of the delta, as described by Hanks (1972) in his historical account of the Bang Chan village. Hanks observed that new farmers with too little land sold their share to siblings and moved to the periphery.

Table 4.4 Evolution of average farm size, by land tenure type (in *rai*)

	Full owner				Full tenant				Owner/renter (mixed)					
									owned part			rented part		
	1950	1967 ¹	1978	1993	1950	1967 ¹	1978	1993	1967 ¹	1978	1993	1967 ¹	1978	1993
Total	26.9	26	23.9	16.9	28.0	28	25.8	22.7	20	19.4	18.9	20	21.9	21.1
Total less Suphan	25.7	25	19.0	15	28.9	29	27.0	24.0	20	19.0	19	21	23.0	21.0

Source: Population and agricultural censuses (respective issues)

¹ Data for 1967 relate to rice-growing farms only and, therefore, cannot be compared directly to those of 1978 and 1993.

However, the costs attached to such a move explain why others preferred to stay on the family land (Molle and Thippawal, 2000), creating conditions described by Montri (1930) as an alarming "congestion . . . in many of the best rice producing districts." After the war, the phenomenon turned more critical (Kaufman, 1960), until some respite was provided by the upland expansion in the 1950s and 1960s; however, land saturation culminated in the 1970 crisis.

A few years later, several timely factors contributed to averting the worst prospects of a Malthusian crisis. An extremely rapid demographic transition initiated in the early 1970s slowed the growth of the total population, and a massive emigration towards Bangkok and the land frontier converted the trend of increase of the agricultural population and labour force into a decline.

The rural part of the Chao Phraya Delta underwent dramatic demographic changes during the second half of the 20th century. The Thai demographic transition has been one of the fastest observed in developing countries (Knodel *et al.*, 1987; Somboon, 1996). After WW II, soaring birth rates and declining death rates sustained an overall growth rate slightly above 3% until the late 1960s. In 1970, government agencies (more effectively paralleled by NGOs) launched several programmes to disseminate family planning and population control measures (Kua, 1995). These actions, together with a surge in urbanisation contributing to the adoption of an urban way of life, dramatically cut off population growth: 1.2% in 1995 (NSO, 1997a) and 1.05% at present (NSO, 2000 census). By the same token, the average fertility rate dropped from 6.6 children/woman in 1960 to 1.7 children/woman in 2000. As a result, the average family size of agricultural households in the rural delta dwindled from 5.74 in 1960, down to 5.32 in 1980, 4.38 in 1990, and is probably now under 4.00. Emigration, fertility decline, and the increase in life expectancy have resulted in the ageing of the farming population (farmers under 35 years of age now make up only 13% of the total).

A process of emigration paralleled this demographic transition. During the upland expansion in the 1950s and 1960s, the flow of farmers from the delta to the adjacent uplands was high enough to cause an *absolute* decrease of the agricultural population. All through the second half of the century, emigration was also directed towards Bangkok, provincial centres, and to foreign countries (i.e., the Middle East). The still significant overall population growth (1.5% in the last two decades) appears to have been, in numerical terms, *entirely transferred* to non-agricultural sectors. The agricultural population in the rural delta (Bangkok and its vicinity excluded) experienced a slight decline in absolute numbers from 2.5 million people in 1960 to 2.2 million in 1990, and a dramatic collapse in its share of the total population from

70% to 40%. Furthermore, the Labour Force Surveys suggest the census data may over-estimate the rural population, as the percentage of persons *employed* in the agricultural sector of the central region slumped from 48% in 1990 to 33% in 1996.

The effect of the demographic transition since roughly 1970 first had an impact on the number of mouths-to-feed (thus, on *per capita* income), then 15 years later on the labour force, and finally 30 years later on the number of heirs at the time of inheritance (thus, on land fragmentation). These factors, combined with the migration out of the agricultural sector and a decreasing rate of children willing to engage in agricultural activities, have halted the trend of increasing population pressure on land. Indeed, it may even be expected that land fragmentation will soon reverse towards concentration. In areas of older settlements and limited potential for agricultural diversification, this may not be new. Indeed, large-farm consolidation materialised during the 1978–93 period in some parts of Ayutthaya as well as Sing Buri's flood-prone areas, as seen earlier.

The alteration of customary inheritance practices has also diminished the impact of land fragmentation. It is observed that when the family land is reduced to an amount which does not allow viable farming, it tends to be passed on to only one child (often a girl), while other children are given inheritance in the form of money or other goods (Kaufman, 1960; Mehl, 1981). In most cases, the share of land received by children not engaging in agriculture is rented out (sometimes free) to those of the siblings who remain in the village.

The fertility revolution and emigration, together with the development of non-agricultural activities and the attractiveness of the urban way of life, have succeeded in dramatically curtailing the impact of population pressure and property division at the *very moment it was endangering* the whole agrarian system.

4.3.2 Polarisation and landlordism reassessed

Confrontation between subsistence peasant economies and market forces, and the logic of capitalism, generally trigger some degree of social differentiation with the emergence of landlords and the continuous eviction of small farmers, which may result in a process of polarisation. The Malthusian fragmentation under population pressure appears as both one of the driving forces of the stratification process, by broadening the range of land endowment at inheritance, and as the origin of the excess of population, which is eventually evicted either by force or by will. Several factors have, nevertheless, contributed to limiting both an excessive land concentration and the process of eviction of small farmers in the delta.

The first historical factor is the absence of colonialism. Nowadays, only 588 farms in our 5 inner provinces have more than 140 *rai* (only 26 ha) and no capitalistic "plantation farms" are observed. This stands in contrast to some ex-colonial countries with comparable human densities. Another factor is the set of constraints imposed by the Siamese kings to limit the concentration of territorial wealth in the hands of their officials and nobility. On the farmers' side, laws limited the amount of land owned by farmers to 25 *rai*, but concentration was chiefly limited by the magnitude of family labour and the absence of mechanisation.

During the rice boom of the late 19th century, urban-based owners bought land to extract rents from rice cultivation, and a class of *hacenderos* could then have emerged. However, most of these owners had little familiarity with rural life, no desire to engage in it, and were constrained by the necessity to control a large labour force at a time when slaves and retainers were being emancipated. The rather high prices of wage labour (Mehl, 1981) and the labour shortage at that time were indicative of the difficulties faced by landlords in mobilising a labour force, as large virgin areas were offered to farmers for clearing. It follows that no rural aristocracy or ruling class emerged at that time.

Focusing on the fragmentation of small land, one's attention is diverted to what appears to be an equally significant process, especially in the last three decades: the fact that large holdings are *also* subject to the law of division by inheritance. While the negative impact of Thai inheritance customs on land division is often stressed, the positive outcome of deterring land concentration is seldom mentioned. Large landowners (this also holds for urban landlords) also divide their land and assets between their children. A rare example of the study of family trajectories was carried out in Nakhon Pathom by Stifel (1976), who noted that "the top 20% landholders have experienced mixed fortunes over these four decades. The largest families have not inexorably swallowed the smaller landowners."

A reservation must be made here: the data on farm size presented earlier refers to farm operators, not to landowners. Krirkkiat's survey in 1969 in the provinces of Ayutthaya, Chachoengsao, Nakhon Nayok, and Pathum Thani found a total of 127 landlords with land over 1,000 *rai*, altogether owning 378,000 *rai* (11% of the total area) (1978, cited by Suehiro, 1982). The crown had a holding of 10,041 *rai* in Ayutthaya; M.R. Suwanaphang Sanitwong owned more than 35,000 *rai* in Pathum Thani and more than 60,000 *rai* in the whole central plain. This suffices to remind us that most of these very large properties of the East Bank and Bangkok

vicinity remain as a legacy of history, rather than as a result of continuous accumulation by a small class of rural landlords.

Land acquisition by urban capitalists has nevertheless been a continuing process. Unfortunately, the magnitude of this transfer of ownership cannot be assessed with the data in hand. We can only get some hint from the fact that the percentage of cultivated land rented out has been rather stable. If we consider the current share of 40% and the evidence that at least one half of the rentals are transactions between relatives (Molle, forthcoming), then only 20% of land is rented out to other local farmers and outsiders. It follows that the extent of transfer of land ownership to urban capitalists must be less (10–15%) than what was suggested by the situation observed in some districts of Ayutthaya or Suphan Buri, for example.

Although there is no evidence of polarisation, a particular process of land consolidation has been found at work in the delta. As mentioned in the 1970s by Amyot (1977) in relation to some villages near Ayutthaya, the farming of increasingly large pieces of land is now being observed in the flood-prone area, north of Ayutthaya, north of Sing Buri, and in some other parts. Rather than the mark of a capitalistic attempt to seize land, this incipient concentration of land (mostly through the rental market) appears to be the result of the dramatic decline of the number of children engaging in agriculture. It is the outcome of the combination of several factors: 1) the lower profitability of rice-growing in this sub-region, which pushes some farmers to farm larger areas; 2) corresponding lower rents and land prices; 3) the higher availability of land for rent (many older farmers); 4) a higher supply of non-agricultural jobs in the area; 5) higher emigration rates; and 6) the limited labour requirements of this type of rice cultivation. This land concentration remains limited so far to flood-prone ecosystems where the average farm area had already levelled off close to the sustainability threshold, where little intensification was possible, and where economies of scale are available, due to the peculiarities of the rice system. Furthermore, as the effects of the demographic transition initiated around 1970 start to impact the average number of heirs, we may expect this trend to gain momentum. With the demise of agriculture, one can legitimately envision a growth of larger mechanised farms, predominantly based on family labour, with limits in size well below European or American standards but significantly higher than the Asian averages of 1–2 ha.

On the other side of the spectrum, however it remains to be seen what is the magnitude of the possible process of eviction of small farmers, a point to which we now turn.

4.3.3 Tenancy, landlessness, and farmers' eviction

The 1970 crisis was also characterised by growth in the population of wage labourers as well as an increase in landlord abuse. Surveys by the Agricultural Land Reform Office (ALRO) in the 1970s found that landless labourers amounted to between 5% and 23% of total farm workers, and even higher in (30%).

The interpretation of the causes and consequences of landlessness is a subject of much controversy⁷. It is widely held that landlessness is the result of the eviction of small and poor farmers from an increasingly capital intensive agriculture, through the accumulation of debts (Tomosugi, 1969; Turton *et al.*, 1978; Witayakorn, 1983b; Douglass, 1984; Tanabe, 1994). Other authors lay emphasis on population pressure and land fragmentation by inheritance as the main cause (Montri, 1930; Wagstaff, 1970; Suvaphorn, 1975; Piker, 1975; Suthiporn and Worwate, 1981). Both processes are obviously at work, but in different proportions according to the sub-area and point in time, calling for cautious treatment of the data at hand.

Most generally, where do the wage labourers come from? The evidence is not clear. It is often assumed that tenants are landowners that have lost ownership, and that labourers are tenants who have totally lost access to land. A 1964 survey of 5 central provinces, however, found that 81% of full tenants never possessed any land prior to becoming tenants (Chuchart *et al.*, n.d.). Similarly, a 1965 survey of 11 central provinces found 87% of full tenants never possessed any land prior to becoming tenants (Chuchart *et al.*, 1965). Ten years later, ALRO surveys found that most of the landless were born in, or long-time residents of, their province; only 13% of the landless had moved from another province in the last five years preceding the surveys. However, it was still not clear how they had become landless (Suthiporn and Worwate, 1981). Only 7% of the landless had land 10 years earlier; similarly, only 13% of people owning less than five *rai* had more land 10 years earlier (11.5% had less and 76% the same amount), of which about one-third (only 4% of the total farms) said that the loss of land was caused by indebtedness. A good proportion of them attributed it to land fragmentation as a result of inheritance.

The surveys conducted in the 1960s show a large percentage of wage labourers who were considered rather "stable" and who were descended from one or several generations of landless families. In 1975, Kitahara (1977) also noted that, in the village he surveyed near Ayutthaya, "there are large numbers of descendants of the rural labourers going back many generations. These families can partly be traced back to the descent of slaves." Two lines of arguments can tentatively explain this situation. First, long-term landless people, particularly wage labourers, tend to be

rather immobile. They lack the capital required to move, the confidence to take risks, and the educational level to gain access to skilled jobs. Their elderly, who have no opportunity to migrate, may require economic support from children who tend to stay in the neighbourhood. Second, formerly landowning or tenant families who have fallen into landlessness may not be captured by these surveys because they have left the village for the urban frontier.

Further, most analyses assume that the landless are also the poorest, but again the data are not so unequivocal. Most surveys suggest that the economic situation of landless people is inferior to that of other farmers, although with varying degrees (Wagstaff, 1970), but assessing this difference is difficult because of the problems involved in capturing the income of wage labourers or small farmers with multiple incomes through surveys. Such households often earn income from a wide variety of sources, on-farm and off-farm, in the village and beyond, in cash and also in kind. Auto-consumption of farm products (backyard fruits and vegetables, eggs and hens) and self-caught fish is often extremely significant in shoring up the family's subsistence needs. Evidence gathered by some observers suggest that "although non-landowners on the average do not do as well as their landed neighbours, the combination of mainly local employment opportunities has made it possible for a number of village families to subsist as non-landowners for two generations at a decent standard of living by village norms" (Piker, 1975). This is echoed ten years later by Visser (1980) who explains that "even landless villagers, who do not rent land, do not feel the pinch so strongly that they are inclined to consider migration or to find out about the labour market in the towns." This suggests that moving is more often a matter of choice than of necessity.

We have estimated elsewhere (Molle and Thippawal, 2000) that wage labourers in the rural delta amounted to 100,000 households (20% of all agricultural households) in 1990. Mapping by *amphoe* shows that their occurrence is correlated with labour intensive peri-urban horticulture and aquaculture; with an area that has a high proportion of older farmers unable to carry out farm operation by themselves; and with factories and urban centres providing complementary job opportunities within close proximity. In contrast with the situation in the 1960s and 1970s, there remains little doubt that the increase in wage labour in recent years is mostly due to the reproduction of the population of wage labourers themselves. Recent field surveys in three villages of the central plain found, with very few exceptions, that landlessness had happened in prior generations (Molle *et al.*, 2001c).

Let us now reconsider the meaning of tenancy and landlessness. If one focuses on the aspects of subsistence and security, then "the conventional hierarchy of

status among the rural poor is usually smallholder, tenant, wage-labourer" (Scott, 1976). Following this line of reasoning, Witayakorn (1983b) considers that "the measurement of social class differentiation in the agrarian sector of the central region could be based on the distribution of land holdings data." Village studies and statistical data, by and large, do not make a very good case for such a view. The problem with the conventional view may begin from its attempt to imagine the delta agrarian system as a subsistence economy in which access to land determines economic and social status⁸. As early as the post-war period, Kamol (1955) observed that "it does not hold, as it seems to imply, that an owner-operator has a superior economic status than a part-owner and that a part-owner is still in a better economic position than a tenant." Mehl (1981) also proposed a more qualified analysis: "full tenancy, predominantly on smaller farms, indicates economic hardship, but part-tenancy, largely on medium and large farms, indicates a degree of well being." In fact, there are notable exceptions to Mehl's equation between full tenancy and hardship, such as the cases of peri-urban vegetable farming and some raised-bed orchards in Damnoen Saduak (Cheyroux, Chapter 7), which may combine tenancy and high value crops on small plots of land. More generally, over our five inner provinces, full tenants with less than 10 *rai* amount to only 5% of the total farms, or 9% if we consider the 0–15 *rai* range. Moreover, half of these are found in Nakhon Pathom and Pathum Thani and are likely to correspond to cash crops and peri-urban vegetable/fruit production farms. Thus, the category of small full-tenant farmers who may be vulnerable to hardship amounts to around 5% of farms, which is not negligible but small.

Mehl's statement that part-tenancy often indicates well-being is worth being emphasised. Often the cases of Rangsit and other areas surrounding Bangkok are mentioned in a negative fashion because of their high rates of tenancy, an exception in the Thai landscape. A closer look at the statistics, limited to Pathum Thani, reveals that the average size of rice-growing farms was 29 *rai* in 1993 (and had been 39 *rai* in 1978, at a time when tenancy was raising more concern than now). Land rents have also been generally low on the East Bank. Double cropping of rice on 29 (rented) *rai* yields an income that compares favourably with the rural average.

Mixed owner/tenant farms account for over 20% of all farms in size classes over 25 *rai*. Although in absolute numbers about half of them farm less than 30 *rai*, their average farm size (40 *rai*) is drastically higher than that of owners (17 *rai*) and tenants (23 *rai*). Smaller farms do not tend to (or cannot) compensate for their lack of land by renting an area larger than that which they own. Strikingly, in all size classes, the share of rented land varies in a very narrow interval of 40% to

50% (1993 Census). Again, it is difficult to separate “well-to-do” farmers in this category based solely on farm size. However, renting land is indicative of farms that are attempting to expand activities in order to accumulate. “Dynamic and prosperous, these part-owners/part-tenants break the traditional association of tenancy with penury” (Montesano, 1992). The rental market (supplied in particular by absentee owners) appears to perform an extremely important function in land reallocation (Stifel, 1976), especially in a context of partible inheritance which generates a “family cycle” of gradual land accumulation. Based on a comparison of ten villages in Southeast Asia, Fujimoto (1996) observed that, “in contravention of the common view of tenancy as detrimental to agriculture development, the prevalence of tenancy appeared to have provided an opportunity not only for landless villagers to earn a living but also for some farmers to expand the size of their farm activities.”

In sum, there is no trend towards hardship tenancy on any large scale, and the emergence of a growing class of mixed owner/renter farmers (Mehl, 1981; Montesano, 1992) is significant but also rather limited. The major theme in landholding change since the 1970s crisis is the unexpected spectacular growth of small-sized fully-owned farms.

4.3.4 The land jigsaw: an interpretative dilemma

The agrarian dynamics underpinning these evolutions of the land system are subject to interpretation. Here we suggest the interpretation must abandon a simple attribution to push or pull factors in favour of a more complex jigsaw of rural-urban interaction.

The evolution of the 1950–63 period can be seen in two different ways. On the one hand, we may argue that differences in farm size strongly reflect the logic of the family cycle (farm land dovetails with the amount of labour force in the household⁹), rather than absolute differences in land endowment, and that new land brought under cultivation is allotted to all types of farms. In other words, there is an increase in the number of farms (with a small decline of 6% in the average farm size) which is distributed over the whole spectrum of farms found at different stages of evolution. On the other hand, the growth of farms under six *rai* is very significant, and this period can also be said to have experienced growing land saturation, the emergence of very small farms and, probably, the growth of landlessness. However, no real polarisation is observed as all categories grow in number. The increase of large farms between 90 and 140 *rai*, from 2,436 to 4,349

units, might well be interpreted as an emergence of a class of large landowners at the time. However, this trend will be discontinued in the following decades.

After 1963, a large erosion of large and middle-size farms was observed, which can probably be ascribed to the fragmentation of these units into smaller ones. As the total number of farms decreases only slightly, it is likely that an increase in the number of farms due to partible inheritance is being compensated by the disappearance of other farms, presumably small ones. This mirrors the increasing difficulty to access additional land along the family cycle (either through purchasing or through renting-in), which reduces the amount of land transferable to children but also shortens the odds of their being able to offset a poor initial land endowment by further land acquisition or rental. It is also likely that, in recent years, the rates of both farm creation and farm eviction have declined. The number of heirs willing to continue farming may well, in some sub-regions, be nearing or be under the average reproduction floor value of two¹⁰, while failed and evicted farmers may be correspondingly limited in number¹¹.

The number of farms and farmers who have “disappeared” remains the key—but still concealed—point of the final interpretation. In fact, there is no way to estimate these rates from the statistics at hand. The only evidence is that there was a massive transfer of the labour force from agriculture to the other economic sectors (locally and in Bangkok), together with a growth of the numbers of rural wage labourers. The question is whether this shift was predominantly governed by will (a pull process) or by force (a push); in other words, whether it has been fuelled by younger generations *choosing* to desert the agricultural life of their parents, or by failed landless tenants and miserable wage labourers escaping a life with no future; whether a population of wage labourers remains because of local job opportunities or because they are facing relocation constraints. In the first (pull) scenario, no farms disappear but siblings depart allowing those that remain to achieve a viable farm size. In the second (push) scenario, small farms fail and do “disappear,” forcing people out of agriculture into undesired alternatives.

The difficulty lies in that both processes are probably at work in parallel. In addition, the decision not to engage in agriculture may be a mixture of personal taste—clearly influenced by a cultural context which does not see farming as prestigious—and of the fact that the family land is insufficient to provide all siblings with a sustainable holding. Farmers may be forced to give up farming after a failure but also be accommodated by the fact that higher or more reliable wages are offered in the cities, that other non-farm activities are possible, or that the sale of land is an option¹². The whole dynamics are further governed by the possibility

of “horizontal” expansion (when land is available) and “vertical” expansion (intensification), a process which, timewise, is linked to technical change and market opportunities, and, spacewise, is constrained by agro-ecological conditions.

The “jigsaw” lies in an interrelated set of interactions: 1) the agricultural/non-agricultural income differential, which conditions labour flows between the two sectors and, in return, is altered by these flows; 2) the sustainability of farming, dictated by (among many factors) the technological level, the price system within the economic environment, and the average farm size which, in turn, is a result of 3) the rate of fragmentation at inheritance, which is governed by demography (mainly fertility), the percentage of children not engaging in agriculture (i.e., linked to [1]), and the extent to which the family land is passed on to its farming members (alteration of the equal division custom, preferential rental or sale of land from non-farmer siblings, etc).

On the whole, the general impression is that, although the 1970 crisis probably saw a temporary increase of the push factors, the transformation has mainly been a pull process, especially during the last 15 years. Several indications supporting this hypothesis are provided by an analysis of the labour market and of agricultural trends (see next section). In addition, since as early as the 1960s, the status of full tenancy and landlessness cannot be strongly linked with the previous status of smallholder, weakening the hypothesis of a push process. A last point to be mentioned is that emigration out of the rural delta is by no means a feature of lower economic strata. On the contrary, the richest farmers invariably invest part of their surplus in the education of their children who, consequently, prefer to look for jobs outside the family farm. This preference may be in part motivated by obvious differences of income between urban job opportunities for educated people and farming, but we would miss the point should we concentrate only on economic aspects. All the village studies have repeatedly stressed the negative cultural connotation of farming and of rural life, the desire of parents to see their children embracing non-farming activities, and the attractiveness of urban ways of life in general and of Bangkok in particular (Thompson, 1941; Kaufman, 1960¹³; Snit, 1972; Amyot, 1975; Douglass, 1984).

4.3.5 Agricultural intensification, diversification and wider economic changes

There is a strong case for thinking that it is nowadays misleading to judge the precariousness of small farms based only on farm size or tenure. Intensification

(triple cropping) and diversification (high value-added crops) indicate a significant “vertical growth” which pulls economic thresholds downward, while multiple activity and multiple incomes (including remittances¹⁴) outline a complex household economy which cannot easily be grasped. The distinction between farmers and non-farmers is blurred. This brings some inaccuracy to the census definition of agricultural holdings—that the head of holding’s main activity is agriculture—because “main” is not clearly defined (is it in terms of labour time or money?) and because household incomes are much more complex than the head’s income alone (Molle *et al.*, 2001c). It is therefore not relevant to stick to the idea of “all-agricultural” small farms, even if there is some evidence that pluri-activity might be associated with lower average incomes and, therefore, be less desirable.

The growth of wage labour can be linked to the increase of pluri-activity and to the structural transformation of the Thai economy. The 1993 census shows that small farmers tend to have other sources of income. This is true for half of the holdings with less than two *rai* and for one-third of those in the 2–5 *rai* category, which draw their income “mainly from other (non-agricultural) activities.” Even among those reporting their own holding as the main source of income, 40% also have secondary incomes. Non-farm cash income in the central region represented 40% of the total income in 1976, and increased to 65% in 1991 (TDRI, 1995)¹⁵.

Another important point is that agriculture in the last 30 years has undergone processes of both intensification and diversification that compensate for, and most probably offset, the decline in average farm size. A first set of significant transformations concern the physical infrastructure of the delta, radically modified by the implementation of the Chao Phraya Irrigation Project from the late 1950s onward. The later arrival of High Yield Varieties, rice double cropping¹⁶, and on-farm improvement together with drainage works in the upper delta, have allowed a quantitative leap in productivity (see Isvilanonda and Hossain, Chapter 5). Triple rice cropping is now common and has reached a record value of one million *rai* in 1998 and 1999. In addition to rice intensification, agricultural diversification has gradually become a crucial transformation process (see Thippawal, Chapter 6; and Cheyroux, Chapter 7). In the rural delta, the area farmed with non-rice crops increased from 19% to 26% between 1978 and 1993, while the proportion of farmers not growing rice¹⁷ moved from 19% to 28%, and the share of farmers planting a non-rice crop (irrespective of whether they also grow rice) rose from 35% to 44%.

The quasi absence of unemployment (before the crisis) in urban areas¹⁸, and/or acute poverty in the delta, also gives credence to the idea that migration was a demand driven process; although the conditions of life in the poorest areas of Bangkok are known to be harsh, the situation is quite different from other cities in Africa, India, or South America where rates of urban unemployment and criminality are high, the rate of return to rural areas are very low, and migration is clearly “pushed”. It is too extreme to imagine, borrowing Engels’ expression, that farmers unwilling to get sizzled in the (rural) frying pan choose to take a walk into the (urban) fire.

The second element supporting the pull side is that a push process would tend to be associated with an excess of labour in the countryside. This is in contradiction with the well-established fact that the disappearance of transplanting in the 1980s and the mechanisation of harvesting in the 1990s have been driven by a labour shortage (Molle and Chatchom, 2000). Another argument is provided by the Labour Force Surveys, which show the wage differential between rural labour and urban work in manufacture or construction. Industrialisation and a slow agricultural development have widened the productivity gap between agricultural and non-agricultural sectors. As a result, rural resources have been shifted to the non-agricultural sector (Nippon, 1996). Between 1975 and 1988, the ratio of mean per capita income of non-agricultural households to that of agricultural households increased from 2.08 to 2.55 (national level).

This line of argument is further strengthened by considering the evolution of deflated wages, which had a turning point in the late 1980s. Rural real wages stagnated during the 1965–85 period, but then increased by 50% over the following ten years in line with wages in the construction sector in Bangkok. This, together with the sustained differential mentioned above, is characteristic of a pull process. Other data from the Labour Force Surveys show that 1988 was a watershed for the central region. From this date onwards, the total labour force engaged in agriculture started to decline sharply, losing one million workers out of a total of 3.5 million in the following decade. This is consistent with the hike in real wages, and shows that since the late 1980s at least labour is getting scarcer in agriculture in the central region.

This turning point coincides with the record-breaking influx of foreign investments over the 1986–95 period, when a new Japanese-owned factory was opening every three days (*Nation*, 16 November 1999). It also correlates with demographic trends. The rate of population entering the labour force age is now declining in both relative

and absolute terms¹⁹, which directly contributes to the decline of the labour force engaged in agriculture. The decline in the agricultural labour force is concentrated exclusively among the younger strata of the population (mostly the 15–24 year old category and, secondarily, 25–34 year olds) (Ammar, 1999).

4.4 Conclusion

The evidence presented in this chapter somewhat unexpectedly²⁰ dismisses much of the common knowledge accepted for the Chao Phraya Delta land system. “The past 25 years have been one of a trend toward the gradual concentration of land into larger and larger owned units and the development of tenancy. . . . this will lead to a greater concentration of land.” Dating from as early as the 1930s, this statement (Zimmerman, 1931) has been issued in one form or another all along the 20th century. The data compiled in this study show that this process, visible in times of crisis, did not eventually materialise as a hallmark of the delta agrarian system. The share of land (around 40%) cultivated by tenants was found to be rather stable since the 1930s. In earlier decades, tenancy was part of the process of redistributing land resources along the family cycle; nowadays this rental market is increasingly supplied by those who have inherited family land but who have left their village. No significant trend towards land concentration was found, except in the 1950–63 period, but the largest farms were subsequently fragmented and tenancy levelled off. The concentration of ownership observed in the East Bank cannot be interpreted as the result of a gradual process of capitalistic land accumulation. Rather than the outcome, this peculiarity was at the *origin* of the history of the delta agrarian system and remained as a stigma throughout the century.

Many scholars have extrapolated evidence concerning some part of the region (notably, Ayutthaya or Rangsit²¹) or some particular period of history (notably the crises *circa* 1910, 1930, and 1970). The Rangsit case is documented more often because the interests of the nobility were at stake, but focus on Rangsit-centred data may lead to a distorted vision of the overall situation in the delta (the “Rangsit bias”) and tell little about the process in other areas (the “silent frontier”) (Molle, forthcoming).

The significant decline of the average farm size (30 *rai* to 21 *rai*) and the growth of small-scale holdings have been counterbalanced and probably offset by the increase in cropping intensity (development of dry-season irrigated crops), of labour-intensive cash productions (diversification), and overall pluri-activity. The Malthusian threat of fragmentation has therefore been weathered by a Boserupian

response of agricultural intensification but also drastically diffused by sweeping demographic changes (fertility, emigration to the upland frontier and to cities), and to some extent by the alteration of customary partible inheritance. There is little doubt that without these timely relieving factors, the agrarian system in the delta would have undergone a major crisis. That such an evolution was not obvious beforehand can be well captured by recalling Van Roy's paper (1967) on the "Malthusian squeeze" and his pessimistic belief that the reorientation in socio-economic organisation required to alter demographic parameters and structures of production is "innately gradual, not cataclysmic."

Through these processes the delta, not deprived of hardships and periodical gridlock, has succeeded in avoiding the situation too often observed in Asia and described as follows by Hayami and Kikuchi (1982): "the increase in non-agricultural employment [is] grossly inefficient to absorb the increments to the labour force, resulting in rapid increases in rural labour population pressing hard on limited agricultural land . . . the wage rate is bound to decline, the return to land to rise and the income position of labourers and tenants to deteriorate relative to that of landowners." While the late 1960s and the 1970s constitute a period of stagnation and crisis, those years are best seen as a transient period of agrarian saturation between a previous period in which relief was provided by the upland boom, and a later period of re-balancing marked by a decrease of population pressure on land, better access to credit, rising rice prices (1973–80), decreased taxation, and technical change (introduction of High Yield Varieties, double cropping, and improved water control). Real land rents gradually declined and local absentee landowners tended to turn their interest to and invest their capital in other developing sectors of the economy (Molle, forthcoming).

This was a pull process, in which alternatives to agriculture were relatively attractive, urban unemployment was negligible, and rural real wages appreciated. All of the net population increase was transferred to non-agricultural sectors, rather by will than by destitution. This transfer was not limited to lower economic strata but was overwhelmingly concentrated in the younger generations. While a push process imagines failed farmers encountering no other option than surviving precariously as wage labourers (Witayakorn, 1983a; Douglass, 1984), a pull interpretation stresses that this class of labourers exists *because* there is a local demand for agricultural labour (Ramsay, 1985), due to intensification, ageing farmers hiring labour, and non-agricultural job opportunities.

This chapter showed that staying with the simple categories of "landless," "tenant" and even "farmer" as measures of economic and social well-being, or as

normative representations, has been increasingly inadequate and might be misleading. As emphasised by Rigg (1996, 2001), “the distinctions between rural and urban are becoming blurred as households increasingly occupy, or have representation in both the rural and urban worlds and, more to the point, earn a living in both agricultural and non-farming activities. . . . This requires a re-thinking of the rural economy and rural life, a re-appraisal of policy initiatives and planning strategies, and a reformulation of theories of agricultural and rural development.” Wage labourers and farmers are engaged in and draw income from a wide portfolio of activities, or receive remittances from relatives. This prompted Koppel and Zurick (1988) to observe that this “rural employment shift” suggests “that an increasing proportion of rural labour relations are not connected directly with traditional agrarian processes, but rather with more complex socio-economic relationships in which agrarian processes may be only one part.”

All these trends and changes through the 20th century, irrespective of whether they are seen as opportune events or as induced by agrarian pressure, emphasise the remarkable resilience of the delta's agrarian system. Timely demographic, economic, and technological changes appear to have averted drastic imbalances, which could have led to land fragmentation or social polarisation.

An emerging trend of consolidation of larger mechanised farms (mostly through the rental markets) was observed in the flood-prone area and, though still limited, appears historically meaningful. While there is no reason to transpose the experience of developed countries into an Asian context, there is also no reason to rule out that the rural Chao Phraya Delta will, at least partly, undergo a growing process of consolidation of larger (rice) farms. This process appears to be driven by the following: a rather low population density (for Asian standards), an ageing and shrinking population of farmers, dramatic demographic changes (with the average fertility rate now at 1.7 children per woman), a high level of mechanisation, numerous and increasing non-agricultural job opportunities with relatively higher wages, and a corresponding huge seepage of labour force to other economic sectors. (In the last 10 years, the agricultural labour force in the central region has declined from 3.5 to 2.5 million people, with a drastic depletion of the younger age classes.) All these factors lend credence to the hypothesis—which is already reality in parts of the delta—that the central plain of Thailand could experience a deeper historical demise of agriculture, somewhat similar to what is already under way in Malaysia.

Most of the analysis presented in this report has remained non-judgmental about the processes which have been highlighted. The notion of “non-sustainability”

applied to farming failure, for example, is in line with the historical context and conditions observed. It is, however, also highly *relative*, and conditioned by a series of parameters and policy orientations, all lying beyond the scope of this study. Caution is also needed not to extrapolate the situation of the delta to other regions of Thailand, all with markedly distinct features.

The final picture is one of a growing process of specialisation (Pingali, 1997) leading to very small farms dedicated to intensive cash crops or animal productions; larger farms specialising in the mechanised agriculture of rice; and medium holdings characterised by extensive pluri-activity, drawing most of their income from non-farm sources (as seen in East Asia). The respective profitability of rice and sugarcane cultivation, fruit production, and aquaculture, as compared with the supply and remuneration of non-farm activities, will determine the pace of the transformation. The pressure on land, especially as manifested by the evolution of the rental market and tenure patterns, will reflect this wider metamorphosis.

4.5 Notes

¹ The circumstances of its historical transformations have been analysed by several classical studies to which the reader may refer; see, in particular, Ingram, 1971; Ishii, 1978; Johnston, 1975; Feeny, 1982; Sompop, 1989.

² Many studies on rural Thailand are based on data aggregated at the regional level. However, the high heterogeneity of agro-ecological and developmental conditions does not allow interpretation at that level. Even at the provincial level, it is often dangerous to draw conclusions. Provinces such as Lop Buri, Ratchaburi, or Saraburi encompass a wide variety of agricultural conditions.

³ Because of lack of space, it was not possible to present and discuss data by province, despite instructive differences. For more details, the reader is referred to Molle and Thippawal (1999).

⁴ If a similar calculation is carried out for the *rural delta* (i.e., the set of amphoe best matching the current irrigated area, Bangkok Metropolitan Area set aside), the decrease in farm size is only from 28 to 24 rai between 1963 and 1993, showing that land division is more advanced in the core delta (our five provinces).

⁵ The size classes in the three censuses are not exactly the same, and interpolations between some classes have been necessary in order to allow their comparison. This may have generated slight distortions between adjacent classes but does not affect the trends evidenced in the charts. In addition, the lower limit of farm size is one *rai* in the 1950 census, whereas it is taken as two *rai* in the following censuses.

Therefore, the growth of farms under two *rai* between 1950 and 1963 is underestimated (although it already appears quite considerable).

⁶ With the exception of the area growing orange trees in Rangsit, which is predominantly owner-operated.

⁷ And resist simplification: "Landlessness and near-landlessness, like poverty and inequality, are the result of a complex interaction of topographical, socio-economic and political forces operating over centuries and it is difficult to disentangle these causes from one another or indicate their relative importance" (Sinha, 1984).

⁸ Indeed, the few references to the Chao Phraya Delta made by Scott (1976) generally portray it as a peculiarity rather than as an example to which his theory should be applied.

⁹ This is expressed well by the Economic Farm Survey of 1953 which shows that farm size classes of 0–6 *rai*, 6–15 *rai*, 15–30 *rai*, 30–60 *rai*, and over 60 *rai*, correspond to average family sizes of 4.9, 5.3, 5.7, 6.2, and 7.4 members respectively.

¹⁰ Or even less, if we consider the *total* average, including those who do not continue farming because the land has been transformed to suit non-agricultural uses. In other areas, two (or a bit less because of singles) is the approximate threshold under which the number of farms would decline, due to the recomposition of farms at marriage.

¹¹ Nowadays, a prevailing low rate of farm creation and a high rate for the eviction of small farmers would translate into a decreasing number of farms and a growing average farm size, which are not observed.

¹² This is especially relevant for ageing farmers with no heirs willing to take over the farm, and/or where land prices are high; see Askew, Chapter 12, who shows that landowner farmers rationally manage their land assets in the urban fringe.

¹³ "Villagers themselves emphasise that the real success in Thai society, to which they aspire and to which an occasional individual may achieve, involves not becoming a successful farmer in a rural area but rather getting oneself placed in a high position in an urban occupation, usually the civil service."

¹⁴ 34% of migrants in Bangkok who originated in the central region were regularly sending remittances home (NSO, 1997a).

¹⁵ (1984) also comes to the conclusion that "non-agricultural incomes narrow income disparities among households in the community. They are correlated with farm size, farming net income and inversely associated with dependence ratio."

¹⁶ This developed in larger scale after the construction of the Sirikit dam in 1974. However, limited available water resources and infrastructure constraints only allowed farmers to cultivate an average of 50% of the paddy land in the dry season.

¹⁷ These include the sugarcane growers of the Mae Klong area.

¹⁸ Only 0.3% of the Bangkok labour force was looking for work in August 1996: 0.5% was seasonally inactive, and 0.8% was available but not looking for work (NSO, 1997c).

¹⁹ Fifteen years ago, natural growth was already reduced down to 1.75% *per annum*

²⁰ It must be acknowledged that most of our conclusions stand in contrast with our working hypotheses at the inception of our investigations.

²¹ The Rangsit area was the first large-scale development scheme. Most of it is located within Pathum Thani (see Figure 4.1).

Chapter 5

Dynamics of rice farming in the Chao Phraya Delta: a case study of three villages in Suphan Buri province

Somporn Isvilanonda and Mahabub Hossain

5.1 Introduction

A Green Revolution in Thailand's rice sector has taken place since the late 1960s. It has resulted in the wide adoption of High Yield Varieties (HYVs) in areas where water supply is less constrained, particularly in the irrigated areas of the Chao Phraya Delta. This adoption generated a marked increase in rice cropping intensity and farm productivity. At the same time, rapid rural development in the recent past has improved the off-farm and non-farm activities in rural areas. Increasing employment opportunities and wages in non-farm activities attract farm household members to work outside their farms, thus generating other sources of household income. In addition, a wage differential between rural areas and cities has encouraged farm labour out-migration. A scarcity of farm labour supply and a rise in rural wages stimulated an adjustment in farming practices toward an increasing adoption of labour saving technology aimed at reducing production costs. This paper is based on farm survey data of rice-growing villages in Suphan Buri province during 1987 and 1998 and investigates the dynamics of rice farm households in the delta. Section 5.2 describes the selected villages and the differential effects of rice production environments on the adoption of technology. Changes in factor prices and factor income are discussed in Section 5.3. Section 5.4 examines the sources of income of rice farming households, and Section 5.5 provides a conclusion.

5.2 Village characteristics and changes in rice farming conditions

5.2.1 Village and household characteristics

Three villages in Suphan Buri were purposefully selected based on different production environments. Wang Yang (SP1), Sa Ka Chome (SP2), and Chora Khae Yai (SP3) were representative of irrigated, rain-fed, and flood-prone environments respectively (see Map 5 in Appendix). A first survey carried out in 1987 was followed by a new survey in 1998 but the sampled households were not totally identical. The 1998 sample was comprised of 104 farm households, while that of 1987 covered a total of 142 farm households.

Table 5.1 shows the distribution of samples, average household size, and other characteristics of sampled households in the three villages. For both surveys, the average family size was slightly different across the sampled villages. The family size in the 1998 survey tended to decline compared with those in 1987 as a result of out-migration of family members working in non-farm activities. It is interesting to note that the average age of a rice farming household head increased during the past decade, reflecting the ageing of the rice farming population. The table also indicates a slight improvement in the educational background of this population.

The percentage of landless households in the recent survey declined from its 1987 value. The attractiveness of employment opportunities in cities, notably construction work, stimulated the poor to out-migrate from rural to urban areas. Large percentages (around 40%) of households in flood-prone and rain-fed villages were found to receive remittances from some family members.

5.2.2 Agricultural land holding and tenurial characteristics

Table 5.2 shows that the smallest average farm size was found in the irrigated environment. A relatively poor productivity per unit area in rain-fed and flood-prone conditions constrained the division of land and forced farmers to farm larger areas in order to maintain economic sustainability. The man-land ratio in the 1998 survey was lower than that in the 1987 survey, except for the flood-prone village (SP3), but farm size was larger in almost all the villages with the exception of the rain-fed area (SP2), reflecting a decline in rice labour force in all production environments.

**Table 5.1 Selected socio-economic characteristics
of sample households in 1987 and 1998**

	SP1	Village SP2	SP3
No. of sample households (HH)			
1987	45	56	41
1998	34	43	27
HH size			
1987	5.4	6.0	6.5
1998	4.2	5.1	6.6
No. of adults/HH			
1987	4.0	4.8	5.1
1998	3.4	4.1	4.4
Average age of HH head			
1987	50.6	53.4	60.3
1998	55.0	59.9	60.5
Average years of schooling of HH head			
1987	3.8	2.8	3.7
1998	4.1	2.5	4.2
% of landless HH			
1987	6.0	5.6	14.6
1998	na	na	na
% of HH receiving remittance			
1987	6.7	7.1	21.9
1998	7.9	39.5	42.9

Source: Kasetsart University–IRRI survey database.

Tenurial patterns in all three villages changed between the two survey periods. There were relatively more owner-operators in all the villages in 1987. A larger proportion of holdings leasing land was found in the flood-prone village (SP3) in 1998. Moreover, the share of owner-operators in the irrigated village tended to decline from 1987 to 1998. The crop-sharing tenancy system observed in the rain-fed village in 1987 survey had disappeared in the 1998 survey, reflecting a

Table 5.2 Size of landholding and tenurial characteristics of households in 1987 and 1998

	SP1	Village SP2	SP3
Average size of agr. holding (ha/HH)			
1987	2.8	6.5	8.4
1998	3.6	6.0	8.8
Population/ha of land			
1987	1.9	0.9	0.8
1998	1.2	0.8	0.8
% of land area under different tenurial arrangements			
1987			
1. owner cultivation (%)	72	82	52
2. fixed rent (%)	28	4	48
3. share cropping	0	14	0
1998			
1. owner cultivation (%)	41	75	44
2. fixed rent (%)	60	25	52
3. share cropping	0	0	0

Source: Kasetsart University–IRRI survey database.

development in the land rental market towards cash rent arrangements in all rice production environments.

5.2.3 Cropping patterns

The cropping patterns in the study villages also differed, revealing a substantial change toward an increasing diversification, with the expansion of non-rice crops in the irrigated environment. In the flood-prone environment, double rice cropping dramatically increased as a result of the change in the rice crop calendar and the adoption of HYVs. Table 5.3 shows that in the SP3 village, fallow–rice was replaced by rice–rice as a result of the abandonment of rice traditional varieties. Double rice cropping in SP1 in 1998 amounted to 52% of the total area, while in the rain-fed village (SP2), rice–fallow still contributed a relatively larger share. A

major non-rice crop in this area is water chestnut. Water chestnut can be grown all year round and some farmers chose to grow water chestnut instead of rice. Horticulture and fruit trees were also on the rise in recent years, particularly in the irrigated environment.

**Table 5.3 Rice cropping intensity
(% of total cultivated area) in 1987 and 1998**

	SP1	Village SP2	SP3
1987			
Rice-rice	77	0	0
Rice-non rice			
Rice-fallow	0	90	67
Rice-field crops ¹	23	1	-
Fallow-rice	0	0	32
Others	5	9	11
1998			
Rice-rice	52	-	82
Rice-non rice			
Rice-fallow	5	81	7
Rice-others ²	-	-	-
Fallow-rice	-	-	7
Others	42.6	18.8	3.6

Source: Kasetsart University-IRRI survey database.

¹ Field crops include vegetable.

² 'Others' includes cassava, banana, tobacco, sugar cane, mangoes, yams, water-chestnut.

5.2.4 HYVs adoption, fertiliser use, and yield performances

After three decades of HYVs dissemination to farmer fields, it seems that the adoption of HYVs was location specific and more confined to the irrigated environment where the water level can be controlled. Table 5.4 shows the adoption rate of HYVs by production environments. In the irrigated village (SP1), the dissemination of HYVs was complete in both wet and dry seasons. Furthermore,

**Table 5.4 Adoption of modern technologies
(% of total cultivated area) in 1987 and 1998**

	SP1	Village SP2	SP3 ¹
Adoption rate of HYVs			
1987			
Wet season	61	0.2	0
Dry season	100	-	100
1998			
Wet season	100	0	93 ¹
Dry season	100	0	100
Fertiliser use (kg/ha)			
1987			
Wet season ²	242	11	0
Dry season ²	306	-	275
1998			
Wet season ²	354	66	356
Dry season ³	347		368

Source: Kasetsart University–IRRI survey database.

Notes:

¹ In SP3 village, wet season represents the first rice crop which starts to grow in December or January.

² In terms of nitrogen content.

³ In terms of mixed chemical fertiliser.

the adoption of HYVs in the flood-prone area was allowed by a shift in the rice crop calendar and investments in plot improvement. Instead of broadcasting their local (deep water rice) varieties in May or June before the area is submerged, farmers leave the area idle for a few months during the wet season and wait until the rain water is drained away in December or January before broadcasting the HYVs. By this adjustment, the area of HYVs adoption has dramatically increased in the 1998 survey compared to the 1987 survey. Such a shift has been observed in other locations of the delta (notably the Phak Hai Project), and has been widely documented (Molle *et al.*, 1999). In the rain-fed village (SP2), rainfall uncertainty

and the absence of irrigation systems prevented farmers from adopting the HYVs. Instead, improved local rice varieties of lower amylose grain quality, particularly KDM105 and *Khao Tahang*, were commonly grown.

Because of the good response of HYVs to chemical fertilisers, their application rate significantly increased in the areas where HYVs could be adopted. In 1998, the application rate of fertiliser was done in the form of mixed chemical fertiliser. It cannot be directly compared with that of 1987 which was in the form of nitrogen equivalent.

Land productivity is reflected by the yield performance. In irrigated and flood-prone environments, the yield performances were significantly higher than in the rain-fed area due to the adoption of HYVs (Table 5.5) and seem to have increased during the interval between the two surveys. In contrast, frequent droughts in the rain-fed village (SP2) caused dramatic yield reductions.

Table 5.5 Yield performance (kg/ha) of farms in 1987 and 1998

	SP1	Village SP2	SP3
1987			
HYVs wet season	4.1	-	0.0
HYVs dry season	4.7	-	4.1
Local varieties wet season	3.3	1.3	1.1
1998			
HYVs wet season	5.4	0.4	4.8
HYVs dry season	5.3		4.9
Local varieties wet season		0.2	

Source: Kasetsart University–IRRI survey database.

5.2.5 Adoption of labour saving technology: direct seeding

The transplanting rice method (TPR) was previously a widely practised technique among Thai farmers. The TPR method is a labour intensive technique. On the other hand, direct seeding rice (DSR) and wet-seeded rice (WSR) methods are labour saving techniques. The DSR method was previously employed only in flood-prone areas where the water level cannot be controlled. The WSR method

was later introduced to farmers in the early 1980s for saving labour in transplanting activities, particularly in Suphan Buri (Somporn, 1990; Molle and Chatchom, 2000). A higher wage rate in irrigated areas and a scarcity of hired labour during transplanting time induced farmers to adopt this method widely. In 1987, the adoption of the WSR technique in the irrigated village (SP1) was already almost complete, but in the flood-prone village it was used only in the dry season (Somporn and Saran, 1994). Table 5.6 indicates that the adoption of the WSR

**Table 5.6 Rates of adoption of labour saving technology
(% of total cultivated area) in 1987 and 1998**

	SP1	Village SP2	SP3
Adoption of direct seeding method			
1987			
Wet season	94 ¹	100 ²	100 ²
Dry season	85 ¹	-	100
1998			
Wet season	100 ¹	100 ²	100
Dry season	100 ¹	100	
Adoption of power tillers			
1987	100	982	100 ^{3/4}
1998	100	100	100
Adoption of mechanical threshers			
1987	100	100	100
1998	0	0	0
Adoption of combined harvesters			
1987	0	0	0
1998	100	56	100

Source: Kasetsart University–IRRI survey database.

Notes:

¹ Indicates adoption of wet seeded rice technique.

² Indicates adoption of direct seeding rice technique.

³ Using four wheel tractor.

⁴ Power tiller is used in dry season.

method in irrigated and flood-prone villages was complete in 1998, in both wet and dry seasons.

5.2.6 Adoption of labour saving technology: mechanisation

Labour saving technology, particularly four wheel tractors, was introduced to Thai agriculture long before the introduction of HYVs (Ammar, 1986). However, most of this technology was used for upland cropland preparation, especially for opening up new land. The development of tractor services at that time rapidly spread to the deep-water rice areas of the Chao Phraya Delta (Saran, 1983). Power tillers were originally imported from Japan during the early 1960s and were soon simplified by local manufacturers. The locally produced power tiller was rapidly utilised in the irrigated areas of the Chao Phraya Delta. Increase in rice cropping intensity in the irrigated environment and low interest rates of agricultural credit were major factors in stimulating farmers in the irrigated areas to adopt the power tillers (Tongroj, 1983). In the Chao Phraya Delta, the adoption of power tillers in all production environments appeared to be complete in the 1998 survey.

Mechanical threshers were introduced in the delta during the 1970s and were also rapidly adopted. By 1987, they had been fully adopted in both irrigated and non-irrigated areas. This was because threshers save time, allowing for a second crop, particularly in irrigated areas. In less favourable areas, the availability of off-farm and non-farm employment was the major factor governing this adoption. However, the situation changed again and the mechanical threshers disappeared from the central plain as a result of the adoption of combine harvesters (Somporn and Saran, 1990). Contractors provided service for both harvesting and threshing activities simultaneously. The competitive market of rental services and the high wage rate are important factors contributing to the quick adoption of these machines, even in the flood-prone area of the delta where they were employed in 70% of farms in 1998 (Molle *et al.*, 1999).

5.3 Changes in factor price, factor use, and factor income

Differential effects of HYVs adoption on productivity and factor use have been previously documented by Jerachone *et al.* (1975). An increase in productivity in favourable environments as a result of HYVs adoption raises labour demand for crop care, harvesting, and threshing. Also, a rise in cropping intensity increases labour demand due mainly to its effect on labour use throughout the year (Sudaryanto

and Kasryno, 1994; Hossain *et al.*, 1994). In Thailand, the effect of HYVs adoption on labour demand was quickly offset by the rapid adoption of labour saving technology, particularly the power tiller, the wet-seeded rice method, and the mechanical thresher (Somporn and Saran, 1990). Higher relative factor prices, resulting from a change in factor share, and a slower increase in rice price consequently induced farmers to adopt labour saving technology for maintaining profit. Comparisons of the output and factor prices in the 1987 and 1998 surveys evaluated at 1998 prices are shown in Table 5.7. The rice price seemed to decline between the two surveys. The real fertiliser price cannot be compared across the two surveys because the fertiliser price in 1987 was in terms of nitrogen nutrient price while the latter was in terms of mixed fertiliser price.

Real wage rates in 1987 were markedly different between irrigated and rain-fed villages. In contrast, the 1998 survey found nearly equal values for all production environments and a hike in wage rates compared with 1987. This indicates the dynamic trend of rural labour markets to equalise wage rates in the region. Furthermore, the competitiveness of rental markets for machine services, particularly tractors, mechanical threshers, and combine harvesters, created a decline in the real rental rates of those machines over time.

The total labour use for rice production in the two surveys declined significantly in all villages (Table 5.8). In 1987, the amount of labour used was larger in the irrigated village (SP1). However, in 1998, a wider adoption of mechanisation for harvesting and threshing reduced labour use in SP1 and SP3. The rice income of the farm households depends on the costs of production factors both owned and hired by the households. Such payments depend essentially on technology and factor prices. To quantify differences in factor earnings among production environments, the conventional accounting technique was applied (Ranade and Herdt, 1978). The weighted average gross returns of rice per hectare in both wet and dry seasons were distributed among groups of factors of production. Return to current inputs refers to the sum of expenses for fertiliser, seeds, pesticides, and gasoline. Imputed payment to owned machinery and actual payment to hired machinery form the return to capital. Return to labour is calculated by the sum of expenses for hired labour for all operations, and imputed expenses for family labour man-days for all operations multiplied by the average wage rate. Return to land is obtained from reduction of gross output by the sum of other expenses.

Table 5.9 compares factor payments (evaluated at 1998 prices) and factor shares in rice production. In irrigated and flood-prone villages, returns to land and

**Table 5.7 Comparison of output and factor prices
(at 1998 prices) in 1987 and 1998**

	SP1	Village SP2	SP3
Paddy price (Baht/kg)			
1987	7.6	6.6	7.0
1998	5.9	6.2	6.1
Fertiliser price (Baht/kg)			
1987 ¹	23.5	26.8	-
1998 ²	6.1	6.4	6.9
Wage rates			
Crop establishment (Baht/day)			
1987	109 ³	64.5	103 ³
1998	120	100	120
Harvesting (Baht/day)			
1987	71 ³	62 ³	70 ^{3/}
1998	120	100	120
Custom rate			
Tractor (Baht/ha)			
1987 two passes	2,063	2,292	2,292
1998 two passes	1,875	1,375	1,563
Thresher (Baht/ton)			
1987	180	190	180
1998	-	175	-
Combine harvester (Baht/ha)			
1987	-	-	-
1998	2,581	-	2,354

Source: Kasetsart University–IRRI survey database.

Notes:

¹ Refers to nutrient price of nitrogen.

² Refers to mixed fertiliser. In Suphan Buri, the popular fertiliser used by farmers are Urea, Ammonium Sulphate, and 16-20-0.

³ Imputed daily earning under piece rate contract.

**Table 5.8 Labour use (man-day/ha)
and share of mechanization in 1987 and 1998**

	SP1	Village SP2	SP3
Land preparation ¹			
1987	7.4	6.4	5.2
1998	2.6	3.1	1.3
Crop establishment			
1987	7.0	2.6	1.7
1998	1.1	0.5	0.3
Care of crop			
1987	14.4	3.2	8.2
1998	4.3	2.3	2.3
Harvesting and threshing			
1987	28.7	27.5	21.9
1998	0.1	7.0	2.2
Total labour			
1987	57.5	39.8	37.0
(% of hired labour)	(49.1)	(27.5)	(49.6)
1998	8.0	12.9	6.2
(% of hired labour)	(63.3)	(45.6)	(22.5)

Source: Kasetsart University–IRRI survey database.

Note:

¹ The values for 1987 are higher because a fraction of the farms were still using transplanting, and because land preparation was more carefully carried out, including two ploughings and one puddling.

current input were the larger share as a result of HYVs adoption. The change in factor shares observed between the two surveys stemmed from changes in absolute return on capital and labour because higher wage rates induced a substitution of labour by mechanisation. The absolute return on hired labour in 1998 declined substantially from the 1987 value, whereas the return on hired machinery rose significantly. The increasing use of rental service for farm mechanisation in many activities generated a higher value of hired capital in the 1998 survey. A wide adoption of fertiliser and herbicides created a larger share of expenses for current

**Table 5.9 Factor payments (1998 prices, in 1,000 baht/ha)
and factor shares in 1987 and 1998¹**

	SP1	Village SP2	SP3
1987			
Gross value of output	28.0 (100)	8.4 (100)	13.5 (100)
Current input	4.2 (15)	0.9 (11)	2.7 (20)
Fixed capital	2.5 (9)	1.1 (13)	1.2 (10)
Owned	2.0	0.6	0.9
Hired	0.5	0.5	0.4
Labour	6.4 (23)	3.0 (35)	3.7 (27)
Family	3.2	2.2	2.0
Hired	3.1	0.7	1.7
Land	14.9 (53)	3.5 (41)	5.8 (43)
Leasehold rent	1.6	2.0	3.5
Surplus	13.2	1.5	2.4
1998			
Gross value of output	24.9 (100)	4.5 (100)	29.2 (100)
Current input	6.9 (28)	0.8 (28)	6.2 (21)
Fixed capital	1.9 (7)	1.6 (35)	1.9 (6)
Owned	0.9	0.8	0.9
Hired	1.0	0.8	1.0
Labour	0.9 (4)	1.8 (40)	1.7 (6)
Family	0.5	0.8	0.7
Hired	0.4	1.0	1.0
Land	15.3 (61)	0.3 (7)	19.4 (67)
Leasehold rent	1.8	0.6	1.2
Surplus	13.5	-0.3	18.2

Source: Kasetsart University-IRRI survey database.

Note:

¹ Using cultivated area as a weighted unit for wet and dry seasons.

Note: Percentages in parentheses.

input in 1998. A negative surplus in the rain-fed village (SP2) in 1998 was the result of a drought in this village.

5.4 Household income by sources

Household income is determined not only by the distribution of rice income, but also by the possession of productive resources such as land, human capital, and capital assets, as well as by market and institutional factors such as opportunities for non-rice production, access to non-farm employment opportunities, and land tenure. In this section, factors affecting differential levels of household income are examined.

Table 5.10 shows household incomes broken down by source (evaluated at 1998 prices). Income from rice production was by far the highest in the irrigated village (SP1) in the 1987 survey. However, with the exception of the flood-prone village, the rice production income declined in relative terms, and its share in 1998 was less than half of total household income. Instead, the major source of household income was obtained from non-rice production income in most villages. In SP3 rice income was a major share of the 1998 income as a result of the change in crop calendars and the adoption of HYVs. Furthermore, a sizeable part of the income of the rain-fed and flood-prone households was found to come from remittances from other family members.

5.5 Conclusion

This study examined recent development trends of rice growing households in different production environments in the Chao Phraya Delta. It was found that the difference in production environments, as determined by the availability of irrigation, was an influential factor in determining the rate of adopting modern rice varieties and the rice cropping intensity. The adoption also created differential land productivity between irrigated and non-irrigated villages. The major change in rice farming practices between the two survey periods stemmed from the increased adoption of labour saving technology, particularly wet-seeding, and mechanisation for land preparation, harvesting, and threshing activities. However, while the adoption of power tillers and tractors was almost complete in all rice production villages, the adoption of combine harvesters was still concentrated in the irrigated and flood-prone villages. As a consequence of the increasing adoption of labour saving technology, the total amount of labour use per hectare in rice farming activities declined significantly in all production environments.

**Table 5.10 Average annual income (1998 prices, 1,000 baht)
of farm households by source, in 1987 and 1998**

	SP1	Village SP2	SP3
1987			
Rice production	94.2 (56)	36.3 (53)	59.5 (53)
Labour	16.6	14.5	16.6
Capital	9.9	3.5	6.9
Land	67.7	18.3	36.0
Non-rice production	74.7 (44)	32.2 (47)	53.7 (47)
Farm	61.1	18.3	8.8
Non-farm	12.1	12.3	41.7
Remittance	1.5	1.6	3.2
Total income	168.9 (100)	68.4 (100)	113.2 (100)
Household size	5.4	6.0	6.5
No. of working member	4.1	4.4	5.0
Per capita income	31.3	11.4	17.4
Per working member	41.2	15.5	22.6
1998			
Rice production	103.2 (29)	2.6 (4)	101.7 (83)
Labour	4.1	2.3	10.6
Capital	36.1	1.8	27.6
Land	63.0	-1.5	63.5
Non-rice production	258.2 (71)	67.4 (96)	20.2 (17)
Farm	218.8	24.7	1.4
Non-farm	37.5	34.9	10.3
Remittance	1.9	7.9	8.5
Total income	361.4 (100)	70.0 (100)	121.9 (100)
Household size	4.2	5.1	6.6
No. of working member	3.4	4.1	4.4
Per capita income	86.0	13.7	18.5
Per working member	106.2	17.1	27.7

Source: Kasetsart–University-IRRI survey database.

Note: Percentages in parentheses.

Real wage rates in both irrigated and non-irrigated villages dramatically increased, particularly in the rain-fed village as a result of rural labour market adjustment to equalise wage rates within the delta.

The marked rise in real factor price and a decline in real paddy price reduced the surplus or land income between the 1987 and 1998 surveys. However, the substitution of capital for labour inputs which took place simultaneously helped maintain the land income in all villages. That is, the share of labour income significantly declined, particularly hired labour income, but that of capital income rose substantially. The share of real rice income was found to decline in importance in the rural household income surveys, except in the flood-prone village. Instead, the main source of rural household income was from non-rice production and non-farm activities.

This study suggests that modern rice technology is biased toward favourable production environments. This results in disparity in farm household income between irrigated and rain-fed villages. The improvement of labour productivity of rain-fed village households through a human resource development program is a primary concern for strengthening their ability to access non-farm activities. In the delta's irrigated area, the development of non-rice crop activities would enhance the land productivity and also the non-rice crop income of the farm households.

Chapter 6

Agrarian transformations in the Chao Phraya Delta: a case study in *tambon* Thung Luk Nok¹

Thippawal Srijantr

6.1 Introduction

The agricultural sector has played an important role in the Thai economy for a long time. Farm production ensures food security and provides direct and indirect personal income to the largest segment of the population. Production surplus is generally exported and is an important source of revenue for the country. However, since the National Development Plans have given priority to the industrial sector, the share of agriculture in national output has declined rapidly, while the industrial and service sectors have soared (Garin, 1989; Jansen, 1990). Yet, a total of 38 million people still live in rural areas (61% of Thailand's population), and 90% of the rural population is engaged in the agricultural sector which produces 11% of the GDP (NESDB, 1997). During the past three years following the economic crisis (1997), Thailand realised the important role of agriculture in the country's stability and development, as well as its cultural and social dimensions.

The central plain of Thailand is the most crucial agricultural area of the country. Although rice production makes up one third of the total area, the region is also the source of various agricultural products such as sugarcane (53% of country's total production), vegetable, and fruit production which are presently gaining importance in the Thai economy, both in terms of value and quantity. Animal farming such as poultry, swine, dairy and beef cows, and more recently shrimp farming (see Szuster *et al.*, Chapter 8), are also developing rapidly in the region (Kasetsart and IRD, 1996).

Furthermore, the good infrastructure in the region facilitates the development of urbanisation, industrialisation, and commercialisation. This brings to the fore the question of whether balanced development between agriculture, industry, and commerce can be achieved in the central plain, and what are the strategic policies and the means to support the real strengthening of the agricultural sector.

Thung Luk Nok, a *tambon* located in the Mae Klong basin (see Map 5 in Appendix) in the western part of the central plain, was selected as a study area. It is representative of traditional rice–sugarcane based farming systems of the Mae Klong terrace fan which are now diversifying their production at high speed. The objective was to study the transformations of the agrarian system and its several components: 1) the agro-ecosystem; 2) the agricultural production system which consists in cropping systems and animal systems; and 3) the socio-economic system. These features were used for establishing a typology of farming systems, giving emphasis on evolution and differentiation.

The research work included mapping ecological conditions, open interviews of key informants (community leaders, elderly, monks, related government officers, and private companies), structured surveys of over 1,000 farm households, and in-depth interviews of a sample of households representative of different farming systems. Conversations with focus groups were also used to recheck some important issues and to study some points in more detail.

6.2 Geography and location of study area

Tambon Thung Luk Nok is located in Kamphaengsaen district, Nakhon Pathom province, 80 kilometres west of Bangkok. The *tambon* covers 50 square kilometres or approximately 31,000 *rai*, and includes 25 villages. The area is part of the alluvial fan of the lower Mae Klong basin and the relief is characterised by an alternation of uplands and lowlands, with a general slope from the west to the east. The uplands are usually cropped with sugarcane or field crops, while the lowlands are poorly drained and cropped with rice.

The average rainfall is 1,000 mm per year and the average humidity is 71%, but the rainy season (May–October) provides 83% of the total precipitation. An irrigation network system has been developed since the construction of the Vachiralongkorn Diversion Dam on the Mae Klong River in 1972. The Kamphaengsaen Irrigation Project was the first sub-project of the Greater Mae Klong Irrigation Project to be completed (Kasetsart, Thammasat, and Mahidol,

1978). Most farmers in this area receive water from the main canal or one secondary canal which flows across the area.

Thanks to a suitable climate, fertile soils, irrigation facilities, good transportation, communications, and its location close to Bangkok, agro-factories, and markets (Don Muang airport and Bangkok port), the Thung Luk Nok area has significant comparative advantages over other regions. In short, it has a high potential for agricultural production and is fairly well connected to markets.

6.3 Evolution of Thung Luk Nok agrarian system (1890–1996)

The transformation of the agrarian system of Thung Luk Nok over the past 80 years has followed a path from self-sufficient subsistence oriented production to highly commercialised production. This transformation can be schematically and chronologically described in three phases.

6.3.1 Beginning of settlements (1890–1960)

Aerial images and military maps of 1910 indicate that at the turn of the century communities were already settled in the south of Thung Luk Nok on the margins of the lowlands and near water sources. Old farmers in the area report that most pioneers came from Nong Po, Bang Pae, and Damnoen Saduak districts in Ratchaburi province, some 50 km southwest of Thung Luk Nok, because of land shortage in their village of origin.

Immigrants cleared the waste lands and turned them into residential and agricultural land. Lowland rice was the main crop of their farming system. In 1930, new immigrants were still coming to Thung Luk Nok but as the lowlands near the water sources were fully reclaimed, newcomers had to settle in the upper part of Thung Luk Nok where they planted rain-fed rice (*khao rai*).

Farmers used local rice varieties, family labour force, and animal draught power. They grew rice only once a year by using natural floodwater in the lowlands, while in the uplands farmers used varieties tolerant to drought. There was kitchen gardening, vegetable, and fruit plantation for family consumption. Soil fertility benefited from the organic matter brought by flooding and cattle dung. Some farmers also planted green beans to improve the soil.

The farm areas of all families did not differ much. The average farm area was about 20–30 *rai* per household, in line with the family labour force. Most of the

products such as rice, vegetable, and fruits were grown for family consumption. The surplus could be exchanged with other necessary goods that farmers could not produce by themselves. At that time, Thung Luk Nok was a rural area, still very far from any town. The local market which was the centre for exchange was about 20–25 km to the south. With poor transportation facilities, the community tended to follow a self-sufficient way of life.

Around 1930, some Chinese migrants moved from Kanchanaburi province to settle in the north of Thung Luk Nok, where upland sandy soils, less favourable for cultivation, were still available (see Figure 6.1). These Chinese migrants occupied the wastelands and developed tobacco plantations. They dug wells for household consumption and for supplying some water to the tobacco plants. Tobacco is a labour intensive crop which was constrained by the availability of labour and also by water resources. Tobacco production was commercialised by middlemen from Kanchanaburi and Nakhon Pathom provinces who came to buy tobacco in the Thung Luk Nok area.

During the 1930–40 period, all uplands in the north of Thung Luk Nok were turned into tobacco plantations. Chinese people continued to immigrate even when land was no longer available. Most of them came to work as labourers in tobacco farms. This agricultural production system which relied on trade, hired labour, and corporate farm management led this Chinese community to rapidly accumulate capital while Thai farmers were still engaged in rice farming for household consumption.

6.3.2 Trading agriculture transformation period (1960–85)

The development of sugarcane in Thung Luk Nok resulted from industrial development policies. Several government policies were designed to substitute sugar imports for local production, such as free market policy, import tariff barriers, setting up a government agency for promoting and supporting the sugar industry, etc. (Phitsanes, 1977). The government also gave subsidies to the private sector to construct sugar factories (in 1953, there were already 330 factories). Many were established in the Mae Klong basin, where conditions (soil, water, transportation, and labour force) were suitable for sugar plantation.

Sugarcane was cultivated in the upland southern part of Thung Luk Nok since 1950 when a sugar factory was established near Huai Krabok market (south of Thung Luk Nok). This factory could produce 5,000–7,000 tons of sugarcane per year, while the cultivated area was about 2,000–3,000 *rai*. Around 1957, upland

rice could produce incomes of 240–280 baht per *rai* while sugarcane delivered 340 baht per *rai*. In the mid-term this higher profitability provoked a shift from rice to sugarcane.

In the north, there were 2 small mills, with a capacity of about 1,000 tons of sugarcane per year. In that period, tobacco farmers in the area looked for a new crop in order to bypass the pest and soil fertility problems affecting tobacco and leading to a deterioration of its quality. Thus, sugarcane, which needs less labour and water, appeared as an appropriate option and expanded rapidly in the north of the Thung Luk Nok area (see Figure 6.2).

In the lowlands, agriculture was still dominated by rice cropping. The transformation in the Thung Luk Nok agrarian system from “rice–tobacco” farming to “rice–sugarcane” farming increased the elasticity of labour supply. However, the sugarcane area did not expand so rapidly because of the lack of animal power for land preparation.

An agricultural revolution occurred in Thung Luk Nok in 1975. In sugarcane production, farmers started to use high yield varieties, farm machines such as four wheel tractors for land preparation, and big trucks for transportation to factories. Meanwhile, the government promoted export oriented sugarcane production. Sugarcane cropping and the sugar industry grew rapidly during that period, with 13 large sugar factories soon established in the Mae Klong basin area. Only the rich farmers or those who had accumulated enough capital could invest in the new means of production such as four wheel tractors and big trucks.

A new class of people emerged in Thung Luk Nok: entrepreneurs providing services to sugarcane growers who could not afford to purchase this expensive equipment. This entrepreneurial group also came to play the role of middleman between sugarcane growers and factories. A “quota head” (*huana kwota*) signed contracts with sugar factories to deliver a certain volume of cane from his own defined area of sugarcane plantation. Should the output from this area fall short of the quota, the quota head would distribute the remainder to others sugarcane growers and receive some commission. They could earn money by providing service for land preparation and transportation. These farmers combined their agricultural activity with other entrepreneurial activities. Moreover, they could also lend money and provide inputs (fertiliser, herbicide, pesticide, etc.) in advance to the small farmers with high interest rates, in general 15–20% per year (Dubien and Thippawal, 1992). The introduction of machinery (tractors and trucks) and the high price of sugarcane led to the expansion of the sugarcane area. The upland and intermediate areas of Thung Luk Nok all became sugarcane plots.

The revolution in rice cultivation occurred in 1972 in Thung Luk Nok. The Vachiralongkorn Dam construction and the development of the irrigation network under the Greater Mae Klong Irrigation Project (1972–82) helped control the annual flooding and supplied water to Thung Luk Nok all year round. Two wheel tractors replaced draught animals and made land preparation much faster. Rice farming systems evolved from local rice varieties dependent on the natural water regime to High Yield Varieties (HYVs) dependent on the irrigation system. Farmers could grow two rice crops per year. The productivity of traditional varieties and HYVs were 200–300 kg and 500–800 kg per *rai* respectively.

6.3.3 The surge of agricultural diversification (1980–95)

Since 1980, most prices of agricultural products in the world market have been declining, especially Thai agricultural exported products such as rice and sugar. Consequently, Thai farmers engaged in monoculture faced problems and became gradually indebted (Ammar, 1986). The Thai government attempted to change the agricultural structure by supporting diversification in order to reduce the risk generated by world price fluctuations (see Siriluck and Kammeier, Chapter 9). In parallel, urban expansion and a higher quality of life made Thai people change their consumption patterns, eating more meat, milk, vegetables, and fruits and also being more demanding about food quality.

Increasing the diversity of Thai agricultural production could reduce the import of agricultural goods, increase food security, and reduce dependency on the outside markets. Considering the decreasing trend in the average land per household (see Molle and Thippawal, Chapter 4), diversified cropping systems and livestock systems would also allow a higher return per unit of land and labour, which finally would give farmers higher incomes.

The government joined with the private sector to promote and support agro-industrialisation and the development of marketing channels. This led to the establishment of many food processing factories in the central plain, especially in the vicinity of Bangkok and in the Mae Klong basin (DOAE, 1982, 1987, 1992; NESDB, 1986; Taillard, 1995). Thung Luk Nok offered several comparative advantages (soil, water, transportation, access) so that new crops and new animal production such as baby corn, fruits, vegetables, swine, beef, and dairy cows could develop rapidly in the area.

The introduction of baby corn in the Thung Luk Nok area occurred in 1984. The development of marketing networks and the establishment of agro-industrial

units in Nakhon Pathom, Kanchanaburi, and Ratchaburi provinces led to a rapid expansion of baby corn production, especially in farms with limited land (Trebuil *et al*, 1993). Baby corn delivered much higher value added per land unit than sugarcane, and farmers could grow 3–5 crops of baby corn per year. Thus, many small farms shifted to producing baby corn and became “specialised” farms, while medium farms had to produce both baby corn and sugarcane because of limitations in family labour, land suitability, or water availability (see Figure 6.3).

For the entrepreneurs (sugarcane quota heads), the development of the baby corn cropping system brought two benefits. First, small farmers who were always in debt with them had more capacity to pay back their loans because of the higher income derived from baby corn. Second, entrepreneurs could earn additional income from the baby corn growers by providing services for land and plot preparation several times per year, depending on the number of baby corn crops grown (3 to 5 crops).

In addition to baby corn, other vegetable and fruit expanded. Some small farm owners changed their cropping systems, growing vegetables and fruits which give the highest value added per land unit (Dubien and Thippawal, 1992). However, vegetable cropping requires skills and experience, and farmers in Thung Luk Nok had not acquired and accumulated knowledge for achieving successful vegetable production. Furthermore, vegetable planting entails high production costs and farmers must acquire information about markets and price fluctuations in order to better plan their activity.

Farm households with a limited family labour force relative to the size of their farm adopted fruit cropping systems such as mango, rose apple, or guava and sold their products only in the local markets.

Beef and dairy cow production also developed in Thung Luk Nok. A number of farmers integrated cropping systems (baby corn, rice) with animal production (beef cows, dairy cows). They fed cattle with baby corn stems and rice straw, while animal dung was used as fertiliser for baby corn. This integrated agricultural system proved to be cost-effective and well adapted to local conditions. A dairy cow promotion project was established in the Thung Luk Nok area through the national policy for milk production. The objective was to increase the quantity of domestic raw milk, with better quality and cheaper prices. This project was jointly managed by the Dairy Cow Promotion Organisation, the Bank of Agriculture and Agricultural Cooperatives (BAAC) for credit, Kasetsart University for training, and private companies for marketing (Dubien and Thippawal, 1992). Most swine and poultry production was for family consumption. Only one farm was found to operate under contract farming with a private company.

Figure 6.1 Rice and tobacco cultivation in 1930

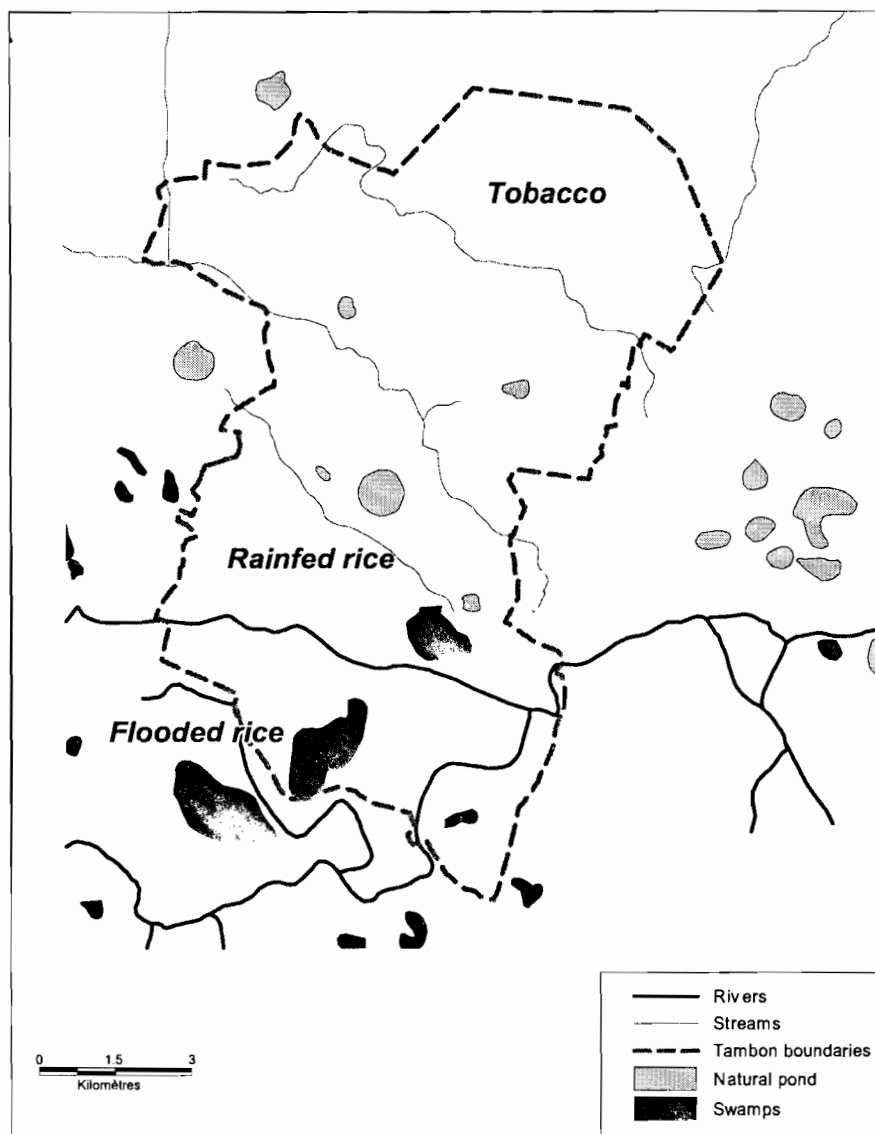


Figure 6.2 Expansion of rice and sugarcane in 1969

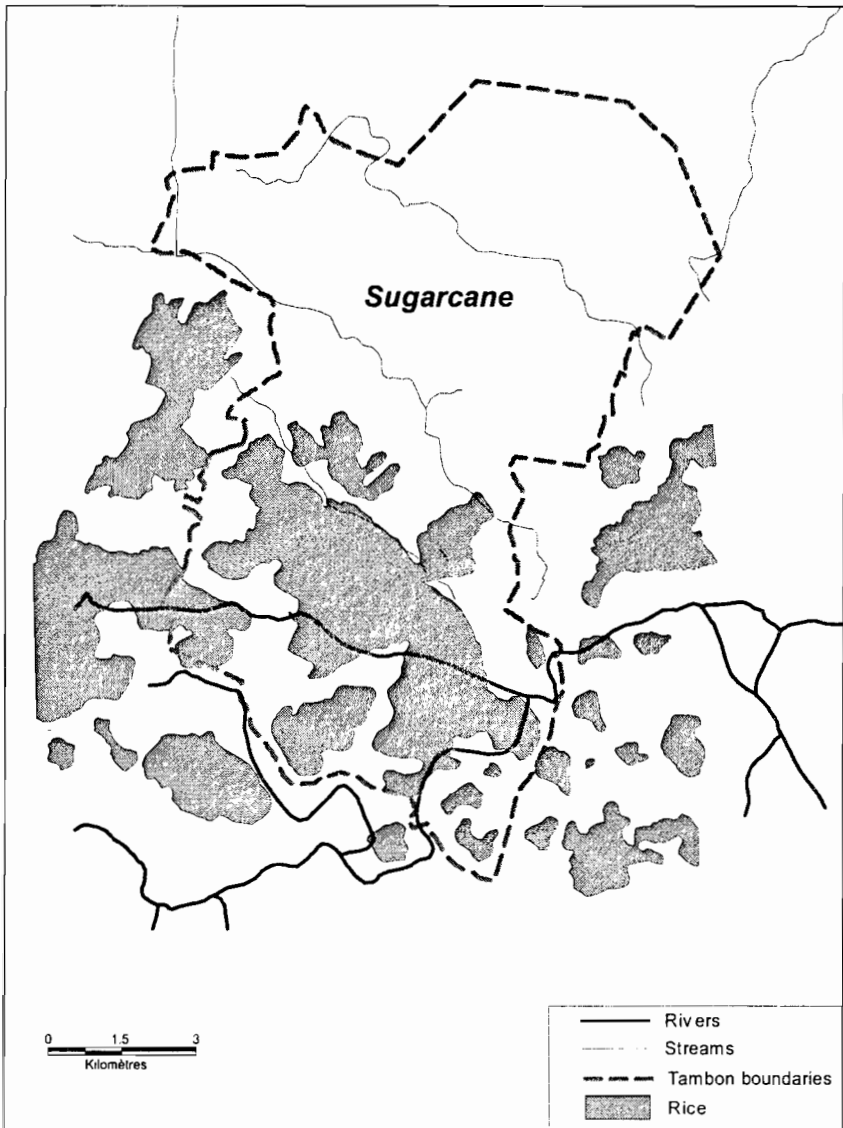


Figure 6.3 Agricultural diversification and intensification in 1994

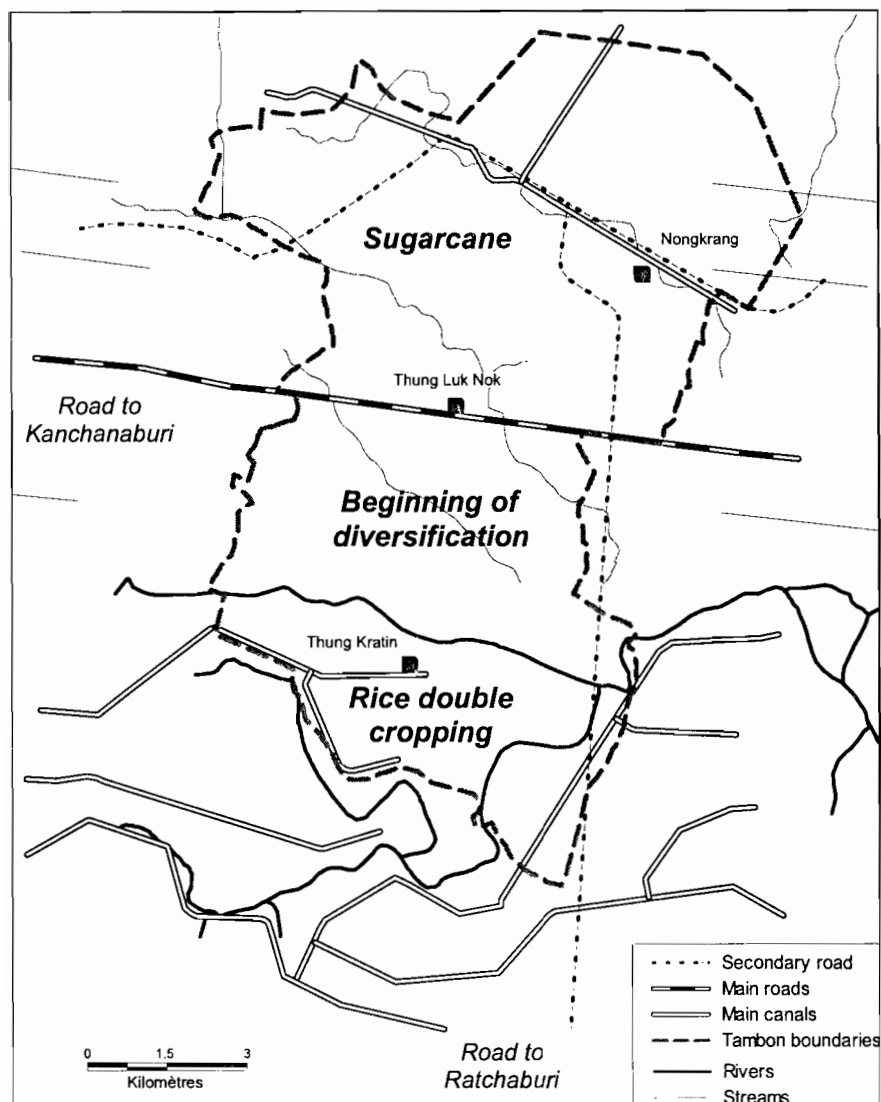
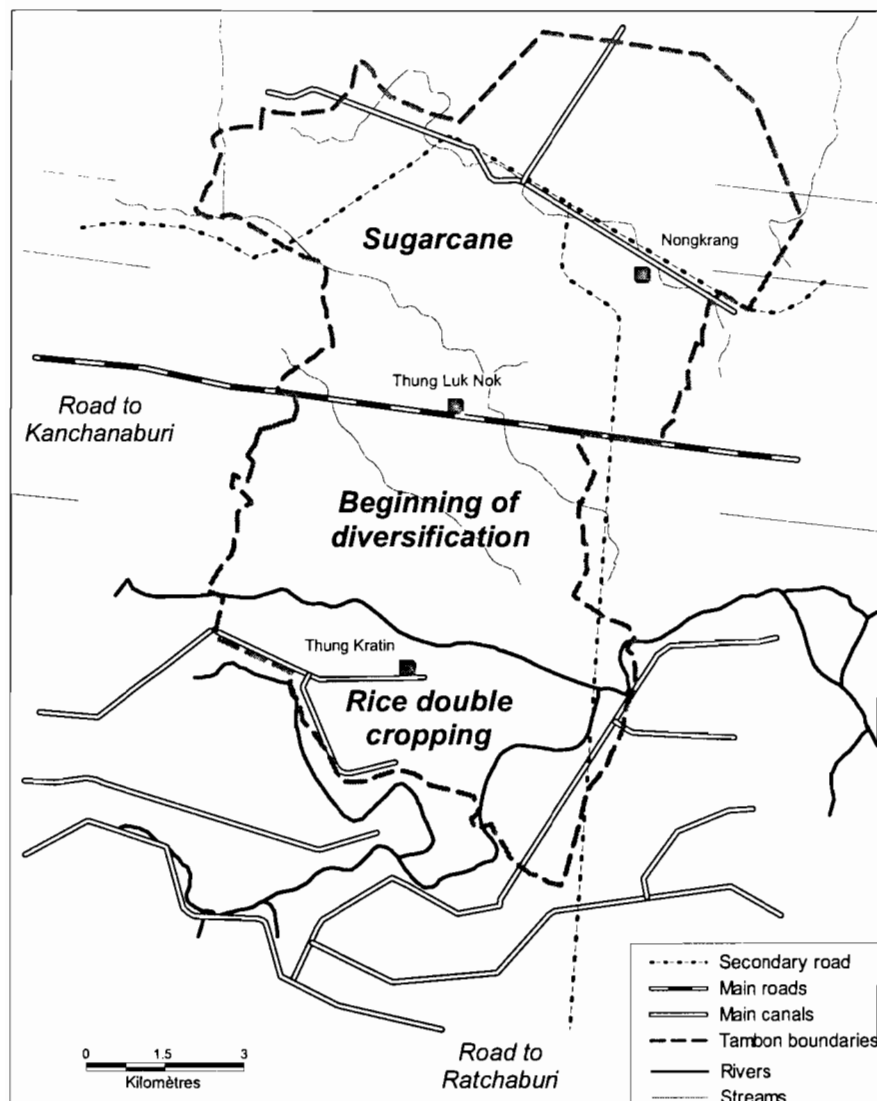


Figure 6.4 Land use map in 1994



Public policies aimed at supporting investment and industrialisation in rural areas have significantly affected industrial development in the Mae Klong basin since 1977. This resulted in the creation of job opportunities for the farmers in Thung Luk Nok. Farmers can find other activities outside the agricultural sector, such as in factory work, trade, construction, transportation, etc. Farm households tend to have several on-farm and non-farm activities, resulting in a more stable income than otherwise. Consequently, these farmers commonly invest the revenue of non-agricultural activities in agriculture, in order to ensure the development and the reproduction of the agricultural sector.

6.4 Agro-ecological zoning and agricultural production systems

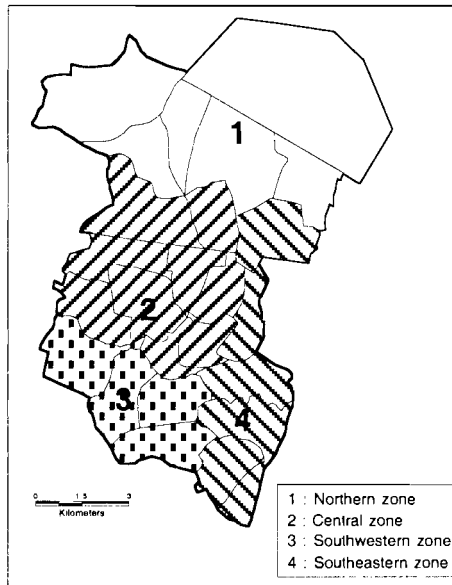
Thung Luk Nok has various kinds of agricultural production systems which combine sugarcane, baby corn, rice, vegetables, fruit, cows, swine, and poultry (see Figure 6.4). Sugarcane and baby corn are the main crops of the area; about 60% of the farmers plant baby corn and 50% plant sugarcane, but the hierarchy is inverted when seen in terms of planting area (74% sugarcane and 13% baby corn).

A spatial analysis overlaying physical features and agricultural land use shows that geographical factors were crucial in dictating the agricultural production systems, despite the endeavours of farmers trying to “artificialise” their land in order to overcome natural limitations. Thung Luk Nok can be divided in four eco-agricultural zones (Figure 6.5).

Northern zone. This area is predominantly upland cropped with sugarcane. Although there are several canals, on-farm development is still limited and water supply not optimum. Most farmers in this area have large farm land areas and plant sugarcane as their main product. They are the sugarcane quota heads who are associated with sugar factories. Some land is used in small farms with less than 6 *rai* to grow vegetables and baby corn.

In the northeast of the area near Nong Krang village, there are large swine farms and some beef cows but no dairy cows. In the east next to Na Kae and Nong Sa La villages, a better irrigation infrastructure facilitated the development of baby corn, while rice is grown in the western lowlands. The south connects with the central part of the *tambon*, and farmers in this area hold smaller pieces of land than those in the north and mostly grow sugarcane. These farms are in a transition phase. Their agricultural activities are becoming more diversified, especially with baby corn, beef cows, and poultry.

Figure 6.5 Zoning of tambon Thung Luk Nok



Central zone. The central area of Thung Luk Nok, which is located on the southern side of the Kamphaengsaen–Kanchanaburi road, presents heterogeneous characteristics in terms of soil type, slope, and irrigation systems. This leads to variegated agricultural activities scattered all over the area, such as sugarcane, rice and vegetables. There is no specialisation in a given farming system and no single agricultural production prevails in the area. Baby corn cropping is associated with beef cattle, and occasional dairy cow breeding in some households. Most households raise swine and poultry but only for family consumption. Most farmers in this area have medium size farms and diversify their agricultural production, while small farms always grow baby corn as their main crop.

Southwestern zone. There are many lowlands in this area and rice is the main crop. The farmers can grow rice twice a year due to a good irrigated water supply. Most farms are medium sized. Small farms have more specific agricultural systems with baby corn and/or vegetables as the main crops. All over the southwestern area, there are cattle which are always found on the rice growing farms. In

contrast, dairy cows are associated with baby corn, especially in Thung Ka Thin village where the dairy project is supported by the government. In Rai Tang Thong village there are swine farms which are also supported by a government project.

Southeastern zone. Sugarcane is the main crop in the southeastern zone, as in the north. The landscape is dominated by large plots of sugarcane. Most farmers have middle and large sized farms. Rice is grown in the lowlands, especially around the Huai Phak Chi village. We also found beef and dairy cows. Baby corn cropping systems are the principle activity of small farms.

6.5 Types of farms and agricultural production systems

An in-depth socio-economic analysis allowed us to describe the agricultural household structure with details on land tenure, total area, farm area, number of family members, family labour force, cropping and animal production, agricultural machines and equipment, income and debt, and other agricultural activities. These analytical data show that the diversity of agricultural production systems in Thung Luk Nok results from a process of farm differentiation, partly governed by a differentiated access to means of production. However, personal attention, skill, demand, and possibility of farm development are also crucial factors in the choice of a given production system. Agricultural households in Thung Luk Nok can be divided into 3 main types and 7 sub-groups (see Figures 6.6 and 6.7 and Table 6.1).

6.5.1 Type I: big farms with sugarcane monoculture

Most of the farms of this type are located in the north and southeast of Thung Luk Nok where uplands with deficient irrigation supply dominate. These farms are large in size (over 50 *rai*) and the farm area/family labour ratio is quite high. Therefore, sugarcane which is not labour intensive is the main crop. However, larger farms need to hire a large amount of labour, both permanent and temporary, especially in the peak periods such as the planting and harvesting seasons. These farmers have high investment capacity and can buy means of production such as agricultural machinery (big tractors, ploughing tractors) and trucks. We can divide this type of farmer into 2 sub-types.

Type I.a: Very big farm or capitalist farm. These farms cover more than 100 *rai* of farm land. Most of the farmers are Chinese and sugarcane quota heads. They settled down in the north of Thung Luk Nok (but may also have farm land outside the *tambon*). In the past, the households of this group accumulated capital in the

form of money and land. They have been engaged in sugarcane plantation since its introduction in this area about 40 years ago and can be seen as capitalist farms, centred on and specialised in sugarcane production, with high levels of equipment and hired labour.

Farmers in this group who are sugarcane quota heads act as middlemen between sugarcane growers and sugar factories. Generally, the quota of sugarcane is more than 10,000 ton per year per person. Therefore, their farm equipment and machines are used not only in their own production activities but also for serving other sugarcane farmers, usually small farmers, who are called *luk rai* (literally, children of the field). If any small farmer lacks the money to buy agricultural inputs such as fertiliser, herbicide, pesticide, and gasoline, these big farmers will support them with credit and/or agricultural inputs.

The objective of these households is to maximise return on both agricultural and non-agricultural investment. Thus, some farmers have activities in truck service, carrying earth and sand from the borrow pits and ponds around Thung Luk Nok to Bangkok and its vicinity. This non-agricultural activity can bring important income to them.

Type I.b: Big farm or business farm. These farmers have farm land in the 50–100 *rai* bracket. They are usually the owners of the land and quota middlemen for a medium amount of about 5,000 tons of cane per year. Farming systems are of the business farm type, with sugarcane as a main crop and specialisation in agricultural production. Like farms of type I.a, they also invest in equipment and machines, but on a smaller scale, and employ permanent and temporary labour, but in smaller numbers. The crucial difference between capitalist farms and business farms is that the business farms use family labour in farming and not only in farm management. Although they can recoup their investments in machinery through service contracting, decreasing sugarcane prices have also pushed them to diversify cropping and to adopt livestock production.

6.5.2 Type II: small and medium farms

This group of farmers is usually found in the central and southwestern area of Thung Luk Nok, where good irrigation facilities can be found. Most of these farmers own their land. Farm size varies from 6 to 50 *rai* and the ratio of farm area per family labour unit is medium to low. Some households employ temporary labour but only in the periods of peak labour; they have no permanent employees on their farms.

Most of them have a quite limited investment capacity, but they have good access to institutional credit thanks to their land titles which can be used as collateral. However, they can hardly afford expensive farm machines, tractors, and trucks, and resort to land preparation services and agricultural product transportation services made available by the quota heads, middlemen, or other entrepreneurs. Even though some farmers can afford such equipment, the limited size of their land makes the investment unattractive (no economies of scale) and they prefer to hire from service contractors.

Therefore these farms have low fixed costs and are highly flexible. They can adjust themselves easily and select production systems which are appropriate to their farm structure and own means of production such as labour and capital. Although the high diversity of cropping systems is strongly governed by geographical differences between each farm plot, farmers also consider economic returns, production costs, the flexibility of the market system, and the risk involved. Usually farmers on the water deficient uplands are restricted to sugarcane cropping, while farmers with good water conditions grow baby corn. Low lands are devoted to rice. Animal production depends on the investment capability of the household; if they have sufficient capital (their own capital or bank credit), they may invest in either beef cows (if family labour is limited) or dairy cows (if labour is sufficient).

Generally, the largest farms always have sugarcane in their production system, while baby corn, which is a labour intensive crop, is found in smaller households with smaller farm area. Most cropping systems associate complementary productions (such as mentioned earlier about the baby corn/dairy cow association). Diversified production allows them to reduce risk, to stagger labour requirements, and to get a more regular income spread over the year. Moreover, we found that some farmers try to market their products by themselves. They have accumulated enough capital to buy a pick-up truck and collect agricultural products from their own farm and from relatives and neighbours. They transport these products directly to the market in order to bypass middlemen and raise their own income.

We can divide this type of farm household into 3 sub-types.

Type II.a: Medium family farm with sugarcane monoculture. The farmers of this sub-group have farm sizes between 10 and 30 *rai* per unit of family labour. Usually their plots are located in areas with deficient water supply, hence they choose to produce sugarcane as the main crop rather than cash crops with higher production costs.

Unlike type I.b (business farm), these farms have less investment capacity and cannot afford agricultural machines, so they have to resort to services provided by the

quota heads for land preparation and sugarcane transportation. Some farmers receive agricultural inputs on credit from the quota head. A recent trend observed within this group is the development of baby corn through the use of tube wells. This was made possible by the availability of labour in the area and by attractive baby corn prices.

Type II.b: Small and medium family farm with polyculture including animals.

The agricultural households of this group have a smaller farm size per family labour ratio than type II.a, with farm land between 5 and 20 *rai*. Their farms are mostly in areas with good irrigated water supply and therefore can grow baby corn. However, because baby corn is a labour intensive crop, these farmers can grow it only on part of the total farm area, with the rest left to sugarcane.

The planning for baby corn cropping depends on the family labour force and water supply conditions. Farmers can grow baby corn all year round if water is available and drainage satisfactory. If they can find temporary employees during the peak work periods such as de-tasseling and harvesting, they can intensify production in terms of planting area and number of crops per year (from 2–3 times a year to 4–5 times a year). A technique for growing baby corn is to divide agricultural areas into small plots and to stagger the planting of each plot by 7–10 days in order to have production at different stages. In this way, farmers stagger the use of family labour and receive a more regular income.

The proportion of land used for each crop in each agricultural household is quite varied. This depends mostly on the ratio of farm size to family labour. Farmers who have a smaller plot of land per family labour will choose to grow baby corn. In the case of a large farm with a limited family labour force, baby corn is grown by employing outside farm labour (if there is capital to pay wage labourers). Labour is available in the area but relatives and neighbours are often called to solve the problem of lack of labour in the peak work periods.

This category has no investment capacity for agricultural machines. Thus, land preparation and transportation are serviced by the sugarcane quota heads or local entrepreneurs.

Some farmers have enough capital to develop animal farming such as swine production, in the form of contract farming with private companies. They also develop beef or dairy cow farming which requires more capital. The integrated production system with baby corn and dairy cows is a lucrative and highly efficient production system. Farmers who want to adopt it must have at least 2–3 persons in the family labour force. Capital is also an important factor because dairy cow farming needs a high level of monetary investment. Farmers can borrow money from the BAAC and agricultural cooperatives by using land as collateral.

The revenue from the polyculture system of baby corn and dairy cows is twice as high as that of baby corn monoculture.

Small farms reliant on family labour and households with less investment capability will develop baby corn/beef cow farms instead of baby corn/dairy cow farms, because the baby corn/beef cow production system requires less labour and other inputs. Moreover, beef cows need fodder (baby corn stem) in smaller quantities and quality than dairy cows. Consequently, the baby corn/beef cow production system generates less income than the baby corn/dairy cow system, but farmers still earn higher incomes than with a baby corn monoculture.

Type II.c: Small and medium family farm with polyculture, rice, and animals. The farmers in this group have plots in the lowland area in the southwest of Thung Luk Nok. This area has a good irrigation system but some plots have drainage problems. Most farmers produce rice. Those with plots with good drainage can plant sugarcane or baby corn. The proportion of land use for each crop depends on farm size, irrigation conditions, and the availability of family labour.

Farmers can grow rice twice a year in this area. During the wet season (*na pi*), farmers tend to use local rice varieties, especially in areas with poor drainage. In the plots where farmers can control water, they usually choose HYVs. In the dry season (*na prang*), farmers also use non-photoperiodic HYVs which can be grown throughout the year. Generally, these agricultural households own their farm land and principally use family labour. They have their own means of production such as tractors, water pumps, and ploughs. In case they do not have enough capital to invest in farm machinery, they can rent tractors (for land preparation) from other farmers. Harvesting and threshing are now entirely done by service from entrepreneurs.

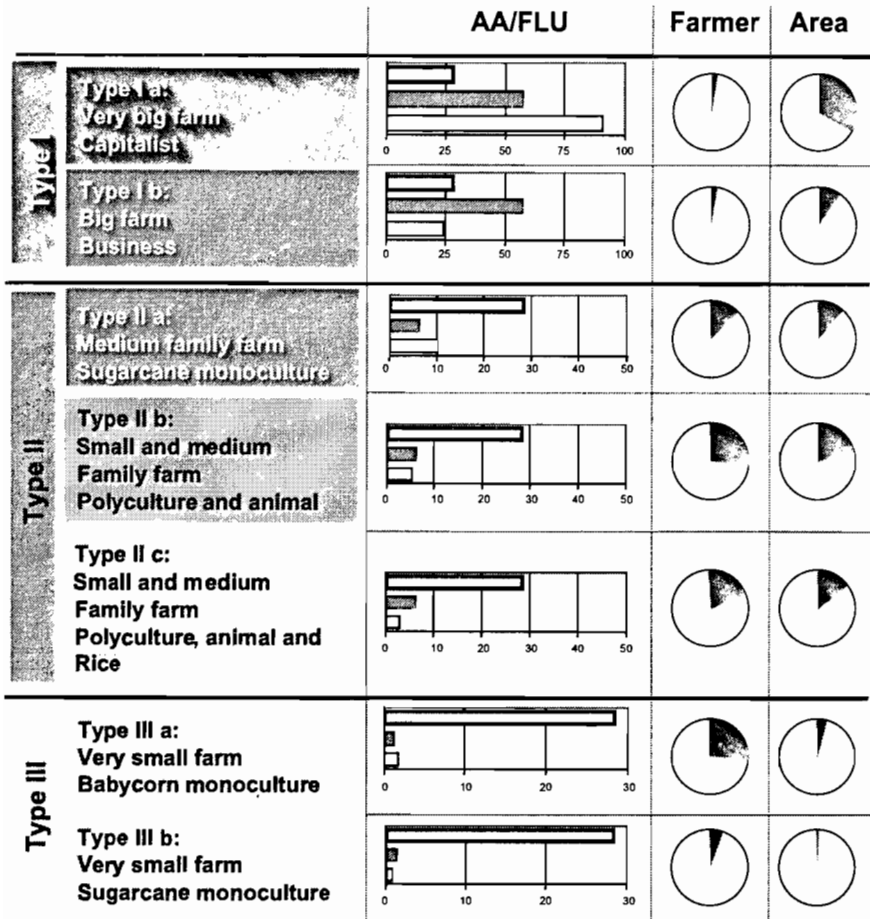
Farmers in this group can also develop animal farming (beef and dairy cow breeding) in their agricultural production system, depending on family labour and investment capacity.

6.5.3 Type III: very small family farms

We found a concentration of this type of farm in the central area, and scattered cases all over the area of Thung Luk Nok. The farmers in this group have very small farms between 1 and 6 *rai*. Debts accumulated over many years because of declining prices of sugarcane have often forced these households to sell their land. Some of them have to rent additional land as a supplement to their own farm land.

Land tenure and cash flow are crucial problems for this group. We found that they have too much family labour relative to their land endowment. This means

Figure 6.6 Farmer typology for Thung Luk Nok with farm area and distribution of each type

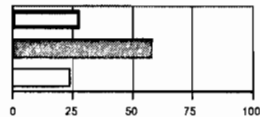


Legend

General average

Average of type

Average of sub-type



• AA/FLU = Agricultural Area / Family Labour Unit

that they have a surplus of family labour which need to be directed to off-farm activities both in agricultural and non-agricultural sectors in order to generate more income for their households.

We can divide farms of this type into two sub-types.

Type III.a: Very small family farm with baby corn monoculture. This group has tiny plots, less than 3 *rai* per unit of family labour. Their plots usually have a good irrigated water supply. They choose labour intensive cropping systems, such as baby corn cropping, with five crops per year. Some farmers rent additional land for baby corn to match the family labour force, while some do piecemeal work on other farms (such as growing, harvesting baby corn, and others jobs). These two sources of income (on-farm and off-farm) are sufficient to survive and to allow them to stay in the agricultural sector. The income derived from working on other farms makes up about 30% to 50% of the total net household income.

These farmers have no capital and no opportunity to obtain credit from any bank because they hold only small pieces of land and thus limited collateral. Therefore they are excluded from the opportunity of starting animal production. Some farmers have to borrow money from local middlemen or moneylenders in order to acquire inputs for baby corn production (seed, fertiliser, gasoline, etc.). Farmers who have their plots (usually less than 1 *rai*) in lowland areas grow rice, and the production is not for sale but just for family consumption.

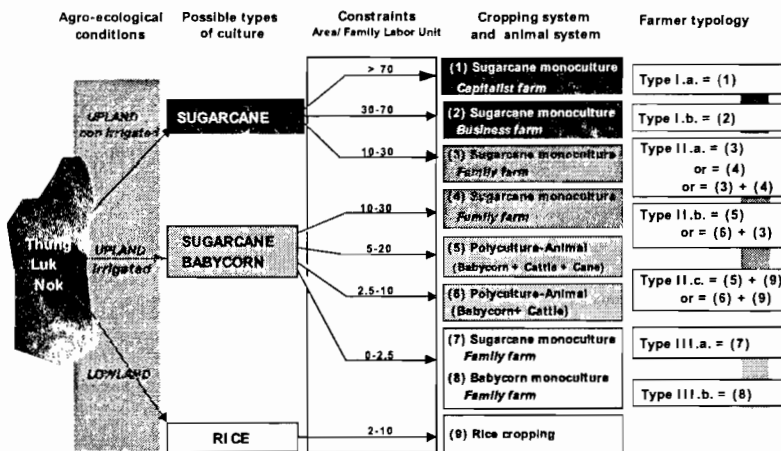
Type III.b: Very small farm with sugarcane monoculture. The farmers in this group face constraints for agricultural production. They have very small land area (less than 3 *rai* per family labour unit) and are out of the irrigated area. So they cannot grow baby corn, which demands a good water supply. They grow sugarcane which is a labour extensive crop but generates income only once a year. In small areas, sugarcane production cannot generate enough income for household consumption, and farmers have to work for others in the agricultural sector. Some household members also have to work in non-agricultural sectors as factory employees, truck drivers, etc., which provide regular earnings. We found that the income from non-agricultural activities was the main household income (more than 50% of the net total household income).

6.5.4 Type IV: the landless

This farm type results from a process of elimination of small farms in the evolution of the agrarian system. Because they had little land but many children, land was divided into very small plots when passed on through inheritance and ended up

being too small for sustainable agricultural activity. These people have no other alternative than to move out of the agricultural sector or to work for big and medium farms in the area (either on a daily wage basis or, more rarely, as permanent employees). Some farmers in this category also rent in some land and succeed in remaining in the community. If they want to change their way of life, they move out of the agricultural sector to be employees in the industrial sector and expect to get a higher and more stable income than by living in the agricultural sector.

Figure 6.7 Types of cropping and animal systems

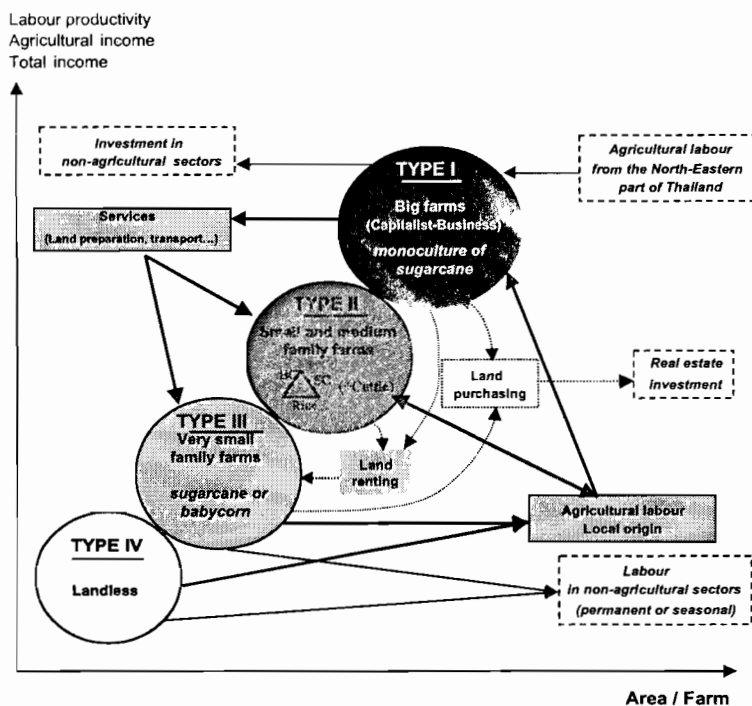


6.6 Relationships within the Thung Luk Nok community

Some 30–40 years ago, the homogeneity of farmers was the principle characteristic of the Thung Luk Nok community. Their mode of production was oriented towards self-sufficiency and simplicity in lifestyle; relationships in the community included mutual help and labour exchange (*long khaek*), especially at harvest time. Sometimes, farmers would borrow farm equipment or other production inputs (rice seeds, buffaloes, etc.) but without monetary transactions.

The transformation of the agricultural production systems has resulted in increased differentiation among family farms. At present, relationships within the community are widely mediated by monetary exchanges. Wage employment, the leasing of agricultural machines, money lending, or the credit system are the result

Figure 6.8 Farm differentiation and interrelationships



of differences in the access to and possession of means of production. Big farmers (type I) who possess a large amount of land, capital, and heavy farm machines serve the smaller farmers (mostly sugarcane farmers) who have small plots of land and low investment capacity (types II and III) (Figure 6.8).

Focusing on these service activities, we can see that the small farms have to pay expenses to the capitalists farms with high interest rates, such as for providing (in advance) inputs for agricultural production (fertiliser, pesticide, gasoline, etc.), land preparation, labour wages for growing and cutting sugarcane, and transportation costs.

When necessary, the small farmers borrow money from capitalists or their sugarcane quota middleman to cover daily life expenditures. By the end of the year, when they calculate their income and expenses, some of them do not have enough

money to invest in production for the next year. Especially in years when the price of sugarcane drops, some small farmers may have to sell land to repay their debts.

The development of the baby corn production system helped small farmers have the opportunity to create added value from their own land and family labour. This incremental income decreased indebtedness. The rate of dependency on the means of production and credit from capitalists also decreased. Small farmers with a large amount of family labour rent plots from big farmers to grow baby corn, and work for other farms in the area if they still have surplus labour. The main source of hired labour in Thung Luk Nok is the surplus labour which exists in small and medium family farms (type II and III), and the labourers from the landless group (type IV).

6.7 Relationships between Thung Luk Nok and the outside

Urbanisation and industrialisation have increased the pressure on land resources. Real estate investors are very important for the agrarian system in the Thung Luk Nok area. Land speculation, construction of shops and buildings, and new residential projects (*muban chatsan*) have caused a significant decrease in the agricultural land area. At the same time, the high prices fetched by land sales have enticed farmers, especially small landowners, to sell their land and to migrate either to the urban sector or to more remote areas where they can buy cheaper land.

Big farmers with capitalist farming systems (type I) invest part of their monetary capital accumulated in agriculture activities in non-farm activities such as buying shares of sugar factories or transportation services. Moreover, we found that every big farmer had other non-agricultural businesses, for example, construction companies, real estate businesses, plastic factories, etc.

Middlemen also play a role in Thung Luk Nok, linking farmers and agricultural investors through contract farming (mostly for baby corn and asparagus). They are also active in the marketing of agricultural products.

Farm machine rental services are often owned by capitalists who live outside the area. Sugarcane harvesters, for example, belong to sugar factories from Kanchanaburi province. Rice combine harvesters belong to big farms from Bang Len district which is an important rice farming area.

The supply of job opportunities in the industrial and service sectors has had a dramatic impact on the available agricultural labour force, attracting people to work outside both temporarily and permanently. This labour shift, from rural areas to towns, causes labour shortages in the Thung Luk Nok area. Therefore, big farms

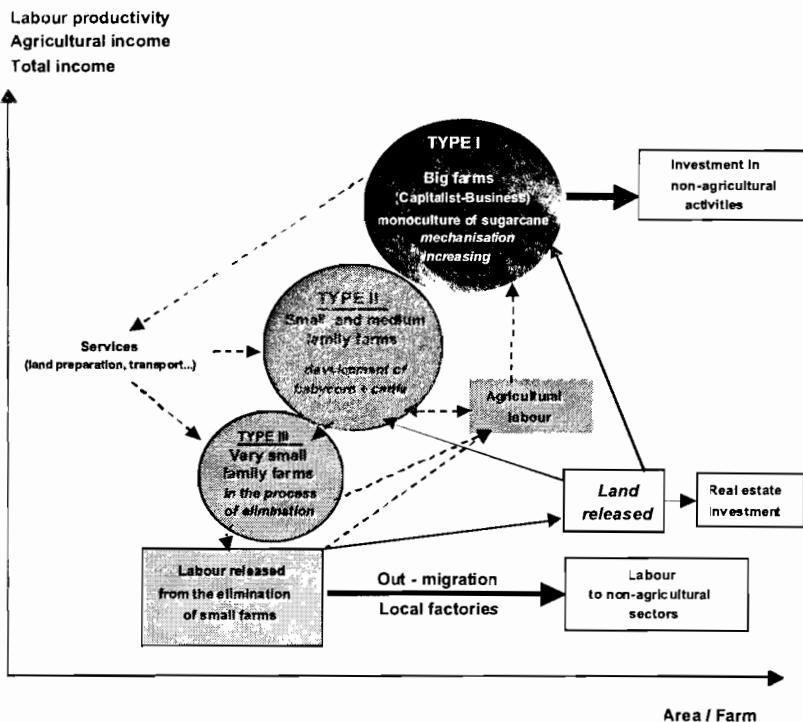
have to import labour from outside (mostly temporary labour from the northeastern part of Thailand during harvesting).

The big, medium, and small farms all depend to some degree on the outside, especially regarding marketing, which includes providing the means of production and agricultural inputs, as well as the selling of agricultural products.

6.8 Trends in the Thung Luk Nok agrarian system

The possible evolution of the agrarian system of Thung Luk Nok is shown in Figure 6.9. These possibilities are based on the hypothesis of a continuing urbanisation and industrialisation, so that there are opportunities for investment and for working in non-agricultural sectors.

Figure 6.9 Types of cropping and animal systems



The process of elimination of small land farmers (type III) continues because of their insufficient land endowment which makes farming unsustainable. Even if they try to adopt intensive farming systems, high investment due to higher costs of inputs and uncertainty in the price of agricultural products tend to jeopardise the long-term sustainability of such farms. These small farmers are at risk of becoming landless and may have to leave the agricultural sector. If there is no heir willing to take over the family farm, there is increased likelihood that the farmer will quit the agricultural sector.

Big farms (type I) are faced with problems of labour scarcity which tend to pull wages upwards. Farm machines are increasingly replacing human labour. However, the fate of big farms will depend upon the respective return to investment in agricultural and non-agricultural activities.

The farm area of middle and small family farms (type II) is likely to decrease as a result of the division of land at the time of inheritance. Therefore, these farms will tend to adopt more labour intensive activities and a higher degree of diversification. These farmers will develop integrated systems between baby corn cropping and beef/dairy cow farming, which employ family labour more efficiently. Increasing the number of cows in a herd is a form of capital accumulation. In the future, an association of farmers for co-investment in farm machinery may be developed.

Big farms will probably have several limitations because of the trend in sugarcane prices, higher inputs costs which decrease sugarcane profitability, and a declining market for the services which they sell to small and medium farms whose sugarcane area is decreasing.

6.9 Discussion

The transformations of the agrarian system of Thung Luk Nok resulted from many factors, including the domestic and international demands for agricultural products, the development of agricultural trading and business networks, and the development of land and irrigation systems. These changes are affected by different opportunities and constraints regarding both agro-ecological and socio-economic conditions, especially the access to the means of production (capital, land, labour) and market accessibility.

The development of infrastructure (such as roads, railways, communications, markets, and factories) rapidly connected Thung Luk Nok to the national and world economies. With a more commercialised economy, monetary exchange

started to predominate. While the communities were formerly quite homogeneous, capital accumulation allowed some family farms to develop capitalist activities (not based principally on household land and labour resources) while smaller farms were often eliminated. Consequently, social differentiation increased.

The capital mobility of private companies resulted in investments in the agro-industrial sector, especially food processing. Meanwhile, several agricultural activities are under the monopoly of middlemen, local capitalists, and moneylenders with whom farmers have relationships and contracts to produce agricultural products in determined quantities. This shows that agriculture in Thung Luk Nok has recently increased its dependency and vulnerability on marketing channels and agricultural businesses, both nationally and internationally.

Thung Luk Nok is strongly linked with the development of the national and urban economy. On the one hand, farm land is transformed into residential build-up for urban communities and industrial units. Land speculation is a by-product of economic development which creates problems for small farmers who lose access to land. On the other hand, cities and urban-based economic sectors are the source of jobs for Thung Luk Nok households. Moreover, agro-factories, strongly linked to Bangkok and international markets, constitute significant outlets for Thung Luk Nok's agricultural production.

However, nothing can guarantee whether market forces will orient Thung Luk Nok's development in a good direction. With a variety of features, this area can be developed in several directions. It is hard to determine what the most appropriate development direction would be. In the near future, the Thung Luk Nok community will lose its agricultural land and activities if there is no policy to restrain speculation and the power of business.

Thung Luk Nok, with a large amount of investment, especially in irrigation infrastructure, can be considered an area with more comparative advantages than many other areas. Preserving these potential advantages can be seen as an important issue within a policy geared toward supporting sustainable and efficient agriculture. Therefore, industrial and urban development needs to be weighed against the corresponding agricultural loss. It is necessary to support industrial development in a complementary role with regard to agriculture.

6.10 Conclusions

Prior to the economic crisis of 1997, it was possible to believe that industrial development could bring more growth and wealth while absorbing resources from

the agricultural sector. It appeared that it was possible to sacrifice the agricultural potential of this region in favour of economic growth based on industrialisation and urbanisation. With the recent crisis, the country realised the fragility of the industrialisation and urbanisation development process (Pasuk and Baker, 2000). The agricultural potential of *tambon* Thung Luk Nok, taken here as a representative area of well endowed land, appears to be a particularly precious agricultural heritage that if jeopardised would be damaging to the region and country. Strengthening the agriculture sector, offering good conditions of life, and limiting labour mobility from rural areas to sectors dependent on the international economy may become a policy baseline.

The access to land is now a growing problem for farmers. Because the family land endowment is divided at the time of inheritance, a growing share of the land is transformed into non-agricultural use, and high prices, much beyond the productivity of the land itself, make acquisition of land almost impossible. Molle and Thippawal (Chapter 4) show that the family cycle relies increasingly on the land rental market, supplied by those who move out of agriculture but retain their land assets, and by absentee owners. In addition, demographic changes now tend to smooth out the negative impact of inheritance division.

Land concentration in the hands of a few capitalists is more frequent in the area than in predominantly rice growing areas, because sugarcane cultivation lends itself to economies of scale and can be managed with hired labour. There is at the moment no legal provision to limit such concentration and there is no indication that there ever will be. However, land taxation should be given a higher role in constraining the possession of large tracts of land, as well as non-productive use (fallow).

The labour market is also unregulated. The price of wage labour may vary depending on location and reflects both the relative scarcity of labour and the wage differential between agriculture and other economic sectors. The increasing use of migrant labour (especially Burmese) contributes to pulling wages down. It is remarkable that Nakhon Pathom province as a whole has been the delta province with the smallest out-migration since 1960. This is due to the creation of jobs in both non-agricultural sectors and in agriculture, because of diversification. As Utong (1993) has observed in a village not too distant from our survey area, the development of cash crops has provided some communities with local work opportunities and has even contributed to maintaining the cohesiveness of the community.

The development of commercialised agriculture therefore appears as a two-edged sword. On the one hand, it generates cash and provides opportunities for

villagers to remain in the village; intensification is also the *sine qua non* condition of farming sustainability in a context of increasing population pressure and declining staple prices. On the other hand, it makes the household economy more dependent on factors which are beyond its control, principally the prices of inputs for production. Smallholder production, thus, can be strengthened by developing the bargaining power of producers. Professional associations with better information on market prices will have a higher capacity to enter into negotiations with agro-industries and to bypass middlemen when possible and desirable.

Credit is a recurring problem for small farmers with no land titles, who therefore are not given the opportunity to invest. Overall, the question of indebtedness remains controversial. It is apparent that land foreclosure has been very limited, at least in the last two decades. Yet indebtedness with credit institutions has increased and our limited sample does not allow a clear vision of the situation. Newspapers circulate stories telling of very high percentages of farms allegedly in debt but it is not clear what this general information means; loans include normal short-term credit and productive investment credit, together with loans which are made for consumption (motorcycles, etc) or social uses (monkhood ordination, cremation), or even to pay back former loans. As the BAAC provides only extremely aggregated data, the analysis of the situation is impossible. There is evidence that some bankrupt farms are rolling their debts over and would otherwise be counted among the cases of failure. However, the eviction of small farmers, which conjures up the vision of a destitute villager forced to look for low wage jobs in a hostile urban environment, may not adequately describe the situation. The transfer of the labour force out of agriculture is also a pull process, rather than a push one, and the low prestige of farming together with the supply of job opportunities in the city tend to make agriculture unattractive to younger generations (Molle and Thippawal, 1999). In such a situation, a dynamic cash-generating agriculture must be developed in order for farming to remain attractive.

A portion of Thai agriculture today is linked with export markets where prices are largely determined outside the country, thus increasing its vulnerability to the vagaries of international markets. Moreover, the economic crisis of 1997 has shown the fragility of an agriculture dependent upon opportunistic foreign investments, especially in the domain of food processing and agro-industry, with no strong attachment to the country itself. The crisis also impacted on the agricultural sector because of the drop in purchasing power of an important part of the Thai urban population.

Most farmers, especially those centred on sugarcane, have little room to manoeuvre. They are, in effect, dependent upon technical, financial, and/or commercial commitments with the quota heads or middlemen and have few options beyond complying with the logic of rigid marketing channels. In such conditions, they have to subject themselves to well organised product collection systems which offer them little hope or opportunity to market their products in better conditions.

The re-definition of the objectives of Thai agriculture must include retaining people permanently in the agriculture sector. This research has shown several positive aspects of the diversification of agricultural production systems. Diversifying crops reduces the overall risk in farming from variation in market prices as well as yields, and often staggers labour requirements while spreading out income generation. It may also increase the amount of farmers' products used for family consumption. It also provides farmers with more options for marketing and thus frees them from dependency on entrepreneurs or quota heads. Finally, it allows synergy between productions, as in the case of baby corn and cow breeding.

The farm typology established for Thung Luk Nok led to the identification of different categories of farmers: large farms specialised in capitalistic agricultural production and with investments in non-agricultural sectors; medium family farms which have developed diversified systems based on polyculture and animal farming; small farms with limited land resources specialised in labour intensive farming systems, very dependent on markets and marketing channels. It was shown that these contrasting farms do not exist in isolation but exchange in the factor markets. Households with limited land and capital work for bigger farms, which in return can invest in machinery and contract out services to smaller farms. Land is also partly redistributed through the land rental market. These flows of labour, land, and capital also exist in the wider economic sphere which, thus, critically dictates the evolution of Thung Luk Nok.

While these differences in factor endowment are balanced by a rather efficient redistribution through the markets, they also represent socio-economic differences which may be adverse to rural society if the concentration of wealth and power is used to the detriment of the poorest strata of the society.

From one sub-area to another, but also in the same area, we can observe a large diversity of farmers. Each type of farm has its own means of production, capacities, preferences, and strategies. The variability of agro-ecological and socio-economic conditions calls for a diversification of cropping systems which must adapt to the specificity of each region. A conclusion from the study is that the diversity of

Table 6.1 Farmer typology for Thung Luk Nok area

Types and sub-types of farm	Area of farm	Agricultural production systems	% of farms	% of area
Type I: Big farm: sugarcane monoculture	>50 <i>rai</i>	Sugarcane monoculture + Activities of quota head	6	43
I.a: very big capitalistic farm	>100 <i>rai</i>	Sugarcane monoculture, big quota head	3	33
I.b: big farm (business)	50–100 <i>rai</i>	Sugarcane monoculture, small quota head	3	10
Type II: Medium and small family farm	6–50 <i>rai</i>	(Poly)culture (with animals)	60	47
II.a: medium family farm	20–50 <i>rai</i>	Sugarcane monoculture	13	12
II.b: small and medium family	6–50 <i>rai</i>	Sugarcane and baby corn with or without cattle	27	20
II.c: small and medium family	6–50 <i>rai</i>	Combination of polyculture, animals, and rice	20	15
Type III : Very small family farm	1–6 <i>rai</i>	Monoculture in baby corn or sugarcane	33	6
III.a: very small farm	2–6 <i>rai</i>	Sugarcane monoculture	27	5
III.b: very small farm	1–6 <i>rai</i>	Baby corn monoculture	6	1

Table 6.2 Economic parameters of agricultural production system in Thung Luk Nok

Cropping/Animal system	Annual gross margin per <i>rai</i>	Maximum area (<i>rai</i>) per flu ¹	Gross margin per flu (1 * 2)	Annual fixed cost for maximal farm ³	Value added per flu (3 - 4)	Value added per <i>rai</i> (5 / 2)
	1	2	3	4	5	7
Sugarcane on very big (capitalist) farm	2,850	300 ²	855,000	152,000	703,000	2,343
Sugarcane on big (business) farm	3,590	100 ²	359,000	67,400	291,600	2,916
Sugarcane on family farm	3,380	12	40,560	800	39,760	3,313
Baby corn	8,400	4	33,600	900	32,700	8,175
Baby corn + beef	10,900	3.5+7 beef	38,150	5,400	32,750	9,357
Baby corn + dairy cow	15,500	3+3 dairy cow	46,500	6,900	39,600	13,200
Rice: 2 crops/year, HYV + HYV, with own tractor	2,826	10	28,260	1,900	26,360	2,636
Rice: 2 crops/year, HYV + trad. variety, with own tractor	2,644	10	26,400	1,900	24,540	2,454
Rice: 2 crops/year, HYV + HYV, without own tractor	2,274	15	34,110	600	33,510	2,234
Rice: 2 crops/year, HYV + trad. variety, without own tractor	2,184	10	21,840	600	21,240	2,124

Note: flu = family labour unit

¹ Maximum areas per flu as observed from field surveys.

² These farm types use hired labour. Hence the maximum area per *total* labour unit is 25–30 for very big sugarcane farms (row 1), and 12–17 for big sugarcane farms (row 2).

³ A maximal farm meaning a farm with maximum area per flu as shown in column 2.

farms is always higher than expected or than observed at first sight. This has strong implications for policy making as it is flawed and misleading to devise analyses or projects based on a non-existing “average farmer.” Capacities and strategies span a wide range of situations and the responsiveness to opportunities and constraints cannot be uniform.

The study suggests that the medium farms, with much involvement of family resources in production, are the category with the more stable farming system that allows the best agricultural performance, that is capable of adapting rapidly to market requirements and changes in the socio-economic environment, and that offers sufficient economic stability to retain population in the rural areas while giving them decent conditions of life.

The recent economic crisis reminds us that agriculture remains the basic economic sector of Thailand in terms of the number of people who draw their subsistence from it. This essential contribution of smallholder agriculture has to be maintained and reinforced in the context of significant uncertainty regarding the development of the country.

6.11 Note

¹ This chapter is drawn from my Ph.D. dissertation, Institut National Agronomique Paris-Grignon (INA-PG), Paris, France.

Chapter 7

Fruits and vegetables in Thailand's rice bowl: the agricultural development of poldered raised bed systems in the Damnoen Saduak area

Blandine Cheyroux

7.1 Agricultural diversification and the study area

The Chao Phraya Delta is predominantly cultivated with rice. However, aquaculture, animal husbandry, fruit tree cultivation, and vegetable cropping constitute the most prominent aspects of an agricultural diversification process which stands out as the main feature of the current development in the delta (Kasetsart University and IRD, 1996).

In addition to the improvement of rice farming, agricultural diversification is for farmers one of the many ways to increase their income: in the Chao Phraya Delta, orchard and vegetable based farming systems provide high income but require particular conditions that will be discussed in this chapter, with regard to the case of Damnoen Saduak agriculture.

In the western part of the Chao Phraya Delta, the lower Mae Klong Basin stands out as the main fruit and vegetable cropping area. On the fringe of the rice-based systems that have dominated the agriculture of the Chao Phraya Delta, Chinese immigrants and their Sino-Thai descendants have developed a particular agrarian system in the lowlands of Damnoen Saduak area (Figure 7.1). They have developed a raised bed technique to polder this old tidal marsh, and they have built a huge canal network providing drainage and irrigation throughout the year. In these gardens between land and water (Figure 7.2), farmers are able to grow a large variety of vegetables and fruits.

The proximity of the Bangkok market, the development of transportation infrastructures, and the efficient market connection through a network of middlemen

Figure 7.1 The location of Damnoen Saduak in the Chao Phraya Delta

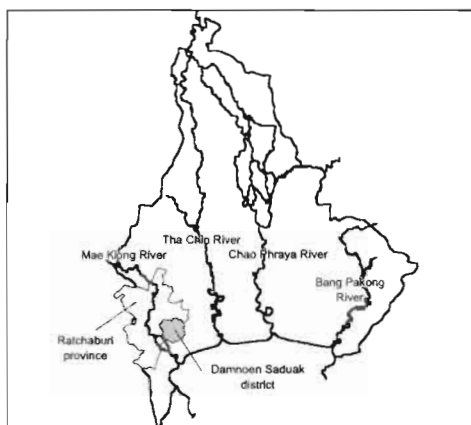


Figure 7.2 Poldered raised bed plots in Damnoen Saduak district



constitute important socio-economic conditions for the development of this market-oriented agriculture.

In contrast with the extensive rice-based systems which provide a fairly low income by current standards (see Somporn and Hossain, Chapter 5), the agriculture in the poldered raised bed system is highly labour and capital intensive. It is extremely diversified (more than 20 main crops) and oriented towards crops with high added value, such as fruits and vegetables.

About 20 kilometres to the north of the coastline, the Damnoen Saduak area corresponds to an old tidal marsh. Marine and brackish clays have been covered by deposits brought by the Mae Klong River in spate. Damnoen Saduak forms part of the delta's perennial wet zone (Takaya, 1987) and represents the transitional zone between the inland zone, governed by floods, and a coastal zone, governed by tides. The natural hydrological regime was marked by a sharp contrast between the rainy season (July to November) and the dry season (December to June). During the rainy season, the marsh area was flooded by fresh water from the Mae Klong River in spate. During the dry season, the river discharge was dramatically reduced and the tidal effect brought the influence of saline water further inland.

Until the middle of the 19th century, the Damnoen Saduak area, like most of the lower Chao Phraya Delta, remained a waste land. This lowland, alternately flooded by fresh and saline water, represented a hostile environment for humans. Access was difficult and agriculture could not be implemented without important land development (Johnston, 1975).

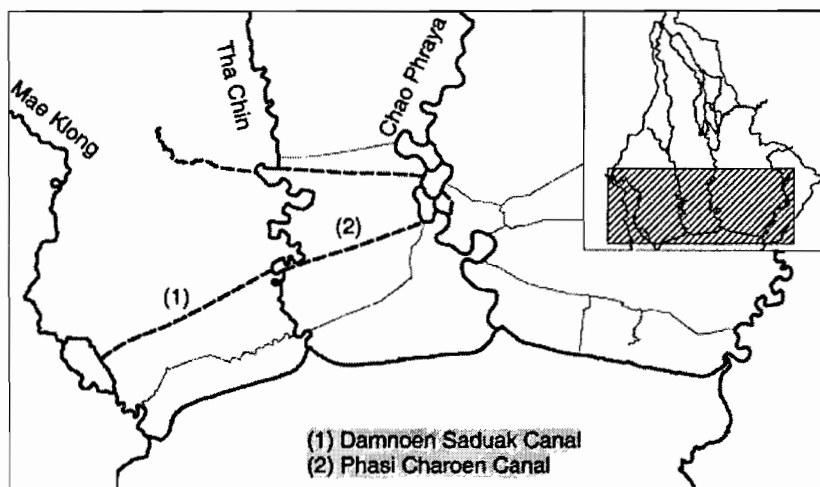
7.2 1850–70: historical background and Damnoen Saduak Canal excavation

During the 19th century the main feature of the agricultural development in the Chao Phraya Delta was the shortage of labour force relative to the abundance of available land¹. Due to a high land/human ratio, a large part of the delta was still uncultivated. Most of the population settled in the upper delta where peasants developed rice-based systems and the lower delta was not fully exploited until the late 1920s. Farming systems were oriented towards subsistence (Douglass, 1984).

In 1855, the Bowring Treaty with England and similar treaties with other European nations resulted in the inclusion of Siam into international trade, thus triggering the development of rice exportation. To supply the increasing demand for rice, the waste lands of the lower delta were rapidly opened up for rice cultivation on a large scale (Ishii, 1978). Major reforms like the abolition of slavery and *corvée* freed the labour force and contributed to the rapid expansion in paddy production and of the area under cultivation. Deprived of the *corvée*, the government resorted to using the numerous Chinese coolies who migrated to Siam² in order to dig several canals in the delta. The new canals were aimed at giving access to the new lands and allowed the collection and the transportation of marketable surplus from the production zone to the export port of Bangkok (Witayakorn, 1983a).

The digging of the Phasi Charoen Canal (1867) and the Damnoen Saduak Canal (1867–68) formed a transversal line connecting the Chao Phraya River and the Mae Klong River. The objective was to allow convenient transportation of rice, salt, sugarcane, and other products from the Mae Klong Basin to Bangkok (Takaya, 1987; Sompop, 1989), while the agricultural development of this area was considered of secondary importance (Brown, 1988; Zimmerman, 1931).

Figure 7.3 Canals excavated in the lower Chao Phraya Delta (1851–68)



Wealthy Chinese traders rapidly dominated the trade activities in this area and took over the land located along the new canals (Ishii, 1978). They rented these lands to the numerous Chinese coolies who settled in Damnoen Saduak after the excavation work. In 1877, a large community of Chinese was living along the Damnoen Saduak Canal (Skinner, 1957).

7.3 1870–1950: the first step of Damnoen Saduak agricultural development

7.3.1 The hydraulic system and land development

To develop the swampy lowlands around the main canal of Damnoen Saduak, these numerous new farmers first had to drain this perennially flooded area. They

developed the poldered raised bed technique³. They progressively developed a hydraulic system with three main components.

1. To drain the swamp and to remove excess water, farmers dug several canals serving each plot.
2. To protect the plot from floods and the intrusion of saline water, a dike was built around it.
3. Because of seepage and the rise of the water table, the plot was still flooded most of the year. Therefore, the third level of land development consisted in building raised beds separated by ditches inside the plot.

This land development allowed very good conditions of drainage but not all year round. The plots were still flooded during the rainy season (from July to November). Consequently, farmers could cultivate only annual crops (Boonma *et al.*, 1974).

7.3.2 Market-oriented farming systems

A large part of the market production from the Mae Klong Basin (mainly rice and sugar) transited through the Damnoen Saduak Canal to reach Bangkok. The digging of the canal boosted trade development in this region and had a dramatic effect on the Damnoen Saduak agrarian economy. Farmers from Damnoen Saduak had outlets for marketable production.

They developed farming systems combining crops for family consumption, such as rice in the ditches and vegetables on the beds, and cash crops for sale. These cash crops, such as onions, shallot, garlic, and chilli were dried to make them less perishable in order to withstand bad transportation conditions (by boat) and delays (Skinner, 1957). Most of the vegetable production was exchanged in floating markets that appeared in some main canals in the early morning. Thanks to the canal network, the farmer-sellers could transport their marketable products by boat from their plot to the floating markets. There, traders bought their products, loaded them in their boats, and took them in 24 hours to Bangkok where the goods were sold to retailers or directly to consumers. The floating market provided an outlet for fragmented supplies from scattered farms.

7.3.3 An original agricultural development in the Chao Phraya Delta

At this time, most of the cultivation in the Chao Phraya Delta was under a self-sufficient rice-based system, even if rice farmers sold some rice surplus. Marketable vegetable products were concentrated around large towns. Nevertheless, intensive

production of vegetables was found in some distant areas where favourable conditions offset the drawback of the long distance to market (Moustier and Pages, 1997).

The vegetable production in Damnoen Saduak was one of these exceptions. The main advantage for farmers in Damnoen Saduak was the availability of a labour force for land development and intensive farming systems, but also a privileged access to markets. Damnoen Saduak farmers benefited from transportation infrastructures. They were of the same language community as the Chinese traders (*teochiu*) who had dominated the trade sector in the Chao Phraya Delta⁴ and had developed a monetary and market economy. Therefore, Damnoen Saduak agriculture was integrated into the market since its origin, and farmers adopted commercial strategies and developed cash crops.

7.4 1950–75: transportation improvement and agricultural transformations

Before 1950, more than 24 hours were needed to go from Damnoen Saduak to Bangkok. In the 1950s and the 1960s, motorboats appeared and their number increased in Damnoen Saduak Canal. Traders needed only 8 hours to reach Bangkok and could transport bigger quantities of goods at lower costs. Due to these transportation facilities and in order to satisfy an increasing urban demand, commercial exchange increased and extended to more perishable products like green vegetables. Farmers from Damnoen Saduak grew chilli, onion, garlic, shallot, and new crops such as cucumber, yard-long beans, or cabbage, but the new crops required better irrigation conditions and pest control. Some farmers could invest in pumps and inputs in order to cultivate these more profitable products (Boonma *et al.*, 1974).

Traders played an increasingly important role and, indeed, became middlemen. They collected products from the farms, transported them by motorboat to Bangkok where they resold them to retailers, and then carried commodities and basic agricultural inputs (pesticides, gasoline for pumps, etc.) back to Damnoen Saduak.

As production and trade increased and transportation costs decreased, Damnoen Saduak farmers could buy rice at a lower price. Therefore, they gave preference to a system concentrating their activities on more profitable products (dry and green vegetables) and progressively gave up growing rice in the ditches of the raised bed plots.

Agricultural diversification is a process accompanying trade development, characterised by a gradual shift out of self-sufficient production to products

exclusively aimed for sale. Damnoen Saduak agriculture was more and more integrated into the developing market economy, especially with the building of roads in the 1970s and the 1980s.

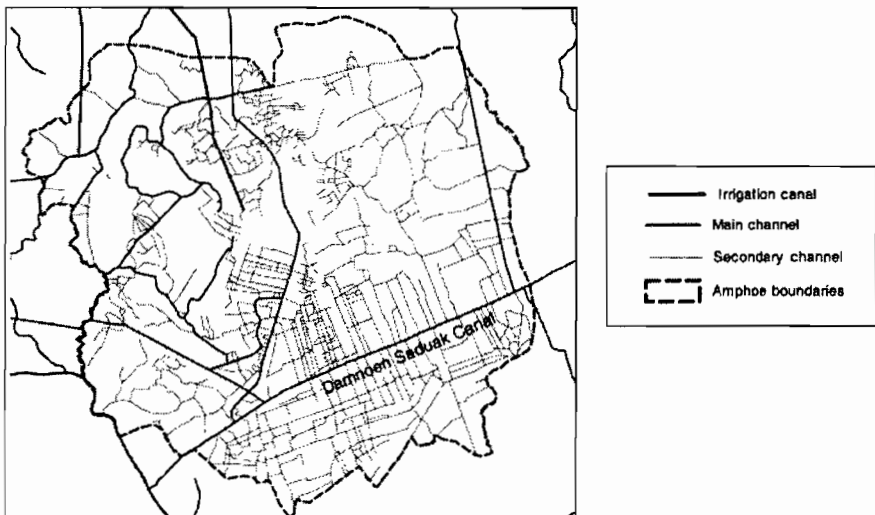
7.5 1975–2000: new environmental and economic conditions and their consequences on the agrarian system

From 1960, the Royal Thai Government began to implement policies and programs based on the idea that economic growth would be better stimulated by the infrastructures required by a modern economy. Increasing public expenditures were thus concentrated on the development of hydraulic systems and the construction of road networks.

7.5.1 Consequences of the transformation of the water regime

The Greater Mae Klong Project (a public project) was initiated in 1964 with the objective to improve water control in the basin. In the 1970s, the annual flood ceased to occur and an irrigation network was developed in the basin.

Figure 7.4 Drainage and irrigation networks in Damnoen Saduak



The transformation of the water regime had three main consequences on Damnoen Saduak raised bed agriculture.

1. With the end of the annual flood and the possibility to have year-round irrigation, the farmers could cultivate on raised beds throughout the year, in particular, perennial crops.
2. Due to the development of the gravity irrigation system, the uplands in the northern part of Damnoen Saduak benefited from a regular water supply all year long; farmers were thus able to expand their raised bed cultivated area into this zone where previously farmers grew only one rice crop in the rainy season.
3. Before the development of the Mae Klong Project, the silt deposited by the annual flood constituted the main means of maintaining fertility and the flood was also a means to control pests. As the annual flood ended, it became necessary to resort to fertilisers and pesticides.

The new physical environment offered new constraints and new possibilities. Farmers in Damnoen Saduak responded to them in the context of the transformation of the socio-economic environment.

7.5.2 New crop development and extension of the raised bed area

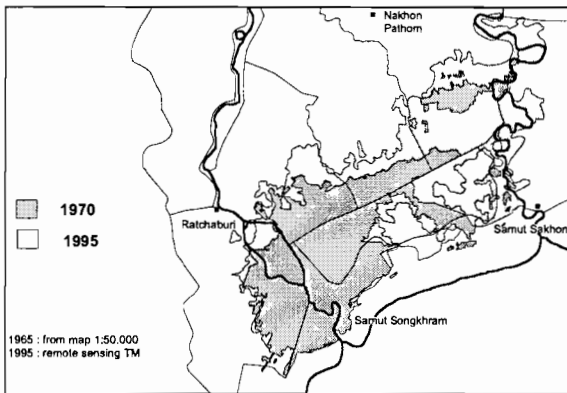
In spite of these new technical possibilities to increase the quantity and the diversity of production, farmers could take advantage of them only if they could find outlets for these additional products. Urbanisation and the increase in income resulted in increased demand for vegetables and fruits, especially in Bangkok. The food industry took off and export trade developed, creating new outlets for Damnoen Saduak products (Mubaric, 1998). These new market conditions provided incentives for farmers to increase and diversify their production.

The gardeners in the Damnoen Saduak lowlands now had good irrigation and drainage conditions all year long. They extended their cropping season of vegetables up to 3 or 4 crops per year (only 1 or 2 were possible before). From the end of the 1970s, some farmers began to develop orchards and vineyards; the area cultivated in perennial crops gradually increased and today represents more than 70% of the agricultural area of Damnoen Saduak.

The rice farmers in the northern part of Damnoen Saduak were faced with declining rice prices⁵. Because of the lower profitability of rice production, farmers progressively transformed rice fields into raised bed plots to grow orchards and vegetable gardens (Molle *et al.*, 1998). The expansion of the raised bed zone

(Figure 7.5) involved the extension of the garden area and an increase in vegetable and fruit production in Damnoen Saduak district.

Figure 7.5 Expansion of gardens on raised beds in Damnoen Saduak area (1969–95)



Source: Kasetsart University and IRD (1996)

The agricultural production from Damnoen Saduak has increased in volume and has been more and more diversified. Even if this agricultural development has brought about an increasing added value per farm, it has also induced increasing agricultural investments (input, plantation investments, etc.) and new needs in capital.

7.5.3 Marketing, input supplies, and credit

As the end of the annual flood in the 1970s resulted in increased difficulties controlling pests and recovering fertility, agriculture required more chemical fertilisers and pesticides. Middlemen developed their input supplying activities thanks to the new road network. But the use of fertilisers and pesticides created additional costs. Most farmers could not afford these costs and resorted to borrowing money on credit. In the 1970s, institutions of agricultural credit were not developed in Damnoen Saduak and sources of capital came from the trade sector (Dufumier and Thippawal, 1997). Middlemen became moneylenders. A farmer could borrow money from a middleman only if he committed to sell his product to him at a pre-

determined price. This price, given the fluctuations of the market, was usually under-estimated regarding the value of the crop at harvest (Pasuk and Baker, 1995). Because of the lack of credit institutions, middlemen quickly began to give short-term credit with high interest rates. In this way, middlemen supplied farmers with financial means to develop new cropping practices and new crops like orchards and vineyards. In the 1970s and the beginning of the 1980s, the trade sector invested capital in the agricultural development of Damnoen Saduak.

Public and private banks were opened in Damnoen Saduak in the 1980s and the 1990s. Alternative sources of institutional credit became more accessible to a growing number of farmers (Ammar, 1993). Institutional interest rates fluctuated between 10 and 20% per year, while middlemen interest rates were around 10% per month. Nevertheless, some farmers who had been forced to borrow money from middlemen had previously been rejected by the institutional credit organisations. From one perspective, middlemen can be seen as fulfilling a role of risk-takers that the banks have been unwilling or unable to fill. However, while the usurer activities of middlemen declined in general, the profits generated by the input supply activities decreased too. Decreasing transportation costs allowed some traders to specialise in the sale of inputs. There was a differentiation between upstream and downstream activities. On the one hand, some middlemen were marketing products; on the other hand, others were selling farm inputs to farmers and banks were giving credit. The bargaining power shifted in favour of the farmers.

With the end of the annual flood, it was possible to develop a permanent road network (before, the roads were partly damaged every year by the flood) financed by the government. The progressive improvement of transportation allowed production areas to connect with consumption areas in a minimal amount of time—a prerequisite for perishable goods production. Moreover transport by road turned out to be less expensive than by boat (Hafner, 1970). In the 1980s, trucks spent only four hours to go from Damnoen Saduak to Bangkok, as opposed to 8–10 hours by motorboat. Farmers were less isolated and as a result had access to more middlemen and alternative marketing channels. They could travel more widely in order to sell their products at a better price; middlemen were able to broaden their marketing areas with increasing ease of transportation. These developments resulted in increased competition between middlemen. The possibilities to exploit farmers who benefited from better marketing information were limited and, as a result, the profit margins of the middlemen were reduced.

Today, in contrast with the traditional extensive rice-based systems, which provide a fairly low income, the intensive and diversified agriculture on raised beds, oriented toward crops with high added value, uses a great amount of labour and capital.

7.6 Agricultural diversification, cropping systems, and socio-economic differentiation

7.6.1 Agricultural diversification

Agricultural diversification can be analysed at various levels.

- At the regional level (lower Mae Klong Basin), the diversification process is characterised by the expansion of raised bed areas at the expense of the rice field zones with single-crop farming.
- At the raised bed area level, there is a great diversity of cropping systems, especially in Damnoen Saduak district where more than 20 different crops are grown (chilli, coriander, kale, papaya, asparagus, rose apple, guava, coconut, sapodilla, grape, jujube, and lemon). In every Damnoen Saduak village, a vast number of different crops is found⁶.
- At the farm level, the gardeners develop diversified cropping systems to deal with economic constraints. They grow simultaneously different crops mainly to spread the needs of the labour force, to get regular income, and to weather the risks of price and production fluctuations.
- At the plot level, there are crop associations and rotations. Annual crops are, in general, grown in association (for example, chilli with yard-long beans and cucumber). Perennial crops (such as fruits and grapes) are mono-specific, even if some vegetables can be associated at the beginning of plantation (when trees are still small). Farmers make crop rotations in a given plot. They never successively grow the same crop in the same plot: they change every time to cope with soil fertility and phyto-sanitary problems.

In the raised bed zones, the highly “artificialised” environment allows the growth of a large range of crops. The Damnoen Saduak farmers have privileged access to the marketing system and can easily find buyers for different kinds of fruits and vegetables. In this agro-ecological and marketing context, farmers can choose between different cropping systems, according to the means of production accessible to them.

7.6.2 Cropping systems

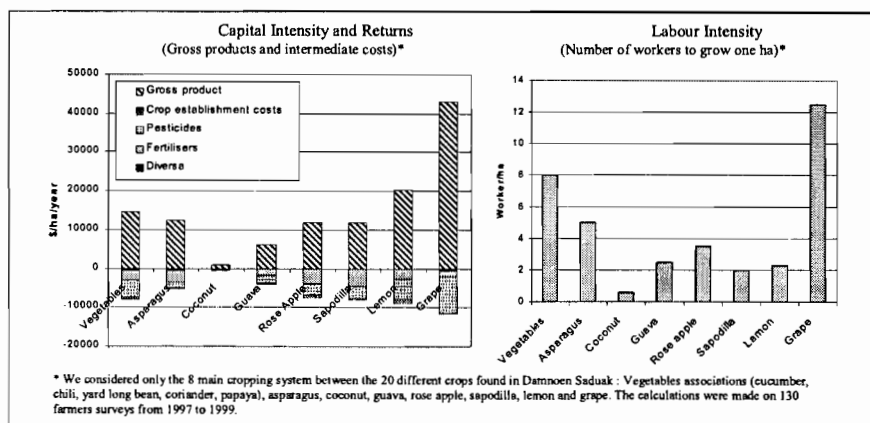
The different cropping systems require a varied level of capital and labour force and provide varied levels of income (Figure 7.6). Cropping systems cover a large range of more or less intensive systems (from highly intensive and profitable vineyards to less intensive coconut plantations with lower profitability).

The flexibility of this kind of agriculture can be partially explained by the limited capital invested in the different plantations. Due to the low cost of crop change, farmers are very responsive to the evolution of relative prices. For example, farmers do not hesitate to replace guava by rose apple if the price of guava becomes too low.

Fertiliser and pesticide costs represent the main part of capital needs (especially in vineyards). To buy these inputs, farmers often have to resort to credit, and 80% of Damnoen Saduak farmers are more or less indebted.

In the case of very risky crops like grapes, a farmer who has 2 or 3 bad harvests in succession cannot pay back his credit and may be forced to sell his land. In fact, the most profitable cropping systems are also the most risky. Only the farmers who have accumulated enough capital can invest in this risky but profitable cropping system and deal with poor harvests. Rather than resort to short-term credit, some farmers grow low risk crops harvested year round. These crops such as vegetables, guava, rose apple, and coconut allow predictable and regular income.

Figure 7.6 Capital and labour needs of selected crops



In this labour-intensive agriculture, most farmers resort to temporary hired labour to handle work peaks (harvest, pruning, etc.). Due to the increase in real agricultural wages over the last 20 years, farmers are trying to reduce this cost. The choice of cropping system takes into account the availability of the family labour force. The spread and staggering of activities is also taken into consideration when choosing the combination of crops.

Depending on their individual situation (farm size, family labour force, capital accumulation, and access to credit), farmers develop different cropping systems, more or less intensive in work and capital, more or less risky and profitable. The socio-economic differentiation of farms partly explains the cropping diversity in Damnoen Saduak.

7.6.3 Socio-economic farm differentiation

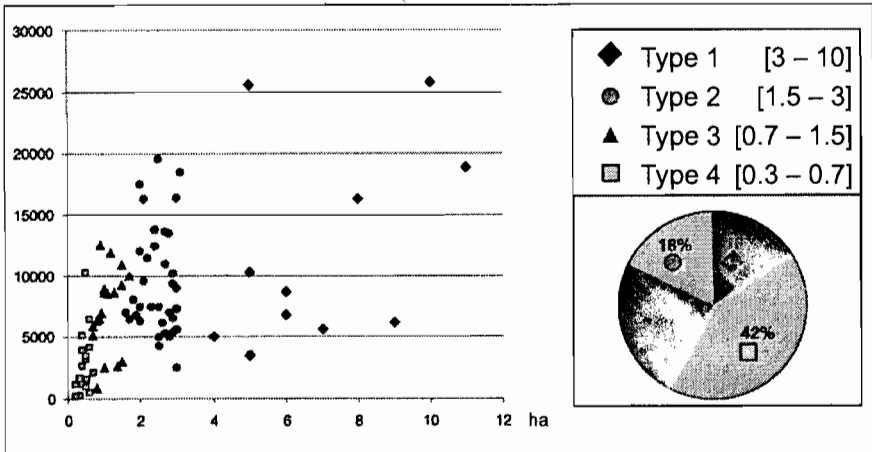
In Damnoen Saduak the average farm area is 2 ha, which is quite low compared to the average size of farms (4 ha) in the Chao Phraya Delta (Kasetsart University and IRD, 1996; Molle and Thippawal, 1999). In fact, Damnoen Saduak agriculture is mainly manual. It is nearly impossible to develop mechanisation of the peak work operations such as harvesting or pruning. In this labour-intensive agriculture, the farm area is limited by the availability of the labour force.

Nevertheless, there is some differentiation of the average Damnoen Saduak farm size. The fragmentation of farms has produced a concentration of small farms (less than 1.5 ha), especially in the oldest raised bed villages along the Damnoen Saduak Canal. Some farmers have managed to extend their area by buying rice fields in the northern part of Damnoen Saduak and by transforming them into raised plots.

Farmers with similar areas can nevertheless produce variable levels of added value (Figure 7.7). In fact, the productivity and the profitability of a farming system depends more on the kind of cropping system developed by farmers than on the cultivated area⁷. Even if the capacity for capital accumulation is positively correlated with the area, small farmers who have high availability of capital and labour can develop more intensive and profitable cropping systems than some bigger farmers who have a shortage of capital and family labour.

Different types of farms develop different strategies, however, according to their access to means of production. They try to maximise the productivity of the scarce factors (labour force for the big farms, capital and labour force for the medium farms, land and capital for the small and very small farms).

Figure 7.7 Added values of the different farm types (1999)



- The labour force of the large farms (Type 1) is fully employed. These farmers have good access to credit because they have large landholdings which can be used as collateral. The farms' sustainability depends on the availability of agricultural employees in the area and on the improvement of their salaries. But they have enough area to obtain sufficient agricultural income, even if they grow less intensive and less profitable crops.
- In medium size farms (Type 2), farmers use family labour force and employees to cope with labour peaks. They have a limitation for borrowing capital and tend to diversify their farming system to spread their capital and labour force needs.
- With small size farms (type 3) farmers cultivate labour-intensive crops that allow them to receive high added value with small capital investment (vegetables). So, they succeed in having enough capital to continue their farming system. When there is insufficient working capacity in their small farms, a part of the family labour force can take temporary jobs in bigger farms and increase the family income.
- With an added value of under US\$ 4,000 per year⁸, most of the farmers with very small farms (type 4) have off-farm activities to obtain supplementary income. Temporary job opportunities are numerous in Damnoen Saduak because many medium and big farms regularly need extra employees.

It is common to see situations of agricultural development where the small-scale farmers get lower income, are progressively eliminated and go to the cities, increasing the number of workers in the expanding secondary or tertiary economic sectors. The medium and large-scale farms can extend their areas at the expense of evicted small-scale farmers, and accumulate capital to invest in the improvement of work productivity (mechanisation, inputs, etc.). In contrast, Damnoen Saduak has undergone limited out-migration. Smaller scale farmers develop intensive systems oriented toward high added value and/or have off-farm activities as agricultural employees; in this way they can continue their farming system and receive sufficient income to remain in the district. The medium and large-scale farms also need these small farmers, who as temporary employees supply them the necessary labour force; in this way, they can develop intensive and profitable crops. The different kinds of farmers are complementary in the development of this diversified and intensive agrarian system. This is quite similar to the situation described by Molle and Thippawal (1999) for rice areas, where land and labour markets have been found to operate rather flexibly, where smaller farms tend to diversify production, and where the proportion of hired labourers in the agricultural population is significantly correlated with the demand for off-farm and on-farm hired labour.

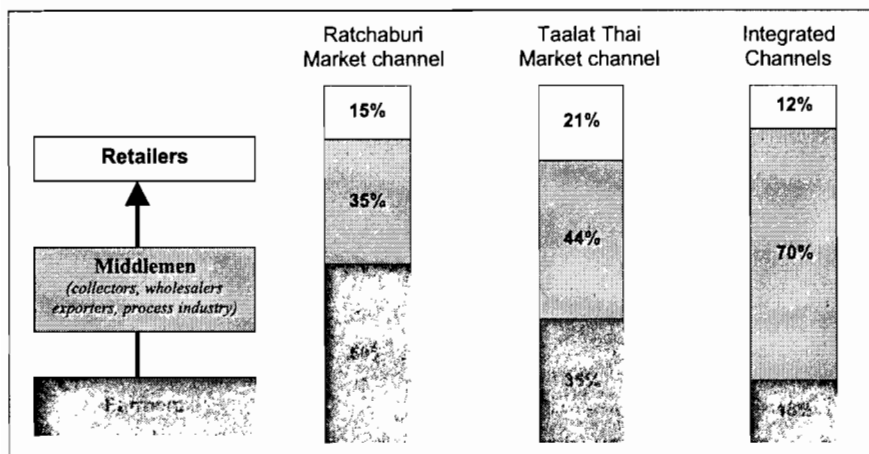
7.7 Marketing

Damnoen Saduak fruit and vegetable products follow a great diversity of channels to reach their final consumers, but two main organisational patterns can be distinguished. First, the most common marketing channels are constituted by numerous interlinked vegetables and fruits traders (collectors, wholesalers, carriers, retailers); fresh products transit through wholesale markets and are mainly sold in domestic retail markets. Second, process industries and exporters usually develop integrated channels outside conventional markets. They link together producers, cooperatives, or collectors, and industry or exporters. We estimate that in 1997, 92% (in volume) of the fruits and vegetables grown in Damnoen Saduak transited through these marketing channels. While in the first case most products are collected by middlemen and funnelled to Ratchaburi market and Talat Thai market (north of Bangkok), agro-industries or exporters need integrated channels capable to supply products with more regularity and certainty, and with higher quality standards (see more details in Cheyroux, 2001).

The marketing systems for the major crops do not allow exorbitant profits, are rather competitive, and have little room for improving economic efficiency. A more

efficient system could theoretically be achieved by eliminating some middlemen but the marketing channels would lose competition, flexibility, and adaptiveness to the farmer's situation. Figure 7.8 shows the average benefits of the actors along the marketing channel, expressed in percentage of the net added value.

Figure 7.8 Distribution of the added value along the marketing channels



The part of added value accruing to middlemen is dependant upon their functions in the channel. In the case of the Ratchaburi market channel, middlemen only have a role in trading; in the case of the Talat Thai channel, they act as collectors, carriers, and traders; in the integrated channels, middlemen's activities include collecting, transporting, marketing, and processing. Therefore, the part of the added value accruing to them is in direct relation to the tasks they perform. But the distribution of the added value also reflects the channels' competitiveness and the bargaining powers of the different actors. The benefit of the middlemen is also dependent upon the type of product, the quantity, the distance, and the risk involved.

The main outlets of Damnoen Saduak fruits and vegetables are the numerous urban and rural retail markets, which are the main mode of fresh food distribution in Thailand. More and more consumers, particularly in Bangkok, buy fruits and vegetables in the new supermarkets. If these distribution trends are confirmed, the integrated channels which supply these supermarkets will expand their role in the

fruit and vegetable markets to the detriment of the conventional marketing channels. The oligopolistic aspect of this type of channel would impact negatively on the farmers' position and on their share of the channel added value. This would tend to eliminate most small farmers. To be able to face this new challenge, farmers should consider establishing producers' cooperative organisations.

7.8 The particular conditions of agricultural development in Damnoen Saduak

The raised bed farming system provides high profitability, and the question can be asked, why this kind of system has not been expanded on a larger scale in the Chao Phraya Delta. Through the description of the development of the Damnoen Saduak agrarian system, we have seen that it required particular agro-ecological and socio-economic conditions.

- This agricultural development has been possible in Damnoen Saduak due to favourable ecological conditions (high availability of water, fertile clayey soils) and a highly "artificialised" environment⁹ (very dense network of waterways and important land development).
- To develop this environment and agriculture, a huge labour force had to be mobilised. In the first historical stage of Damnoen Saduak, Chinese coolies provided this necessary labour force. Later, in spite of new opportunities and remunerative jobs in the developing industry, this agriculture was able to generate relatively high levels of on-farm incomes and to limit out-migration to the cities, retaining the labour force in Damnoen Saduak.
- Huge capital was also necessary to intensify cultivation practices, particularly through fertiliser and pesticide use. The start-up money was provided by the trade sector. Today, farmers' capital accumulation and institutional credit has replaced middleman credit.
- Agricultural development in Damnoen Saduak is a process accompanying economic and trade growth and is boosted by improved rural infrastructures and marketing system development. The area has privileged access to markets due to the proximity of Bangkok, the development of the road network, and an efficient marketing system. Therefore, Damnoen Saduak farmers could benefit from the emergence of new markets (vegetable and fruit) induced by national economic growth. They have also developed well-diversified market-oriented production systems and have been able to gain sufficient flexibility to adjust smoothly to changing conditions of the market.

But the Thai economic crisis (1997–98) has revealed weaknesses in the agricultural development of Damnoen Saduak. This agriculture is very dependent on the market for the supply of a high level of inputs and for the sale of its market-oriented products. Farmers have developed diversified cropping systems to cope with the high fluctuations of fruit and vegetable prices; they largely resort to institutional credit to finance their inputs. Agriculture in Damnoen Saduak proved to be vulnerable to the general decrease in vegetable and fruit prices, the increasing prices of inputs, and the drastic increase of credit interest rates. Some farmers have changed their farming system to less intensive systems while others have gone bankrupt¹⁰.

New threats to the agricultural development in Damnoen Saduak are looming. Agricultural practices (for example, high level of fertiliser and pesticide use) have an impact on the environment (Joannon *et al.*, 1999). Degradation of water quality and accumulation of toxic elements in the soils might become an important problem which questions the ecological sustainability of this type of agricultural development. New producers, such as gardeners in the Mekong Delta (Vietnam), have developed fruit and vegetable products for Asian markets, and will be able to compete with the farmers of Damnoen Saduak in national and international markets. This raises doubts about the economic sustainability of this type of agriculture.

The conditions for development of the poldered raised bed systems in the Chao Phraya Delta are all the more challenging because of the sprawl of urbanisation and industrialisation. The agricultural sector has to compete for land, water, and labour and may be on the losing end if no coherent policy of regional development and planning is set to limit land speculation. As the Mae Klong River basin appears to have water surplus, the poldered raised bed system has so far been able to expand along with urbanisation and industrialisation. In the Chao Phraya Basin, however, the water deficit poses the problem of water allocation between rural and urban areas, and between agricultural and non-agricultural sectors (see Molle, Chapter 10). Thus the expansion of raised beds in the lower delta may be constrained. Above all, the expansion of the raised bed systems will depend on its capacity to remunerate and retain its labour force (which in turn will depend on the growth of real wages in the industrial sector), something Damnoen Saduak area has hitherto been able to achieve due to the high added value of its products.

In the past, the farmers of Damnoen Saduak area have shown their capacity to quickly change agricultural practices and cropping systems, and adapt their farming system to the rapid and profound transformations of the agro-ecological and socio-

economic environment. This suggests that farmers of Damnoen Saduak will be able to successfully address future challenges and that fruits and vegetables will not disappear so soon from Thailand's rice bowl.

7.9 Notes

¹ The abundance of land and the shortage of an available labour force were closely reflected in the overall organization of the Thai state. The major source of government revenue was the corvée imposed on all active freemen. Thus, if one considers the organization of freemen corvée in conjunction with the high incidence of slavery, it is overwhelming that the primary source of wealth and power in Thai society was not land but control of the labour force (Kemp, 1981; Akin, 1969).

² The Chinese have long been present in Siam, but Chinese immigration increased rapidly during the 19th century. Chinese arrivals were estimated at around 7,000 immigrants per year in 1833 and around 15,000 per year in 1851 (Skinner, 1957). This immigration of numerous Chinese coolies provided the country with a labour force at a low cost.

³ In the beginning of the 19th century, fruit and vegetables were already grown on such poldered raised bed plots around Bangkok (Pallegoix, 1854).

⁴ By 1850, it appears that the Chinese, in particular the *Teochiu* Chinese, controlled almost totally the trade in Siam (Fistié, 1967)

⁵ This period marked the beginning of rice intensification in the Chao Phraya Delta. In the rice sector, productivity growth has been accompanied by declining real prices of rice and subsequently lower incentives for farmers to cultivate rice. In the north of Damnoen Saduak, the income of rice farmers has declined and they have developed alternative sources of income with off-farm activities or agricultural conversions.

⁶ We found an exception in the southwestern part of Damnoen Saduak where coconut plantations dominate the landscape because of particular ecological constraints.

⁷ A farmer who grows vegetables on one ha generates more added value than a farmer who grows coconuts on ten ha.

⁸ The agricultural income is equal to the added value less salaries, land rent, tax, and credit interest. With an added value about US\$ 4,000/year, farmers have an average income close to US\$ 1,500 which is lower than wages in the industrial sector.

⁹ The Damnoen Saduak landscape has been built and shaped by man. Almost every lump of earth has been dug to make canals, ditches, dikes, and raised beds.

¹⁰ Today, it is too soon to evaluate the number of farmers who have gone bankrupt; a few years will be needed to allow sufficient data collection.

Chapter 8

Socio-economic and environmental implications of inland shrimp farming in the Chao Phraya Delta

Brian W. Szuster, François Molle, Mark Flaherty, and Thippawal Srijantr

8.1 Introduction

Low salinity shrimp farming is a relatively recent development in aquaculture that allows a marine species (the black tiger shrimp *Penaeus Monodon*) to be raised in freshwater inland areas under mesohaline conditions (3–10 ppt). The emergence of low salinity shrimp farming within rice-growing regions of central Thailand has raised concerns regarding potential environmental impacts, and the suitability of conducting this activity within highly productive freshwater agricultural areas. Specific environmental impacts of concern include soil salinisation, water quality degradation as a result of effluent disposal, and water use conflicts with competing activities such as rice farming (Flaherty *et al.*, 2000; Pongnak, 1999). This chapter provides an overview of inland low-salinity shrimp farming in central Thailand. It describes the evolution of this form of aquaculture, discusses husbandry techniques, and examines the controversy over potential environmental impacts. It also compares the economics of tiger shrimp farming in freshwater areas with freshwater shrimp farming and double-cropping paddy rice. For the purpose of this discussion, inland low-salinity tiger shrimp culture in freshwater areas is henceforth referred to as inland shrimp farming.

8.2 Development and evolution of inland shrimp farming

The need for large volumes of brackish water to fill pond enclosures has traditionally limited the cultivation of black tiger shrimp to a relatively narrow band of coastal

land within tropical regions. This was certainly the case during the first wave of intensive aquaculture development in central Thailand during the 1980s, when shrimp farms in the Upper Gulf Region were established within the estuaries of the major rivers such as the Chao Phraya, Bang Pakong, Tha Chin, and Mae Klong (see Map 4 in Appendix). Dry season saline intrusion is a common characteristic of these low gradient systems, and the seasonal availability of brackish water within streams and irrigation canals encouraged the construction of a second generation of tiger shrimp farms some distance upstream in areas such as Chachoengsao (Flaherty and Vandergeest, 1998). Brackish water is unavailable in upstream areas during the wet season, however, when higher stream flows counteract tidal influences. Low salinity shrimp culture was originally developed to overcome this limitation and provide a second annual crop (Flaherty *et al.*, 1999). Culture techniques evolved through experimentation led by local shrimp farmers (Chantana, 1993). These individuals discovered that if saline water was trucked-in from the coast when natural supplies of brackish water were unavailable, tiger shrimp post-larvae could be acclimatised to a low-salinity environment (Miller *et al.*, 1999). Although familiarity and availability were the primary reasons for utilising tiger shrimp in these experiments, this species is well known for its tolerance to significant variations in temperature and salinity (Laubier, 1990).

Low salinity shrimp farming expanded rapidly after the technical viability of this culture system was established, and farmers discovered that the high profits derived from shrimp production could easily offset increased costs associated with trucking saltwater from the coast. These factors facilitated the spread of inland shrimp farming into freshwater agricultural areas that never experience seasonal saltwater intrusion. Farms that draw freshwater from the existing rice irrigation infrastructure, and purchase saline water from tanker truck operators, now exist hundreds of kilometres from the coast, in areas such as the provinces of Prachin Buri, Suphan Buri, Nakhon Pathom, and Nakhon Nayok (Department of Land Development, 1999a).

The development of shrimp farming in freshwater areas was also hastened by on-going problems with water-borne viral disease outbreaks (e.g., white spot virus, yellow head) that substantially reduced production in coastal shrimp farming areas. Poor environmental conditions along the coast, combined with the susceptibility of coastal shrimp farms to disease, led some analysts to predict that overall Thai farmed shrimp production may decline (Dierberg and Kiattisimkul, 1996). However, with the development of low salinity shrimp culture techniques, farmers no longer required direct access to contaminated coastal waters.

Development opportunities are limited only by basic site suitability criteria (e.g., relatively flat land and a reliable source of freshwater), saltwater transportation expenses, and land leasing costs (Flaherty and Vandergeest, 1998). Inland shrimp farming represented as much as 40% of Thailand's total cultured shrimp production by late 1998 (Limsuwan, 1998), and an inventory conducted during this period by the Department of Land Development identified 140,343 *rai* of land devoted to inland shrimp farming in the central region (Table 8.1).

Table 8.1 Inland shrimp farms in the central region of Thailand

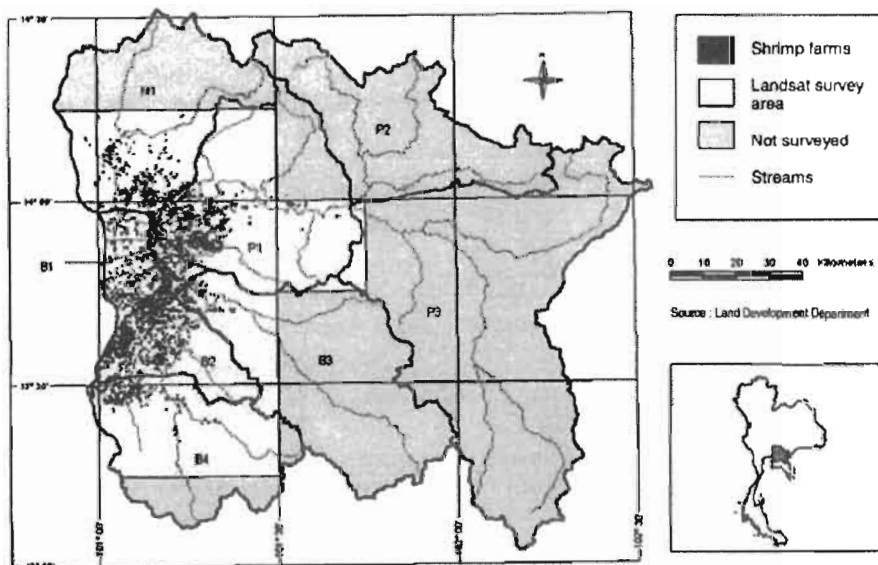
Province	Area (<i>rai</i>)	Province	Area (<i>rai</i>)
Chachoengsao	52,346	Ang Thong	1,205
Prachin Buri	28,608	Khrung Thep	321
Nakhon Pathom	13,775	Lop Buri	300
Nakhon Nayok	10,947	Chai Nat	290
Chon Buri	10,193	Nakhon Sawan	275
Suphan Buri	8,491	Nonthaburi	139
Samut Prakan	3,240	Kanchanaburi	120
Ayutthaya	2,816	Saraburi	97
Ratchaburi	2,186	Sing Buri	78
Phetchaburi	2,010	Uthai Thani	63
Pathum Thani	1,525	Samut Songkhram	30
Samut Sakhon	1,288		

Source: Department of Land Development, 1999a.

The expansion of inland shrimp farming into Thailand's irrigated rice growing areas was halted in 1998 when the Royal Thai Government banned inland shrimp farming in all freshwater provinces on the basis of a recommendation from the National Environment Board (Srivalo, 1998). Governors in coastal provinces were subsequently instructed to designate land within these areas as freshwater (where shrimp farming would be banned) or brackish water (where shrimp farming could continue). A joint committee including representative of the Departments of Land Development, Pollution Control, and Fisheries is also currently considering the fate of inland shrimp farming in seasonally brackish areas such as the Bang Pakong River Basin (Figure 8.1) that are not easily classified using this approach.

The Bang Pakong River Basin includes portions of Chachoengsao, Prachin Buri, Chon Buri, and Nakhon Nayok provinces. The joint committee has submitted a report and recommendations to the Thai government for consideration, and a decision on the fate of inland shrimp farming in the Bang Pakong River Basin is expected during 2001.

Figure 8.1 Shrimp farms along the lower Bang Pakong River



Source : Land Development Department

In spite of the prohibition on shrimp farming within freshwater provinces over the past 2 years, concerns continue to exist over the capacity of the Thai government to enforce the ban, the manner in which brackish water and freshwater areas have been designated, and the possibility that the ban on inland shrimp farming could be relaxed (Flaherty *et al.*, 2000). These concerns are reinforced by several factors. Shrimp farming plays an important role in the Thai economy, with sales to the United States, Europe, and Japan earning approximately US\$ 2 billion in export revenue during 1999 (Bangkok Post, 2000a). The Thai government has also been a staunch supporter of shrimp farming, and is presently encouraging farmers to raise more shrimp so as to offset a worldwide shortfall caused by disease outbreaks in

Latin America (*ibid.*). Although there may be some potential for increasing shrimp production through the intensification of existing farms, this strategy is accompanied by a higher risk of disease outbreaks and crop failure. It is likely, therefore, that increased production will require additional pond area which will be supplied by new operators entering the industry and/or existing farmers expanding their operations. With the further development of shrimp farming in Thailand's coastal areas increasingly constrained by high land values, more effective protection of mangrove forests, and concerns over the risk of disease owing to poor environmental conditions (Dierberg and Kiattisimkul, 1996; Vandergeest *et al.*, 1999), renewed pressure is likely to develop for the expansion of shrimp farming into freshwater areas (*Bangkok Post*, 2000b).

8.3 Husbandry and operating procedures

Inland shrimp farming practices are similar to those used in typical coastal operations which feature high stocking densities, aerated ponds, and a reliance on pelletised feeds, fertilisers, and chemo-therapeutants. The primary difference is that while coastal farms use naturally occurring seawater (15–30 ppt) to fill and replenish pond enclosures, inland farms combine freshwater with saltwater purchased from coastal salt pans or saltwater concentrate operations. This approach achieves an initial pond salinity level between 4 and 10 ppt. Further freshwater inputs are subsequently used to offset evaporation and seepage losses, and this process can reduce pond salinity levels to nearly zero by the time of harvest unless supplementary salt is applied (e.g., trucked saline water or bagged salt). Even though naturally occurring brackish water is seasonally available in some areas of the central plains region during the dry season (e.g., Bang Pakong River Basin), few inland shrimp farms will use this supply source due to the potential presence of viral pathogens and other contaminants such as pesticides (Ponza, 1999).

Thailand's transition from a small-scale producer into the world's largest exporter of cultured shrimp has been facilitated by the development of over 1,500 small-scale "backyard" hatcheries (Kongkeo, 1994). A substantial low-salinity hatchery sector has developed in provinces such as Chachoengsao and Chon Buri to support the inland shrimp farms, and these operations have made several adaptations to produce shrimp at the post-larvae (PL) stage of development that are acclimatised to a lower than normal salinity. Acclimation begins during the early post-larval stages in fry rearing tanks containing full strength seawater. Over a period of three to five days, salinity levels are gradually reduced from 30 ppt to

10 ppt by adding freshwater. The PL are ready for sale and delivery to farms when they are 12 to 15 days old.

A variety of methods is used to continue the acclimation process after the PL are delivered to the farm site (Miller *et al.*, 1999; Ponza, 1999). The simplest method involves slowly mixing water contained in the PL transport packages with pond water until a salinity similar to the grow-out environment is achieved. A second technique involves maintaining the PL in a separate nursery pond for 45–60 days where they are acclimated to lower salinity levels. The PL are then transferred to the larger grow-out pond by means of lift or bag nets. However, the most common PL acclimation method is the use of a small PVC or earthen bund nursery pen constructed within the grow-out pond. In this approach, the grow-out pond is initially filled with freshwater to a depth of 30 to 80 centimeters, and saltwater is pumped into the nursery pen. For a typical 0.6 hectare grow-out pond using the nursery pen method, two 15 metric tonne truck loads of 60 ppt water are required to raise the salinity of the nursery pen water to approximately 10 ppt (Miller *et al.*, 1999). Sections of the plastic PVC paneling or bund are removed over the first 7 to 10 days and replaced with mesh to allow the saline pen water to slowly mix with freshwater in the rest of the grow-out pond. The PL are released from the nursery pen into the full grow-out pond after the acclimation period is complete. Salinity in the full grow-out pond can range from 3 to 8 ppt at the end of the acclimation period depending on a variety of factors including pen size, water depth, and initial salinity levels.

Freshwater is generally added to the grow-out pond at a rate of 5 to 10 cm every 10 days during the grow-out period until a maximum pond water depth of 1.3 to 1.5 metres is achieved. The use of reservoirs to enhance water management during the grow-out period is becoming more common, but these facilities can only be constructed on farms with adequate land holdings and the farmer must be willing to sacrifice production area (Flaherty *et al.*, 2000). Reservoirs act as a buffer between water sources that contain disease pathogens or surface water pollutants, and can serve as receptacles for nutrient enriched harvest effluent. They are used to allow sediment to settle out of canal water before being added to the ponds, and reservoirs encircling the production ponds can also reduce saline water intrusion to adjacent rice paddies. The most common and simple reservoir system is a water ditch barrier between shrimp ponds and surrounding rice paddies.

The standard grow-out period for inland culture systems is a relatively short 100–120 days. Harvest at inland farms occurs earlier than in most coastal operations as a result of decreasing salinity levels and the negative effect this has on shrimp

health and development. Shrimp produced by inland farms average 50 pieces per kilogram at harvest (Ponza, 1999; Miller *et al.*, 1999) which is quite small in comparison to coastal operations. Prices vary widely from crop to crop owing to international market fluctuations, but a typical price during the year 2000 for small shrimp sized at 50 pieces per kilogram was approximately US\$ 10 per kilogram (Shrimp World Incorporated, 2000). Although yields vary greatly between operations, a successful inland shrimp farm can produce five metric tonnes per hectare twice a year. Assuming the current farm gate price for small shrimp, a farmer with one hectare of his holdings devoted to shrimp culture would have a gross annual income of US\$ 100,000 (based on two crops). This is at least 25 times the income of a typical rice farmer in central Thailand, and illustrates how lucrative shrimp farming can be compared to rice cultivation. It also explains why rice farmers who can raise the investment capital are willing to take a gamble on raising shrimp (see Section 4). In cases where rice farmers are unwilling or unable to invest themselves, there is ample opportunity for leasing paddy land to outside investors at rents that greatly exceed what they could obtain growing rice. Although that income estimate does not take into account the significant capital costs associated with pond construction, farm infrastructure such as pumps and aerators, and feed, successful shrimp farmers can commonly recoup their initial investment within one year. This assumes, of course, that they do not experience catastrophic disease problems which can lead to crop failures.

8.4 Socio-economic aspects

Perhaps the most important factor contributing to the diversification out of rice and into shrimp farming is the large gap in land productivity. In accordance with the general association between income and risk in agriculture, shrimp farming is also a much more risky undertaking. This section compares the average incomes provided by tiger prawn farming (KD, or *kula dam*), macrobrachium (freshwater) shrimp farming (KK, or *kram kram*), and rice double cropping. It then undertakes to assess the sensitivity of each activity to risk, both agronomic and economic.

8.4.1 Comparison of average incomes

The production costs of shrimp farming are not uniform across farms. Although following a similar husbandry technique, there are distinct differences in the degree of intensification of this activity. This is reflected in the different management

decisions made regarding such factors as stocking density (generally between 80,000 and 140,000 shrimp/rai), method of pond preparation, feeding practices, use of chemotherapeutants, and the frequency of water aeration. Yields are highly affected by the quality of PL, the quality of water, and/or the occurrence of disease. Also the sale price is subject to the vagaries of the market. The following calculations are based on average values relative to the development of shrimp farming in the Bang Len area¹ (upper Nakhon Pathom province). Prices are taken as the deflated historical average over the past ten years and yields reflect average production levels in the absence of severe yield-reducing factors. Rice production costs are computed for a farmer who prepares the land himself, hires labour to apply chemicals, and harvests by machine.

Several striking differences between the three activities are apparent. First is the level of production costs (Table 8.2; Figure 8.2). While rice production requires approximately 1,300 baht/rai, shrimp farming requires a capital input of 51,000 baht for KK shrimp and almost twice that amount for KD shrimp. The bulk of these costs represents feed, shrimp PL, and gasoline. Despite being labour intensive (one person is required to regularly check water quality, distribute feed, pump water, etc.) a single worker can care for 4–5 rai of KD shrimp or over 10 rai of KK shrimp. The former is more intensive in care (feeding 4–6 times a day, stricter control of water quality, etc) than the latter. Additional labour is required only at harvest when a group of 10 to 25 labourers is hired by the day. Only 18% of the farms surveyed employed permanent labourers.

Also striking are the relatively low fixed costs associated with shrimp farming. Starting a shrimp farm requires that the paddy field be transformed into a pond. A mechanical excavator (*makro*) is used to cut the soil surface to a depth of 35 cm for KK ponds and 50 cm for KD ponds (these values may vary depending on the plot size and topography). The earth is then pushed to the sides by a bulldozer to form a surrounding dike. Thanks to the large fleet of excavators, bulldozers, and tractors in the delta, where earth moving has long been an important activity, such operations are relatively inexpensive. Other investments include axial pumps and motors (for which an active second hand market exists) and water aerators. This brings the initial investment for a KD shrimp farm to approximately 45,000 baht/rai, and less than half of this amount for a KK shrimp farm. However, these values, multiplied by a few rai, are generally beyond the investment capacity of most rice farmers.

Table 8.2 shows that the yearly income per rai is slightly over 4,000 baht for rice and that KK and KD shrimps deliver a much higher level (13 and 35 times

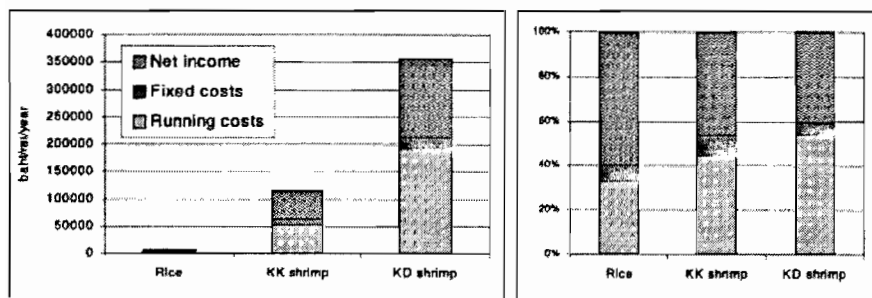
Table 8.2 Production costs and income per *rai* of rice and shrimp (baht)

Rice	HYV	Shrimps	Macrobracium Kram Kram	Tiger Prawns Kula Dam
Land preparation	93	Shrimp fries	8,324	15,637
Seeds	90	Saltwater	0	7,482
Fertiliser	105	Pond preparation	1,102	4,592
Herbicide	110	Food	26,850	44,907
Pesticide	90	Medicine	3,522	5,913
Spray	70	Gasoline/electricity	5,976	11,035
Gasoline (pump)	200	Pond cleaning	2,127	2,527
Maintenance		Labour	2,295	2,332
Harvest	300	Transportation	885	1,093
Transportation	100	Other	126	740
Running costs	1,158	Running costs	51,207	96,258
Two wheel tractor	50	Pond excavation	295	332
Cart	10	Pumps/motors	907	1,274
Pump	10	Hut	167	83
Sprayer	10	Water aerators	55	893
Levelling	12	Other	60	0
Fixed costs	92	Fixed costs*	1,484	2,582
Interest		Interest	9,348	7,193
Land rental	167	Land rental	0	0
Yield (kg/rai)	700	Yield (kg/rai)	480	890
Price (baht/kilo)	5	Price (baht/kilo)	240	200
Gross product	3,500	Gross product	115,200	178,000
Net value added	2,250	Net value added	62,510	79,160
Net income/rai/crop	2,083	Net income/rai/crop	53,162	71,967
Cropping intensity	2	Cropping intensity	1	2.0
Net income/rai/year	4,166	Net income/rai/year	53,162	143,935
Costs in % net V.A	36		46	56
Net income/running costs	1.8		1.0	0.7
Net income/fixed costs	22.6		35.8	27.9
Net income/total costs	1.7		1.0	0.7

* Fixed costs are distributed over the number of crops over 10 years (and 6 years for water aerators).

more respectively). These average incomes per *rai* must be multiplied by the size of the farm. In our sample, the average farm size was 13.8 *rai*, with a much lower value for KD (7.9 *rai*) than for KK (14.8 *rai*), which reflects the differences in investment and risk. The corresponding incomes are obviously beyond what rice farmers have ever dreamt of. Generally, in cases of poor yields and/or poor marketing, the risk of going into debt is extremely high.

Figure 8.2 Costs and net income of the three activities



8.4.2 Shrimp farming and risk

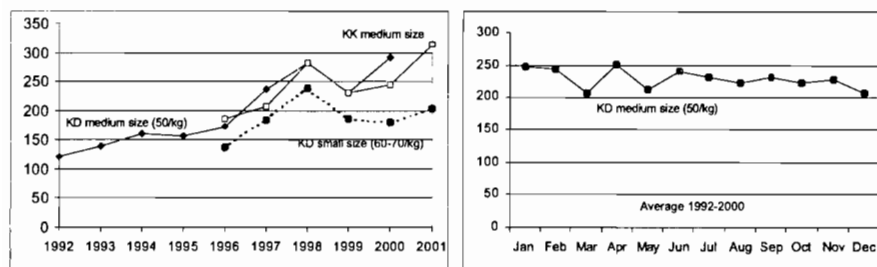
As a rule, agricultural activities with higher potential profitability are also more risky. In the present case, risk is defined both by the sensitivity of shrimp to disease and by fluctuations in market prices. A total of 62% of farmers in our sample reported having experienced years with drastic production losses. Most of the time this was attributed to “disease” but other causes included poor water quality, cold weather, lack of experience, soil quality, and crop theft. A good production of KD shrimp can yield 1 tonne/*rai* or more, but yields can also come down to 400 kg/*rai*, or even zero.

Diseases or poor shrimp development have an impact not only on yields, but also on shrimp size. One kilo may contain between 20 to 100 shrimp, and the price varies accordingly. For these two extreme values, the ratio of the price averages over the last 10 years was around four. Figure 8.3 shows that KD prices have appreciated greatly over the last decade, and that monthly variations have not been as high. It can be concluded that this rise in prices has been a strong incentive in the decision to adopt shrimp farming. So far, the control of water quality and sanitary conditions have been much more severe problems for farmers than price

fluctuations. However with the spread of shrimp production into many countries it is likely that more uncertainty lies ahead.

Risk in shrimp farming originates from the uncertainty on these two factors, coupled with the low ratio of net income to production costs (0.6 for KK and 0.2 for KD shrimps) or, in other words, to the high share of costs relatively to the value added. The cost/value added ratio is 36% for rice, 62% for FD shrimp, and 83% for KK shrimp.

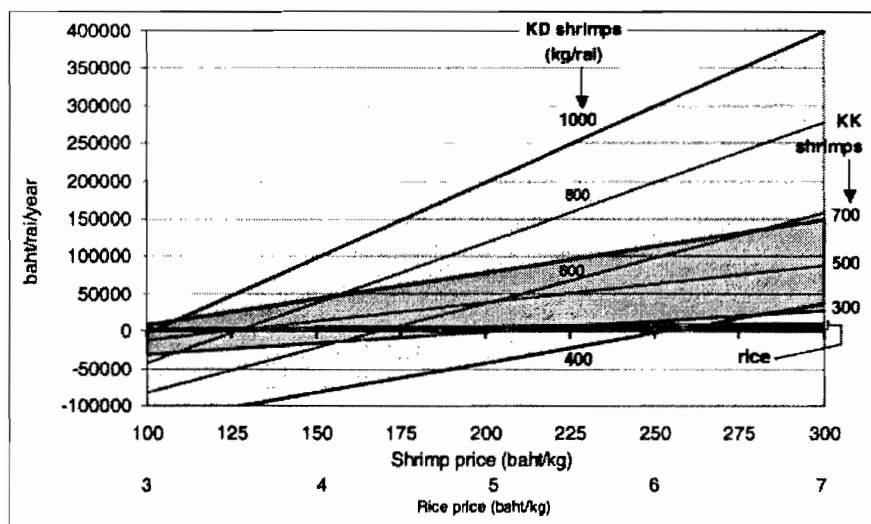
Figure 8.3 Yearly and monthly price variations



We now consider the “risk ranges” of the three activities in more detail. Figure 8.4 plots their net income, relative to a commonly observed range of yields and output prices (x axis). Even for extreme yields (500 kg/rai) and prices (3 baht/kg), the rice income remains positive (in red; this is not clearly visible because of the scale). KK shrimp farming shows a limited (price, yield) area (in blue) where income turns negative but can hardly exceed 150,000 baht/rai. In contrast, KD shrimp farming can soar to extremely high incomes (several hundreds of thousands baht/rai) but also exhibits a rather wide (price, yield) area (in grey) with negative economic gains. Figure 8.4 readily illustrates the differences between the three activities in terms of profit and risk.

Another risk limiting strategy that illustrates the management trade-offs considered by shrimp farmers deserves mention. KD shrimp farmers commonly apply very high PL stocking density (often over 100,000/rai) and harvest after a relatively short 3–4 month grow-out period. This strategy reduces the risk of disease-related losses and limits feed costs, but produces only small sized shrimp (60 pieces per kg). KD farmers could adopt lower stocking densities and a longer grow-out period to produce larger shrimp, but they appear to prefer a risk limiting approach as the income obtained by this strategy is still extremely attractive.

Figure 8.4 Rice and shrimp income sensitivity to yield and price changes



However, experience from coastal shrimp farming areas in Thailand suggests that the use of high PL stocking densities ultimately increases the likelihood of disease outbreaks. Decreasing the short-term risk of a single crop failure by applying a high PL stocking ratio may, therefore, increase the long term risk of total farm failure as a result of the ecological unsustainability of this technique.

8.4.3 Who enters shrimp farming?

Risk together with the possible economic benefits are paramount factors in the decision to begin shrimp farming. With potential yearly net benefits running between 13 to 35 times that of rice, it is no wonder that rice farmers are tempted to gamble and try to earn in two or three years what would otherwise be a lifetime income. This raises the questions of who is most likely to engage in shrimp farming, and why some farmers refrain from doing so. Our sample of 106 shrimp farms was supplemented by a survey of 35 farmers who grow rice in the close vicinity of shrimp farms (Table 8.3).

Risk taking is often positively correlated with a farmer's age. Although the samples are limited, it is interesting to note that the average age for rice, KK and

KD farmers was 49, 44, and 39 years respectively. Average family sizes were also comparable (5.2 for rice, 5.4 for shrimp), and suggest that labour availability is not a drastic constraint. Many of the larger farms found in the area employ permanent labourers who, in many cases, are underpaid Burmese migrants. To offset the expected low degree of commitment and care from these labourers, farm owners generally make part of their remuneration proportional to the production achieved. On 92% of the farms, the landowner (or renter) is also the farm manager. He is commonly helped by his wife (72%) or by a child/relative (36%). Consequently, the level of outside employment is very low (4% of farmers and 10% of their wives have off-farm activities) which indicates that shrimp farming is a highly demanding activity in terms of daily care.

Table 8.3 Characteristics of the shrimp farm sample

Start of operation	Before 1990	1991–95	1996–98	1999–2001
% of farms	13	39	32	13
Age of farmer	Under 30	31 to 40	41 to 50	Over 50
% of farms	18	32	26	24
Farm size	Under 5 <i>rai</i>	5 to 10 <i>rai</i>	10 to 20 <i>rai</i>	Over 20 <i>rai</i>
% of farms	18	32	26	24

Access to land does not appear to be a drastic constraint, which suggests that the rise in land rents (typically from 450 baht/*rai* for rice to 1,500 for KK and 4,000 for KD) is sufficient for the landowner to offset the cost of having his land excavated and/or salinised. Rental contracts are generally made for 3 years or more, and no contractual precariousness, which would deter investment, was reported. Farm managers own 79% of the total pond area, against 21% for rented ones. Also noteworthy is the fact that while the rice farms have an average area of 36 *rai*, the shrimp farms have only half as much average area.

Access to capital may also be a constraint to start shrimp farming. A total of 58% farmers invested their own capital, 55% borrowed from banks (generally the Bank of Agriculture and Agricultural Cooperatives)², 14% from relatives, 11% from neighbours, and only 5% from middlemen. However, 40% of the farmers relied on two or more sources of credit (hence the total is over 100%). Regarding

production running costs, 67% use their own capital but 61% made contractual arrangements with suppliers to pay for their inputs after harvest. Only 23% resorted to banks.

Another issue concerned the occupation of shrimp farmers before engaging in shrimp raising. In this survey, 73% were rice growers (9% with additional non-rice crops), 12% grew sugarcane or fruit trees, while 14% were non-farmers. There was a range of diversity among the non-farmers who had become shrimp farmers. Previous occupations reported included student, truck driver, merchant, and gas station manager.

The overall picture is that the profitability of shrimp production attracts all kinds of investors (farmers and non-farmers), and that factor constraints are not critical. Among the reasons given by 20 neighbouring rice farmers for not engaging in shrimp farming, lack of capital ranked first (13), which may reflect either the lack of credit sources or the fear of resorting to them. Other reasons include risk aversion (6), poor water quality (5), lack of time (4), opposition of the landowner (4), unsuitable land holdings (2), lack of skill (2), and failure by relatives (2). It is noteworthy that lack of skill, which is often a deterrent to the adoption of innovations, is given so little weight. The shift from rice to shrimp farming is, therefore, favoured by relatively good water conditions in the area, the absence of critical shortages of land and labour, and relatively abundant capital. Risk is generally tackled by first shifting from rice to KK shrimp farming, and only later to KD when experience and capital have been accumulated (77% of the KD farms raised KK before).

8.5 Environmental impacts

The ban on inland shrimp farming initiated a heated debate over the nature and significance of the environmental impact. Inland shrimp farmers were outraged at the imposition of the ban on their activities in freshwater areas, and argued that it was founded on biased environmental impact assessment information (*Bangkok Post*, 1998). Specific issues of dispute are the potential for salinisation of agricultural soils, water pollution stemming from the discharge of pond effluents, and competition between agriculture and aquaculture for freshwater supplies.

8.5.1 Soil salinisation

Salinisation can occur directly through the deposition and accumulation of salts in soils located immediately beneath the pond enclosure, or indirectly as a result of

seepage into adjacent agricultural areas. Indirect salinisation impacts could also be produced through the disposal of saline effluents into streams or irrigation canals which are subsequently used to irrigate rice paddies or orchards.

The most recent estimate of land subject to direct salinisation impacts as a result of inland shrimp farming in the central region is 22,455 hectares (Table 8.1) and we estimate salt loading to be roughly 2.7 metric tonnes per hectare per crop. This value assumes that 3 truckloads (15 metric tonnes each) of saltwater at 60 ppt are required for each hectare of inland shrimp pond. Since almost all farms produce two crops per year, annual salt inputs would be 5.4 metric tonnes per hectare per year. The use of PL nursery pens reduces overall salt requirements, but this approach is not universal and salt inputs are substantially higher on farms that maintain pond salinity levels of 10 ppt throughout the grow-out period. This estimate also does not consider the common practice of adding bagged salt during the grow-out period to maintain salinity. Given these factors, a 5.4 metric tonnes per hectare annual salt loading figure should be considered conservative.

The significance and extent of indirect soil salinisation effects are, however, much more difficult to assess. Recent studies conducted by the Thai Ministry of Science and Technology (1999) suggest that seepage can increase salinity in soils from 50 to 100 meters from the edge of inland shrimp ponds. Caution must be exercised in assessing the amount of land actually affected by indirect impacts because impact pathways are extremely complex and mitigating factors exist (e.g., natural soil flushing by monsoon rains). Given the size and agricultural importance of the areas potentially affected, however, the significance of direct and indirect soil salinisation impacts should not be underestimated. Much of the land converted to shrimp ponds was highly productive rice paddies, and the cost of returning this land to agricultural production if shrimp farming fails could be substantial (Land Development Department, 1999b).

8.5.2 Water pollution

While water quality problems are common in all shrimp farming areas, these can be especially problematic in inland regions where small streams and irrigation canals possess a relatively low assimilative capacity. The majority of the nutrients added to shrimp ponds in the form of fertiliser or pelletised feed are not incorporated into the shrimp, but end up being deposited in pond sediments or discharged as effluent (Funge-Smith and Briggs, 1998; Tookwinas, 1997). Most small inland shrimp farms ponds completely drain grow-out ponds at harvest, and release large

quantities of untreated effluent directly into adjacent water bodies. Only a relatively small number of large operations treat and recycle effluent within holding reservoirs. The decomposition of organic waste in surface waters reduces dissolved oxygen levels, can suffocate or smother aquatic fauna, and produces toxic chemicals such as ammonia and hydrogen sulphide (Primavera, 1998).

Inland shrimp farms operate somewhat differently than coastal operations, as very little effluent is released during the first 60 days of the grow-out cycle (Braaten and Flaherty, 2000). Feed requirements are relatively modest at this point, and additions of freshwater are usually sufficient to maintain water quality in the pond. During the latter half of the culture cycle, however, water exchange is used to maintain the growing environment and effluent is discharged. A significant amount of nutrient enriched effluent is also released during harvest when the ponds are completely drained. Very little information is available on the composition and impact of inland shrimp farm effluent, but it has been estimated that culture period and harvest effluent contain BOD concentrations of between 10 and 25 milligrams per litre (Pollution Control Department, 1996; Ingthanjitr, 1999). Although the effect of shrimp farm effluent on receiving waters is of concern, a much more serious issue exists with regard to the disposal of semi-liquid sludge that remains in the grow-out ponds after harvest. This material consists of uneaten feed, faeces, and sediments eroded from the pond enclosure (Funge-Smith and Briggs, 1998) and is highly polluting with BOD concentrations of 1,500 milligrams per litre or higher. Pumping pond sludge directly into adjacent water bodies is illegal, and this material is usually maintained on site in holding ponds or packed onto pond banks. The illegal dumping of pond sludge into freshwater bodies is not uncommon, however, due to a lack of farmer awareness and regulatory enforcement (Pollution Control Department, 1996; Braaten and Flaherty, 2000).

Other important water pollutants originating in shrimp ponds are the chemotherapeutant products added to ponds by the farmers. These chemicals can leave the ponds through effluent, seepage through pond bottoms, and through the removal and disposal of bottom sludge. One of the most common and worrisome pond additives is antibiotics. Most commercial shrimp feeds are enriched with common antibiotics such as oxytetracycline. Studies of fish farms have shown that the majority of antibiotics added in feed are not assimilated by fish but go into the environment (Weston, 1996). Once in the environment, antibiotics can have a wide range of effects. In surface water, they may lead to antibiotic resistant pathogens or accumulate in the tissues of wild fish. If they accumulate in sediments,

antibiotics may prevent natural bacterial decomposition and consequently alter the natural benthic environment (Chua *et al.*, 1989).

8.5.3 Water use conflicts

It is not surprising that inland shrimp farming evolved within traditional rice growing areas of Thailand, as the activity requires substantial quantities of fresh water to fill pond enclosures and maintain environmental conditions during the grow-out period. The presence of plentiful freshwater supplies is critical to the success of inland shrimp farming, and irrigation infrastructure originally developed for rice cultivation is easily adapted to aquaculture. Water use impacts associated with shrimp farming typically involve excessive consumption or competition between rice and shrimp farmers for limited supplies (Miller *et al.*, 1999).

Although limited information is available on inland shrimp farm water use, a recent study has been completed on this topic (Braaten and Flaherty, 2000). This study found that a typical inland shrimp farm withdraws approximately 18,700 m³ of water per hectare per crop per year, and consumes approximately 9,050 m³ per hectare per crop. This consumption figure is roughly similar to other crops grown within irrigated regions of Thailand (e.g., wet rice, banana, or sugarcane) and suggests that inland shrimp farming should not have a significant impact on water use. In non-irrigated areas, however, inland shrimp farming may still have the potential to aggravate existing water use conflicts. The dry season is the optimum period for raising shrimp, and this preference may increase freshwater demand during a period of limited supply. Dry season demand for freshwater may even increase in areas that have saltwater naturally available as a result of intrusion, because shrimp farmers generally avoid this water source due to concerns over quality and virus transference. Water use conflicts are also possible as a result of groundwater pumping. A ban on groundwater pumping for aquaculture purposes has been imposed in coastal areas of Thailand to prevent subsidence and protect agricultural and domestic water supplies, but the prevalence of this practice in the inland shrimp farming sector is currently unknown.

8.6 Conclusions

Inland shrimp farming presents a situation where significant short-term economic benefits may be obtained, but at the risk of going bankrupt and of creating

significant environmental impacts. Of the impacts discussed above, soil salinisation is clearly the most critical issue due to the potential for inland shrimp farming to cause long term damage to agricultural areas which may be difficult and expensive to reverse (Ministry of Science and Technology, 1999). Cumulative effects are a second area of concern. Although many inland low salinity shrimp farms are less than 1 hectare in size, the existing magnitude and density of development in many areas may have the potential to degrade regional soil and water resources (Flaherty *et al.*, 2000). Cumulative effects represent the additive or inter-active effects of multiple small-scale activities (such as shrimp farming) on larger ecological units such as watersheds. Although the short-term impact of an individual inland shrimp farm on regional environmental quality is likely to be limited or negligible, the long-term cumulative effect of a large number of inland shrimp operations on regional soil and water conditions may be substantial due to the slow accumulation of salt and other waste products.

Current studies into the environmental impact of inland shrimp farming in Thailand are focusing on the site-specific effects of individual operations. Although these studies will undoubtedly increase our understanding of specific environmental concerns, this approach cannot address the potential cumulative effects produced by large numbers of inland shrimps farms operating in dense concentrations. If inland shrimp farming continues in some form within Thailand, we believe that research into the long-term regional implications of this activity must be undertaken to insure the security of soil and water quality in Thailand's agricultural heartland.

8.7 Notes

¹ A sample of 106 farms was surveyed in *amphoe* Bang Len (predominantly in *tambon* Sra Simum, Don Khoi, and Sra Patthana), including KK shrimp farms (73), KD shrimp farms (32), and mixed KK/KD farms (14).

² Unexpectedly, this rate is almost unchanged (50%) for full tenant farm managers.

Chapter 9

Government policy and farmers' decision-making: the agricultural diversification programme for the Chao Phraya River Basin (1993–95) revisited

Siriluck Sirisup and H. Detlef Kammeier

9.1 Introduction

Some 80 percent of the central plains, in the southern part of the Chao Phraya River Basin, consist of fertile agricultural land which contains most of the national irrigation areas and delivers the bulk of the surplus rice harvested. Rice still is one of Thailand's major export commodities but it now ranks far behind electronics and garments. The "rice bowl" also includes the largest metropolitan agglomeration, which is Thailand's centre of gravity in terms of population concentration, political and economic power. Managing the competition between the agricultural and the urban sector for resources of land, water, and infrastructure investment is one of the major challenges for the Chao Phraya Delta now and in the near future. Government and farmers alike are involved in the decisions that have to be made in view of the major changes expected in the traditional rice bowl area. This chapter contributes a long-term assessment of the crop diversification policy that began in 1993, showing the important role of farmers as local decision-makers within an enabling framework set by national government policy.

9.1.1 Objectives and organisation of the chapter

The main objective is to present the agricultural restructuring policy under the Seventh and Eighth Plans in a longer-term perspective, although there is a certain emphasis on its first phase, the diversification pilot project of 1993/94. The implementation of this policy coincided with the most drastic changes in the

economy of the last 50 years, the “boom and bust” years before and after July 1997. It also coincided with significant fluctuations of two decisive factors for growing rice: water availability and rice prices. So this chapter examines how the farmers as risk takers and decision makers, responded to the diversification policy, especially as they were simultaneously exposed to changes that were not influenced by the government policy. As the policy was designed to be participatory and its implementation was supposed to be decentralised, the analysis is focused on the significant local variations in farming system conditions.

This chapter is organised into three major parts (and further divided into six sections):

1. After a brief introductory view of Thailand as an economy in transition, section 9.2 highlights the shifting styles of agricultural extension policies and practices in Thailand. Section 9.3 then provides a summary of the agricultural diversification and restructuring programme, which began in 1993.
2. Against this background, section 9.4 presents a profile of the approach and the main findings of a large empirical study, which is the main source of information for this chapter. Initially, the focus of the study was on the pilot project of 1993/94, and the launching of the national policy in 1994/95, but over the past five years, a long-term study was conducted which has just been completed (Siriluck, 2001).
3. The last two sections present a discussion of the empirical findings on farmers’ decision-making in response to government policy and other determinants, especially market signals, along with a view of the changes in implementing the national agricultural restructuring programme since 1995, and finally, some conclusions and policy perspectives.

9.1.2 The Thai economy in transition

The title of this section intentionally alludes to that of the remarkable book published by Peter Warr not very long before the economic crisis of 1997, *The Thai Economy in Transition* (Warr, 1993). The volume provides an excellent overview of the long-term changes of the socio-economic and political setting in this country. The downturn in the economy since July 1997 has profoundly influenced Thai society at large, and the re-orientation period is not over yet. The “boom and bust” scenario has been analysed by many, but perhaps the most popular reference is the book by Pasuk and Baker (1998). The main features of

economic growth and change in the 1980s and the accelerated growth during the early 1990s were foreign investments in industries (notably from East Asia), growing domestic investment capability, a transformation of the economic structure, but also increasing inequality. The political economy and the social dimension of the unprecedented growth in Southeast Asia have been analysed by Muscat (1994) and Rigg (1997), among many other scholars. The notion of a "transitional economy" is implied in the research work presented in this chapter.

Thailand was particularly suitable as a target for foreign investments because of the combination of relative political stability and a relatively cheap and docile labour force. The total inflow of the last three years before the downturn was greater than the total foreign investment in Thailand over the thirty years before, but the upsurge in local investment was even larger. The key characteristics of the Thai economy changed in a very short period. In 1980, three-fifths of exports originated from agriculture, but by 1995 over four-fifths came from manufacturing. Over just one decade, the urban population doubled and the average per capita income doubled. In these fifteen years, the economy's main export emphasis moved from crops, to services, to labour-intensive manufacturing, and to medium-tech manufacturing. Unlike the benefits of the boom, which were rather unequally distributed, the impact of the burst of the bubble economy was indiscriminate, as the rural economy is so much intertwined with the urban one. The lost urban jobs resulted in decreasing remittances to the families in the countryside, and unemployed urban migrants seeking work in the villages which just cannot provide an economic basis for additional people.

9.1.3 Decentralisation

Three major legislative events have pushed the political debate about decentralisation into a situation of rapid and drastic changes: the new Constitution (1997), preceded by the local government legislation (*Tambon* Act, 1994, followed by several "organic laws"), as well as the participatory style of preparing the Eighth National Plan (1997–2001). For at least three years now, decentralisation has become one of the hottest political issues in Thailand, with far-reaching implications and strong impacts on areas as different as development of basic democracy, local government capacity, fiscal reform, and agricultural extension.

Government line agencies from the central ministerial level down to the de-concentrated provincial and district levels, are going through considerable changes as the political, administrative and fiscal reforms are empowering the grass-roots

level in the form of some 7,000 newly created local authorities (Tambon Administrative Organisation and many new small municipalities). Content and style of decision-making are shifting towards real participation, while local capacity for claiming the constitutional rights and replacing the top-down traditional patterns remains severely limited. It will take many years until the current situation of "incomplete," or perhaps "incongruent," decentralisation eventually turns into a truly functional system of distributed authority and responsibility, which would then reflect the spirit of the Constitution (Kammeier, 2000).

9.2 Agricultural policy and extension practices in Thailand

This section begins with a broad review of agricultural development in the rice-growing areas, including a sketch of the major irrigation improvements in the Chao Phraya Basin, and a view of the shifts and changes in agricultural extension approaches. The critical constraints that emerged at the beginning of the 1990s are then shown as the background for the agricultural restructuring policy which was launched in 1993.

9.2.1 Critical aspects of agricultural development

The history of Thailand shows a number of significant changes in agricultural development which were certainly not just induced by market signals, but by deliberate policies, and the formation of agricultural and rural development policy is well documented (for example, Judd, 1989). For a long time up to the 1960s, agriculture provided both the highest share of GDP and national export earnings. In the course of national development, the contribution of the agriculture sector to GDP began to decrease. It still reached about 50% in 1951, but came down to a mere 12% by 1997. The industrial sector developed rapidly to surpass agriculture in 1975, while the service sector increased more gradually to its current dominating position. The labour force in these two sectors has just now reached the same size. The discrepancy between agriculture's share of GDP and of labour force indicates an unbalanced condition with enormous gaps between the industrial-urban and the agricultural-rural sectors, as well as the strong external influences on any agricultural development policy.

The continuing existence of the rice bowl is linked to the farmers' ability to make a living, which largely depends on the rice price. Thailand as an open economy is exposed to considerable fluctuations of agricultural product prices

according to the world market. Over the past 25 years, rice prices have fluctuated dramatically, and in some years, the farm-gate price barely covered the input costs. This was one of the strongest reasons for launching the diversification programme in 1993, along with a critical water shortage, which had emerged as a new constraint on agriculture. However, only a few years later, rice prices reached high levels (in 1997/98, largely because of the new exchange rate of the baht against the dollar, and the hike in world market prices), and there was also more than enough water for second rice. Thus both factors made rice the most profitable option again for several years.

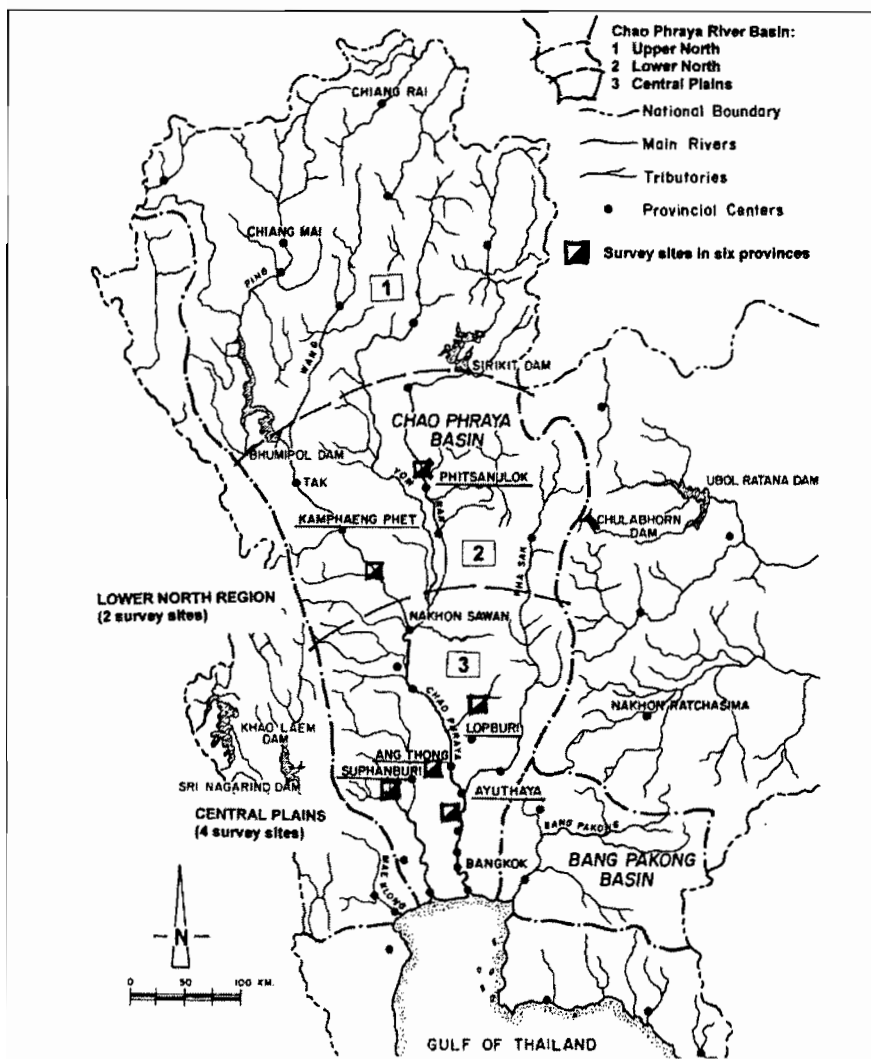
The Chao Phraya River Basin underwent considerable changes in the rice cultivation system over the past half century (Kasetsart University and IRD, 1996). It was only since the mid-1960s and particularly in the latter half of the 1970s, that rice culture in the central plains changed remarkably by the widespread introduction of double cropping, high-yield varieties, improvements in the traditional broadcasting methods and transplanting, all of which has expanded greatly since that time. Such changes in rice culture also reflected an increase in intensity which was made possible by increasing mechanisation and the extension of irrigation facilities over the last fifty years. These transformations brought about significant changes in productivity and labour utilisation (see Somporn and Hossain, Chapter 5).

The Royal Irrigation Department (RID) statistics provide interesting background information on the relatively new irrigation project 3 (the Phitsanulok system in the lower north) and projects 7 and 8 (in the central plains) where the six study areas are located (refer to Figure 9.1). The change in cultivated areas under second rice, field crops, and sugarcane in project 3 was very significant. From 1985/86 to 1989/90, the cultivated area of second rice increased by about 200%, while it was rather stable in the older project areas 7 and 8 (only 10% increase). The expansion of the second-rice area was large (and fluctuating in response to market prices), as was that of sugarcane. Field crops and fruit trees increased in a very significant way, especially in the central plain. This two-fold intensification and diversification process is highly contingent upon the access to water resources (see Molle, Chapter 10, and Molle *et al.*, 2001c).

9.2.2 Stages of agricultural extension services

The major policy in the early years of agricultural extension organisations in most developing countries was to increase crop yields and animal production. After some time, more attention began to be paid to improving production efficiency,

**Figure 9.1 The Chao Phraya River Basin
with the survey sites (*amphoe*) in six provinces**



later to environmental issues, and finally, to the institutional framework for delivering extension services. Such long-term changes reflect the steadily increasing experience with extension services, the availability of resources, the adoption of technical innovations, and marketing mechanisms (Box 1).

The pattern of extension changes in Thailand seems to have followed the international pattern with a delay of some ten years, while it is now catching up rapidly (Box 2), especially in conjunction with the policies for decentralisation and public participation under the new Constitution. In this interpretation of the recent introduction of Technology Transfer Centres at *tambon* level, Thailand would have reached the stage of emphasising the institutional stage. The changes in agricultural development policy and extension style are so fast that there are considerable contradictions between the principles of "sustainable agriculture" and export-focused production. Reconciling the principles of sustainable development and production promotion is difficult indeed, and it seems to lead to problems of understanding and to some confusion among the extension officers as an amusing play on words related by one of the extension officers illustrates¹.

Box 1: Four periods of shifting emphases in international agricultural development.

Agricultural research and development has become increasingly diverse, with a growing number of disciplines engaged. Based on international comparative research, four stages can be defined for developing countries (summarised by Pretty, 1995, from several sources):

- 1. Production stage** (roughly 1950–75); pioneer disciplines: breeding and genetics; farmers as recipients of technology.
- 2. Economic stage** (roughly 1975–85); Farming Systems Research pioneered by economists and agronomists; and farmers as sources of information for technology design.
- 3. Ecological stage** (roughly 1985–95); anthropology, agro-ecology, and geography are pioneers; farmers contribute their indigenous knowledge; they are seen as victims or causes of unsustainable development.
- 4. Institutional stage** (roughly 1995 onwards); pioneering disciplines: management specialists/scientists, training specialists and educators; farmers as full collaborators in research and extension; alliances between different institutions.

Box 2: Shifts in the orientation of agricultural extension and development in Thailand

Reflecting the principal changes in orientation in other countries (as outlined in Box 1), but with a delay of some 10 years, the successive shifts in the orientation of the Thai agricultural research, extension and development may be interpreted as follows:

- 1. Production stage** (roughly 1960–1980s): Thai farmers as recipients of technology provided through extension services by the Rice and Horticulture Departments. Large-scale dissemination of technology with adoption of the Train and Visit (T&V) model; spread of the green revolution and intensified farming from about 1975 through the 1980s.
- 2. Economic stage** (roughly late 1980s–1990): This stage started by the introduction of the alternative systems that were adopted under the influence of Farming System Research since the mid-1980s. Alternatives offered to the farmers however were designed by the extension officers, but based on the farmers' conditions.
- 3. Ecological stage** (beginning in the 1990s): Following the call for sustainable development, agricultural development policy began to use “sustainable agriculture” terminology since the Sixth Plan (late 1980s). Promotion of sustainable agriculture is in the form of encouraging farmers to practice natural farming, organic farming, integrated farming, and agro-forestry. Target of 20% of total agricultural land (25 million *rai*) to be under sustainable agriculture by the end of the Eighth Plan (2000). Conflicting goals—sustainable agriculture vs. export production; and little real effort for implementation; difficult to implement for extension officers.
- 4. Institutional stage** (just beginning, from 1999 onwards): Technology Transfer Centres are established to serve the people-centred approach; farmers are supposed to fully collaborate in extension while support is provided by the DOAE. However, this approach is still in an early stage and not yet fully developed (also refer to Table 9.1).

9.2.3 Farmers' participation in decision-making

Similar to the changes in extension approaches, the increasing involvement of farmers as decision-makers, rather than recipients of expert advice from extension

officers, shows how Thailand's experience follows that of patterns in other countries. The "Farmer-Centre Approach," which is complementary to the "Alternatives System," lets farmers and *tambon* extension officers play much greater roles in local-level planning and implementation, while the upper-tier officers' role shifts from advisor to facilitator. This reflects the objectives of the Eighth Plan, while it is also consistent with the core of planning management processes, which is being promoted worldwide by the concept of Local Agenda 21. Apart from its focus on the environmental cause, this encompasses full involvement of local people in developing and implementing strategies, including contributing in design, information exchange, and sharing in decision-making.

Pretty (1995) has described seven degrees of participation and interaction between farmers and extension officers: 1. passive participation; 2. participation in information giving; 3. participation by consultation; 4. participation for material incentives; 5. functional participation; 6. interactive participation; and 7. self-mobilisation.

The summary in Table 9.1 relates such changes to the emerging new styles of extension services in Thailand. The design of the agricultural restructuring policy (perhaps more than its actual implementation) aims to include elements of Pretty's advanced stages of participation. The new concept of *tambon* level Technology Transfer Centres (since 1999) definitely requires truly functional or interactive participation. So far, there are only a few pilot centres of this kind, and it is therefore too early to assess their viability and effectiveness.

9.3 The national agricultural restructuring programme

Thailand's land frontier closed some 25 years ago, when it was no longer possible to accommodate increasing population pressure and agricultural production needs by opening up new farm land (as is well known, very much at the price of reducing the forest cover of the upland areas). What was new at the end of the 1980s, however, was that the country began to have a very definite "water resources frontier," realising that the seemingly abundant water resources are in fact limited and need to be allocated among the competing objectives of rural and urban development. Team Consulting Engineers (1993) concluded that Thailand had to act on the critical competition between agriculture, industries, and urban domestic consumption. A water management plan was recommended (Binnie and Partners, 1997) in which agriculture would have to play a significant role, along with other sectors.

**Table 9.1 Participation levels
associated with the changing extension system in Thailand**

Type of extension	Time period	Participation characteristics (using Pretty's typology of seven stages of participation)
Transfer of Technology	Until 1977	Modern technology based on research results is introduced without farm trials. So technology belonging to external professionals announced without listening to people: <i>passive participation</i> .
Transfer of Technology with the T&V model	1977–1990	With the new resource of <i>tambon</i> extension officers, structured surveys became possible. However, farmers only answered questions without having any influence; most of the findings were never shared or checked for accuracy: <i>participation in information giving</i> .
Alternatives approach	1990s	Offering alternatives, extension officers began to listen to farmers. Both problems and solutions were defined according to farmers' needs and local conditions: <i>participation by consultation</i> .
Extension style used in the agricultural restructuring programme	Since 1993	For the first time, the diversification pilot project coupled low-interest credit with diversification. The extension approach used here included elements of <i>participation for material incentives</i> , apart from the alternative approach that had been introduced before.
Farmer-centre approach	Since 1999	The establishment of farmers' institutions incorporated with the Tambon Administrative Organisation (TAO) aims at encouraging farmers to carry out joint analysis leading to action

plans, while these groups have control over decisions and maintaining the agricultural practices in the form of "Farmers' Field School." This seems to resemble the model of *functional and interactive participation*

Source: Interpretative table designed by Siriluck (2001), linking the extension stages in Thailand with the seven participation stages described by Pretty (1995).

For the first time in the crop year 1993/94, reservoir water for agriculture had to be limited in an unprecedented way. The two large dams (Bhumibol and Sirikit) that had been supplying irrigation water to the central plain since the 1960s and 1970s, reached exceptionally low levels. The three causes of the water shortage in 1994 were the low rainfall intensity for three years (1990–93), the demand for electricity generation and water supply for the metropolitan region, which had been growing tremendously due to the expansion of industrial development and settlement and, at the same time, the failure to follow technical criteria for dam management aimed at avoiding such disruptions (see Molle, Chapter 10, and Molle *et al.*, 2001a). So the Royal Irrigation Department (RID) reversed its 40-year policy of water use for agriculture, as it could not manage to limit dry-season cropping in view of the water shortage.

9.3.1 The background of the programme

Under such conditions, any agricultural development policy would have to deal simultaneously with several critical problems, i.e., periodic shortages of water for agriculture (which is due to reduced rainfall and poor management of water), declining land resources and high competition in the world market for rice (and other commodities). Thus a policy for "Agricultural Restructuring for the Chao Phraya River Basin" was set up in 1993, in the framework of a "Work Plan for Restructuring Agricultural Production" which was formulated as the most important policy thrust in line with the Seventh National Plan (1992–96). Following the principal guideline of utilising the national resources and meeting the market demand, the operational plan for this area emphasised the promotion of crop diversification in order to mitigate against the risk of low rice prices and to consume less water for cultivation.

The main strategy implied in the crop diversification in the Chao Phraya Basin was twofold:

1. as a minor strategy component, to substitute the second rice crop with other crops (such as vegetables or flowers); and
2. as the major strategy thrust, to permanently replace rice cultivation with other forms of land use, notably fruit trees, but also animal husbandry or aquaculture.

The minor strategy component of substituting for the second rice crop in the dry season does not change the land use pattern. Rice is still cultivated in the wet season while other crops are grown in the dry season. In comparison, the major strategy thrust is to permanently replace rice cultivation with other forms of land use. The emphasis of this study is on this second component of the diversification policy, because it is more complex and requires much more far-reaching decisions by the farmers than the first component.

It was the first time that the Thai government allocated a large budget in the form of credit support to farmers who wanted to diversify. Despite the incentive of low interest rate and long-term credit, taking the loan still involved the farmers' own decision-making and risk-taking. This is especially true for small-scale farmers who have limited farm resources of land, labour, and capital. These farmers will not accept the alternatives offered by the extension officers unless the market opportunities for the fruits, flowers or fish are better than for rice. So a number of factors and their possible combinations determine whether a small farm is able to effectively participate in the diversification programme. The main reference document is the proposal by the Department of Agricultural Extension (DOAE, 1994).

9.3.2 The diversification pilot project

Under the Seventh National Plan, crop diversification was strongly promoted in order to respond to the risks caused by natural disasters and price fluctuation, within the framework of restructuring agricultural production. The target crops were rice and cassava, but also coffee and pepper, all of which tended to give low returns, and the main instruments for making diversification attractive and effective were credit support as well as local extension services. The water shortage of the early 1990s gave rise to the somewhat urgent additional objective of saving water as part of the diversification strategy, but no target figures were given for how much water was to be saved.

Originally, the diversification programme was supposed to cover all 22 provinces of the river basin (see Figure 9.1 above) from the beginning in 1993, but due to

budget limitations for the first year, it was decided to begin with a pilot project in the four provinces of Lop Buri, Ang Thong, Suphan Buri and Ayutthaya. The selection was based on good accessibility (from the national agricultural planning headquarters) rather than these provinces' representativeness of the different agro-ecological zones in the river basin. The pilot project was under the authority of the Department of Agricultural Extension (DOAE), which had a budget of 29 million baht² for the initial one-year operations.

The pilot project operations covered one district in each of the three provinces of Ayutthaya, Suphan Buri and Lop Buri, and two districts in Ang Thong. Each of the districts had a target area of 500 *rai*, but the first-year operations covered 2,355 *rai* belonging to 517 farms. The project performance thus exceeded the target figure of 2,000 *rai*, while underspending on the budget available. Just under 25 million baht was spent on credit actually supplied to farmers (DOAE, 1994).

When a much larger budget (of over 65,000 million baht) became available a year later (1994), the crop diversification out of rice in the Chao Phraya River Basin was integrated into the main work plan for a national project called *Restructuring Agricultural Production*. This programme aimed to support farmers in diversifying out of the major cash crops that had been facing serious problems of price fluctuation. First of all, rice, but also, to a lesser extent, cassava, were the main targets as they were the major crops with the largest number of farmers affected. The programme design also included pepper and coffee as regionally important cash crops, but they were later dropped from the project implementation. Within this larger national framework, crop diversification out of rice was no longer limited to the irrigated areas (as in the pilot project), but also covered rice cultivation in rain-fed areas.

The jump from a pilot project worth 29 million baht limited to four provinces and rice as the single target crop, to a very important national policy worth 65,000 million baht for a five-year period was enormous. A simple arithmetic comparison of the size of the pilot project with that of the full-scale programme shows this: the pilot project provided approximately 7.25 million baht per province (for one year and one *amphoe* only), but the full-scale programme allocated an average of 171 million baht for each year per province—an increase by a factor of 23. Surprisingly, however, this jump was made without an in-depth evaluation of the pilot project, which had been designed to test the national strategy for a one-year period. So this very large and complex national programme was launched without a detailed framework for monitoring and evaluation, although it was obvious that the different crops (rice and cassava) needed to be evaluated separately, and each province had to be monitored and evaluated³.

The main features of the design of the diversification pilot project are outlined in Box 3. They are similar to those of the much larger national agricultural restructuring programme which began in 1994. The procedures that are summarised in Box 3 have been applied since 1993, although they may have been adapted along with increasing experience (in this respect, refer to the handbook published by the Ministry of Agriculture and Cooperatives, 1998).

Box 3: Main features of implementing the diversification pilot project: Design from the top, and recognition of local farm resource constraints

The project package was designed at the top level of the vertically organised bureaucracy. For the central plain, orchard cultivation was targeted as the most appropriate crop for substituting rice, because of soil suitability, market demand, and lower water consumption. The project design aimed at the conversion of small plots (3–5 *rai*) from rice to orchard, in combination with a special long-term, low-interest credit line (15 years, and only 5% p.a.). To bridge the first 3–4 years with no returns from the young fruit trees, intercropping with vegetables or flowers was recommended, apart from the possibility of raising fish in the irrigation ditches of the newly created orchard plots.

In implementing the programme, the Department of Agricultural Extension (DOAE) as the lead agency cooperated closely with the Royal Irrigation Department (RID) and the Bank of Agriculture and Agricultural Cooperatives (BAAC) as well as several other agencies.

Provincial targets and information transmission. Budgets and target areas in each province were identified at the level of central government departments. Provincial-level offices were instructed to implement the programme, apparently without clearly specified local criteria. They had to find farmers who would be interested to join the project so as to prepare definite area and credit targets for each *tambon*. The *tambon* extension officers were given the task of encouraging farmers to diversify. They together with the BAAC branch officers held meetings with farmers, explaining the project objectives, outlining the benefits that farmers might receive, and setting out the conditions for receiving the credit, repayment rates, and so on.

Local farm plans. Farmers who were ready to join the project had to work on a relatively detailed farm plan together with the *tambon* extension officers (land use, land holding status, labour available, proposed diversification pattern, budget estimate for the diversification activities). These farm plans were compiled

at the *tambon* level, submitted to the agricultural district officers, and forwarded to the BAAC district branch. After screening the applications, officers visited the farmers for in-depth investigation, before loans were approved.

Budget approval at the highest level. Approved farm plans were compiled at the district level and processed at provincial level, within the target figures given for land areas and credit for each province. DOAE and BAAC operated through their own channels for credit supply and input support (e.g., fruit tree saplings) to be prepared at the central level.

Local distribution of support. After approval, credits and material inputs were allocated to the provincial level. Flows of information and distribution at farm level were organised through the district and *tambon* officers. This process also included a stepwise disbursement of loan funds to farmers, in line with implementing the individual farm plan.

9.4 Research approach and findings

Decentralisation had already been very prominent during the Seventh National Plan (1992–96), but it became even more pronounced in the present Eighth Plan (1997–2001). The agricultural diversification policy thus has to be seen in the changing framework of policy planning and implementation at the various levels, especially at the provincial and local levels. The focus was on agricultural planning procedures and experiences, as one of the centrally important forms of government intervention at the local and regional levels.

9.4.1 Research methodology

The Department of Agricultural Extension (DOAE) was very supportive of the researcher's plans for conducting empirical field research into the innovative diversification project, because the results of the field survey were expected to contribute to DOAE's own efforts for project monitoring and evaluation. So the field surveys were designed as baseline surveys for DOAE, using the classical approach of comparing carefully selected project target groups with similarly structured control groups from the same study areas (Siriluck, 2001).

The methodology included a number of preparatory steps, before the sampling was decided upon in a statistically reliable manner. Methods such as RRA (rapid rural appraisal) were used before going into elaborate interviews with more than

300 farmers (about 50 in each of the six provinces). Later on, all areas were revisited, using methods like focus group meetings and PRA (participatory rural appraisal) for updating the information obtained from the initial survey. The first pilot project areas in the four provinces in the central region that had been selected by the DOAE were surveyed twice, in the first crop year (1993/94) and a year after that. They were Ayutthaya, Ang Thong, Suphan Buri, and Lop Buri, one or two *amphoe* from each province, where the test programme was carried out by the DOAE. When the full-scale national programme had begun in crop year 1994/95, two more provinces in the lower north were added, Kamphaeng Phet and Phitsanulok, using essentially the same approach as in the four central provinces. The basic framework was a quota sample of 30 farmers in a "project group" in each province, in comparison with an equally carefully selected sample of about 20 farmers in a "non-project group." In this way, the study in six selected provinces was reasonably representative of the various agro-ecological and socio-economic conditions in the Chao Phraya Basin, although obviously, DOAE would have been able to conduct more such surveys in other provinces after 1995, using the same model.

The analysis of the survey data consisted of descriptive statistics, specific statistical tests of some of the crucial factors for understanding the farmers' attitudes and behaviour with regard to the diversification project, and qualitative discussion of the results, in comparison with the published policy documents and statistics.

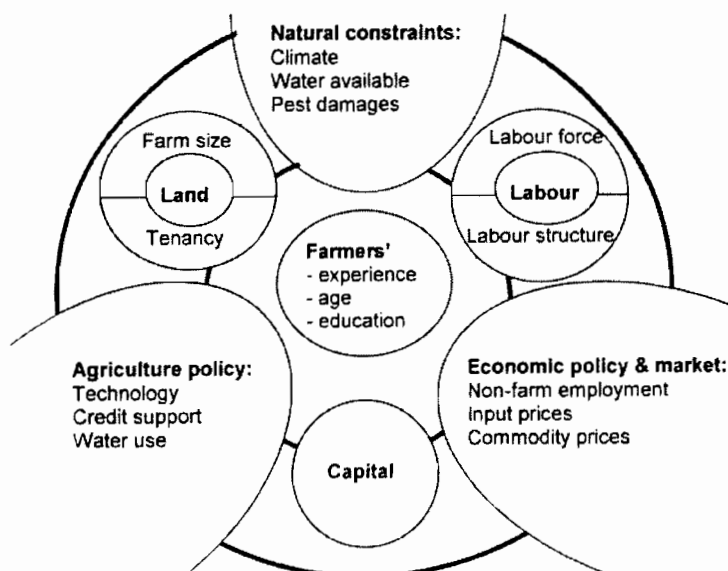
Understanding the effects of public sector policies on farmers is not possible without adopting a holistic approach where the individual farmer is at the centre of a farming system, which is part of the entire agricultural system (Chudleigh, 1984; Siriluck, 1993). The farming systems approach was used as a conceptual basis for setting up the survey and analysis methodology because it was only in this way that the farmers' situation vis-à-vis the alternatives offered by the diversification project could be understood. The methodology included exploratory reconnaissance trips, talks with key informants at all levels, "rapid-appraisal" meetings with farmers, and in-depth interviews based on structured and open questions, apart from reviewing all relevant statistics and other published materials.

Although the field surveys in 1994 and 1995 were only conducted in rice-growing irrigated areas, the principal framework of the approach was such that it could be adapted to any other areas under the agricultural restructuring policy. The aim was to conduct a systematic empirical study into the various factors that are involved in the implementation of the agricultural restructuring policy, and to fully

understand the farmers' actual decisions, so it would be possible to expand the method into a multi-criteria model, which would eventually lend itself to predicting farmers' behaviour under various farming system conditions, by simulating the expected effects of alternative restructuring scenarios. In this way, the initial research effort could have been utilised in monitoring and adjusting the national policy, through systematic feedback from the actual local implementation experience—but this did not happen.

Figure 9.2 shows a conceptual diagram of the basic framework for the determinants of farmers' decision-making. All farming decisions are based on constraints and opportunities that lie within the farmer's personality and family (at the centre of the graph), the farm resources of capital, labour and land (shown in the intermediate circle), and the farmer's response to market signals and other determinants that are shown in the outer circle of exogenous factors. The farmer (at the centre) is surrounded by endogenous factors (concerning the farm, inner circle) and exogenous factors (natural environment, national and international policies and market) determining the farmer's decisions (based on Siriluck, 2001)

Figure 9.2 A conceptual diagram of the farming system



9.4.2 Project planning and implementation

In view of the objectives of participatory project implementation, as intended under the national plans, the first question to be asked when assessing the style of project planning and implementation was: did the field officers administer an agency blueprint plan, or did they facilitate farmers' decision-making?

Despite the national promotion of more decentralisation and participation, planning and implementation of the project were in the typical bureaucratic manner, with decision-making and budget control still from the top and down the line of the individual agency. As the package had been designed and set out in the form of a blueprint from the top, it was not easy to change and adapt at the bottom of the pyramid. So the *tambon* extension officers who were working at the grass-roots level acted more or less as postmen, transferring the message they had received from above to the farmers. This is in contrast with the promotion of active plan formulation at the provincial and district level, responding more directly to farmers' needs as stated in the Seventh Plan.

So the local diversification pilot plans did not come from a bottom-up approach, and the farmers basically adopted the package offered by the DOAE. However, the recruitment of farmers for the diversification project brought in a new element in the extension approach, where farmers had to make their own decisions in response to the alternatives offered, rather than just receiving technology transferred to them⁴.

9.4.3 Baseline research findings (1995)

The questionnaires yielded a rich amount of detailed information which would have been impossible to gather through a more broad-brush RRA-type approach⁵. The survey sites in four, and then six, provinces included from four to ten *tambon* each, and almost all of them represented a different microcosm of farming conditions. The farmers' and their household members' demographic data, their educational and experience backgrounds, and their individual resource base—land ownership and size, labour structure, capital, and access to non-farm work—provided a range of basic conditions for the decisions they were expected to make. The decisions were, first of all, whether or not to join the attractive credit-supported package of converting some plots of their land into orchards, and to add fish raising to their rice-farming operations. The second stage of decision-making concerned the mix of new farm enterprises to be added, for example which fruit

trees, or which flowers and vegetables. All such details turned out to be very relevant to the success or failure of each farmer over the years after the baseline survey.

The first part of the analysis focused on the structure of the household income as derived from many different farm and non-farm sources. Table 9.2 presents a summary of results. The point here is to show the ranges of incomes from different sources, rather than the actual amounts. Expectedly, household incomes varied considerably, depending on land resources, crops grown, and other variables. As all respondents have irrigated land with the possibility of growing a second crop after rice, the average extent of non-farm income was somewhat smaller than the figures from national statistics (at an average of about 50%). However, wherever farmers were in easy reach of industrial plants such as in Ayutthaya, the income from factory work and other off-farm employment of at least one household member, was reflected in a relatively large proportion (of up to 50%) of total household income.

The decisions these farmers had made, in many ways reflected the constraints they had, but this was not obvious when the interviews were conducted, because so many different factors must be considered. It was only after careful analysis that the initially intended differentiation of farmers, in or outside the project, turned out to be misleading, because there were farmers in both groups, who had to be seen as a distinctly different third group: those who had already invested in alternatives to growing rice only. So the sample of 310 farmers was re-shuffled into three groups as shown in Table 9.3. The emphasis here is on "innovators," i.e., those who had either previously diversified their farm operations on their own, or had joined the project, being attracted by the low-interest loan. It is almost equally important to understand the "non-innovators" or "non-diversifiers", because their conditions provided the reasons for not being able, or not wanting, to change from the current farming operations.

The analysis on the basis of those three groups included a statistical test of those factors that could be used as variables in a possible future model for predicting farmers' attitudes towards farm restructuring options. Tables 9.4, 9.5, and 9.6 provide more details on this interesting point. In summary, the interpretation of the three groups showed that the resource constraints of the non-diversifiers were such that they did not really have the options that the other two groups had. The decisive factors are land tenure (not enough owned, and too much rented land, which is difficult to use as collateral); and labour constraints (which would not allow them to adopt the more labour-intensive fruit-tree option). Instead, those

**Table 9.2 Ranges of income from main components
of total farm household income**

Principal component of total farm household income (total = 100)	Sub-systems (Farm income = 100) (Non-farm inc. = 100)		Main categories of each sub-system (Farm income = 100) (Non-farm income = 100)	
A. Farm income (gross margin)	40-75	A.1 Crops	82-95	A.1.1 Rice 38-95
				A.1.2 Other crops (sugar, vegetable, fruits, flowers) 0-55
		A.2 Fish	0-7	(commercial scale, home consumption)
		A.3 Livestock	0-16	(poultry, pigs, cattle)
B. Non-farm income (gross income)	25-60	B.1 On-farm	3-45	B.1.1 Home industries 0-40
				B.1.2 Petty trading & services 0-5
		B.2 Off-farm	55-97	B.2.1 Government employment (full-time) 3-45
				B.2.2 Agricultural employment (part-time) 5-8
				B.2.3 Non-agricultural employment (full or part-time) 20-55
				B.2.4 Remittances 5-45

Source: Data from 310 households in six provinces, field surveys 1994, 1995; Percentages in relation to total household income, farm and non-farm income

**Table 9.3 Formation of three new groups
for further statistical and qualitative analysis**

Initial assumption:	A. Project group: 182		B. Non-project group: 128		
Analysis of results:	157 farmers joined the project	25 had diversified earlier but also joined the project	45 had started to diversify	83 could/could not do it, for various reasons	Total 310
Reclassification:	1. Project- support group: 157	2. Self-support group: 70		3. Non-diversifi- ers: 83	Total 310

Note: Only after evaluating the survey results, it turned out that farmers who had already diversified on their own are an important group. So further analysis was on the basis of a re-shuffled grouping

**Table 9.4 An interpretative summary
of the farm resources of the three groups**

Farm resources	Group 1: Self-support farmers	Group 2: Project-support farmers	Group 3: Non-diversifying farmers
Labour	Sufficient	Sufficient	Partly employed outside the farm
Land	Sufficient	Sufficient	Limited: partly rented
Capital	Sufficient	Not sufficient. Therefore, credit support required	The land /labour constraints are so strong that even the low interest rate of credit does not act as incentive

Source: Interpretation of survey findings, 1994–99.

Table 9.5 Land tenure status by group

Land tenure status	Group 1 Self-support farmers	Group 2 Project-support farmers	Group 3 Non-diversifying farmers
Proportion of land owned (as percentage of total farm land)	80	64	47
Proportion of land rented (as percentage of total farm land)	15	25	44
Others (rented out and waste land)	5	11	9

households had already decided that the most suitable way of increasing their meagre farm incomes was outside work; so the analysis showed that they had a greater extent of off-farm employment than those in the two groups of innovators.

9.4.4 Follow-up survey results (1996–99)

The two main reasons for launching the diversification project in 1993 had been the exceedingly low rice prices that were hardly above the production costs and

Table 9.6 Labour structure and labour force by group

Land tenure status	Group 1 Self-support farmers	Group 2 Project-support farmers	Group 3 Non-diversifying farmers
(a) Full-time farming	51%	47%	35%
(c) Farming with part-time employment	13%	12%	28%
(d) Others (outside work and not working)	36%	41%	37%
Labour force (persons per household)	2.6	2.5	2.5

the acute water shortage. A year after the first survey, the water shortage had become a non-issue, as it rained so much more that there was enough water for agriculture and industries. However, the rice price was only slowly going up. So the survey results for the two northern provinces were essentially similar to those for the central provinces, except for those differences that could be traced to location relative to non-farm jobs, land consolidation and land tenure patterns, and soil suitability. Also, for those farmers that were interviewed for the second time, the baseline conditions had not changed much in just one year; so the survey results of 1995 in the first four provinces largely confirmed those of 1994. However, only one year later in 1996, and especially after the economic downturn of 1997, things had changed considerably, and the focus group surveys that were held then in all survey sites (in 1998 and 1999), added new insights.

Those farmers who had planted fruit trees in 1993 and 1994 had several years of experience now, including the first few years of harvesting and marketing the alternative crops. That was a happy and successful experience for some, and some had turned more plots into orchards, but many farmers had given up on diversification. They had stopped maintaining their orchards and some had even converted the land back to rice, at considerable cost, even though they still had to repay their loans. This was unexpected, but understandable. First of all, the seasonal water shortage had not occurred since 1993, so it was not an issue any more, even though the level was critically low again in 1998. However, there was no pressure from the industrial sector as the demand had gone down with the economic crisis. Second, and more important, rice prices had reached an unprecedented high level in 1997. So it was as attractive as never before to grow rice, even though the production costs had gone up too.

It is most unfortunate that it was not possible to quantify exactly how many farmers had continued or stopped the alternatives for which they had taken out a loan (and still had to pay back), and how many of them had actually reverted back to rice (Table 9.7). One of the reasons for this is that the extension officers did not dare to face the farmers who were disappointed and in debt for what they saw as a costly and painful adventure that had been so highly recommended to them. Without any support by the extension officers, it was not possible to contact all those farmers who had been interviewed several years before. Unfortunately, the apparent lack of systematic and detailed monitoring did not only apply to the six survey sites of this study, but to all provinces that had now gone into the full-scale restructuring programme.

**Table 9.7 The conditions after five to six years
of programme implementation, 1998/99**

1. Self-support group 70 farmers initially	2. Project support group 157 adopters initially	3. Non-diversifiers 83 farmers initially
After 1997: Some farmers stopped growing fruit trees and con- verted some of their land back to rice	After 1997: Many farmers in this group stopped growing fruit trees, and several of them con- verted the land back to rice	After 1997: Some farmers may have gone for farm restructuring, and some may have left farming altogether

Source: The table reflects conjectures on the basis of focus group discussions in six provinces, including several specific case studies. Note that no detailed figures are available to confirm such conjectures after the focus group interviews of 1998 and 1999, as there has not been any systematic monitoring of the three groups by DOAE

As it was not possible to re-survey all those farmers that had been interviewed at the beginning, a meaningful alternative was to identify several farmers in each site whose experience would be interesting enough to study in more detail. The in-depth interviews that were conducted in 1998 were used to write some exemplary case studies of carefully selected individual farmers. Such case studies provided further evidence of the farmers' rational decision-making.

Expectedly, the farmers' motives for diversifying are the same as the objectives of the project—to manage within limited land and water resources, and achieve

better and more stable income from the farm. The case-study farmers stated that unstable and low price of rice, coupled with higher income expectation is the main reason for their interest in the project, while better income distribution and no need for off-farm work were stated in addition by some of them. This shows how important the local differences in factor endowment and ecological conditions are, and the sensitivity of the farmers' response to price fluctuations.

Whole-farm analysis was carried out on selected case studies with further detailed data, to compare the traditional and alternative systems. This was not on economic analysis criteria only, but also on farm resources utilisation in a time series. Results show that returns from diversification in the first few years were lower than rice anyway. The break-even was found from year 4 onwards. With a long-term perspective, the selected farmers studied in this way were able to rely on cultivation on their own land and stopped renting a part of their land after 2 years of diversification. The detailed analysis of such cases showed that the managerial capacity among project-support and self-support farmers does not differ, but the non-diversifiers had valid reasons for not wanting to join the project.

9.5 Farmers as decision-makers, policy shifts, and lessons learnt

The many variations among the local conditions of farmers (and based on these, their behaviour and their attitudes towards the diversification project) are caused by exogenous natural factors like climate and topography, or man made ones, such as agricultural land reform, irrigation system, opportunities from industrial development, and others. As the mix of these factors varies considerably even within the same *amphoe*, the implementation of a national policy such as agricultural restructuring must be adapted to local conditions.

So the conceptual questions arising for further agricultural planning and policymaking are: To what extent is a government policy able to influence farmers' decision-making? How far is commercial agriculture determined by world market prices and international competition? Do local extension officers have the ability, and the authority, to modify a national policy in such a way that they actually enable farmers to make the best decisions? Farmers, as this study clearly shows, make rational decisions that are based on their own careful evaluation of the risks and gains involved in their agricultural enterprise. Having evaluated their own socio-economic conditions (family labour constraints in particular), farmers are responding to market signals (farm gate prices for their products), but increasingly

they also make use of non-agricultural opportunities, and, last but not least, signals that come through the agricultural extension services of the government. These include the opportunities offered by the diversification policy such as credit facilities and marketing prospects for alternative crops.

9.5.1 Farmers' attitudes towards the pilot project

The survey results clearly show that marketing problems are perceived by most farmers as the main obstacle to successful and profitable farm operations. Natural hazards such as the flooding of 1995, and pest damages, were perceived as problems of secondary importance. Low prices for farm products—the main point mentioned again and again as the main issue along with marketing problems—seriously affects the entire farm economy. As rice continues to be the main crop in all areas surveyed, low farm gate prices and related aspects of marketing are primarily perceived in relation to rice. However, as experienced in those areas where farmers have already begun to diversify, marketing and price problems were also felt with regard to the new economic crops, fruits and flowers, where better storage facilities and grading procedures were needed to achieve better farm gate prices.

Farmers are unable to influence changing external factors such as the formation of the rice price and its share for the producers. Therefore, many farmers have resorted to other means to protect themselves from low rice prices which is the dominant problem, in conjunction with the problem of seasonal water shortages. The survey results reflect the great variety of agricultural land uses and farming practices, especially in the non-rice sectors, where farmers in some areas have been surprisingly innovative and sharp in responding to opportunities and incentives offered by government (such as in Suphan Buri). The survey results also show the great range of sources of household income (as summarised in Table 9.2 above), where the income from non-farm sources in some places, and at least at certain times of the year, exceeds the income from crops and other farm sub-systems. The findings from the survey do not seem to confirm the figures from the national statistics on the very large extent of the non-farming proportion of farm household income, presumably because farmers in irrigated areas are better off than those in rain-fed areas. Nevertheless, the figures for 1994/95 (i.e., a year after the main diversification investments had been undertaken in the central region areas) show that some 25 to 40% (and more) of the household income was from non-farm sources. This would indicate the transition from full-time farming as the main source of income to mixed patterns, with a large extent of part-time farming.

It would appear that useful diversification experiences are found among two types of farm households, i.e., not only among the "innovators" groups, but also those who had increasingly utilised non-farm income options. In a way, both of these groups exhibit responses to the challenges of change, instead of being totally dependent on rice farming. Their experiences include changing farm practices (introducing new crops and new varieties of seeds, or managing seasonal labour constraints), as well as resorting to non-farm opportunities. Table 9.8 provides a broad summary of the survey findings from 1993 to 2000.

Government support is needed particularly with regard to those key factors that are beyond the farmers' control, such as farm gate prices and water availability. Therefore, the diversification pilot project, and later on, the agricultural restructuring programme, were formulated and implemented in order to help farmers to adjust to the two core problems, by offering additional options and real alternatives. The pilot project for diversification out of rice initially only offered fruit trees and some other alternatives to growing rice. It thus provided an initial and partial solution to the government's core problem, i.e., untenable competition for limited water resources, and a perspective for the farmers' core problem, i.e., better and more diverse sources of farm income. However, the project did not provide much of a solution to the related core problems of the farmers, i.e., those related to marketing, including more information, better quality, and higher farm gate prices.

9.5.2 Longer-term implementation and monitoring

As stated before, the launch of the large national programme does not seem to have used a detailed evaluation of the pilot project, although this would have been possible. Also the issue of water conservation (or more precisely, water management), which had been a major point in the pilot project, was not pursued in any way as part of the national programme, maybe because it was not an important issue for a few years. Both these points are indicative of a style of swift policy changes in the government, which appears to be dominated by international development fashions, specific conditions (such as the water shortage in 1993), and ideas that are championed by influential personalities in the agencies. Once they have been transferred to other positions, and as soon as the emergency is over (although the long-term threat may still be there, such as in the case of the "water frontier"), the policy is changed, dropped, or not properly monitored.

Further examples to be referred to in this context, is the attention given to strategic planning methods and techniques (such as the popular SWOT analysis)

Table 9.8 A broad summary of the survey findings on the diversification policy and farmers' response to policy and market signals, 1993–2000

Study period	Crop year 1993/94 (Survey in 4 provinces)	Crop year 1994/95 (Survey in 6 provinces)	1996–2000 (Policy review)
Agriculture Policy	Four pilot provinces (of 22 provinces in the Chao Phraya Basin) selected for experiments with diversification out of rice (in irrigated areas) Main objectives: (1) Water conservation, (2) Promotion of alternatives to low rice price	The diversification project becomes part of the more general national agriculture restructuring programme for major crops: - rice (irrigated/non-irrigated areas) - cassava (upland areas) - pepper and coffee (hardly implemented because of price recovery after introduction of policy)	Agricultural restructuring policy continuing but apparently not very successful. This is difficult to verify because of unavailable data, and unclear monitoring system. Adoption rates low because of - market price recovery - water availability
Farmers' responses (focus groups in 6 provinces)	Project Group: Farmers in pilot provinces responded well to the diversification policy, despite the expenditure and risks involved in land conversion; some farmers had begun to diversify prior to the project, but also joined the project, attracted by its opportunities Non-Project Group: (a) Diversification into fruit and flower production in	Self-support and project-support groups of farmers continued to diversify, depending on a mix of factors such as own ability to take initiatives and risk, and credit support offered by government Increasingly evident local differences based on a mix of factors, such as own ability and experience, non-	Drop-outs: Many farmers (numbers hard to verify) abandoned fruit trees and other options under the diversification project, and reverted back to rice, in response to rice price recovery and water availability, but other farmers continued on a more diversified basis.

Lessons to be learnt	<p>response to market demand and farmers' own initiatives prior to the project</p> <p>(b) To some extent, non-adoption for good reasons</p> <p>Very different local conditions of individual farmers even within the same province. These have not been sufficiently addressed by the "blueprint policy" although credit support offered for diversification was initially successful and advice given in the target districts was supposed to be area-specific. In reality, however, the advice given was not specific enough.</p>	<p>farm income opportunities in the vicinity, quality of local implementation of the restructuring policy by the extension officers.</p>	<p>It is difficult to generalise on the chances of success for such policies at national or provincial levels, because decision-making factors are highly localised. Further decentralised policy implementation and monitoring to be carefully adapted to local conditions. Need for research on impact and performance analysis.</p>
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which seems to be coming and going with the promoters of such ideas instead of staying in place for consolidation and systematic testing.

One of the most important sources of information is the evaluation report for the Budget Bureau, which was written by researchers based at Chulalongkorn University (Chula Unisearch, 1996). In addition, there are evaluations of the implementing agencies (OAE and BAAC) for their own areas of responsibility. All of these evaluation reports present highly aggregated statistics (for the macro-regions only), but no detailed information as to programme performance by province, or by agro-ecological zone, and not even separated for rice and cassava. This is a serious shortcoming, which does not only make it impossible to relate the detailed survey results presented here to the general nation-wide policy experience, but also makes any real feedback into policy adjustment impossible.

The Chula Unisearch report is critical of the low achievement rates of the programme (p. 10) which is evident from the following figures for 1994: of the 6,500 million baht available for credit, only 3,000 million were approved and disbursed, based on farm plans submitted for just over 1 million *rai*⁶. The figures

for 1995 show that the size of the programme had grown into considerable proportions—95,203 farmers received credit support for farm plans on a total area of 662,350 *rai*, but 122,243 had applied. Again, only about 80% of the applicants were able to join the programme.

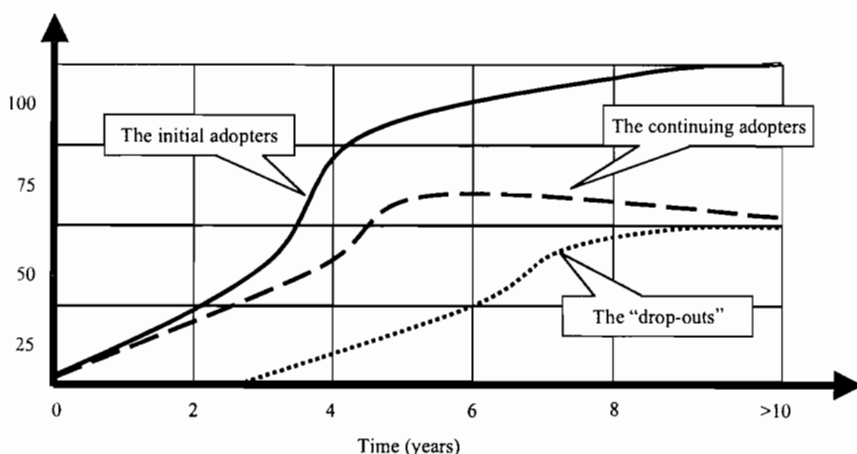
The report also states for 1995 (p. 75) that while the area targets were met at a rate of 66%, the credit disbursement targets were met at a very low rate of 16% only. The main problem that prevented higher disbursement rates was given as the farmers' inability to provide land for collateral. This was traced to the prevailing land tenure pattern with high rates of rented land or land without appropriate title documents.

The documentation in hand appears to be focused on specific aspects such as loan repayment patterns, but not on the core questions to be covered by objective-oriented monitoring reports, such as the degree of restructuring achievement, and the effectiveness of the farmers' projects. It should be obvious that the highly aggregated statistics available are not suitable for monitoring and evaluating a policy of this calibre. For any such policy to be successful, there needs to be a consistent implementation and monitoring system that stays in place over a long period of time, apart from being detailed enough to capture the important local variations (van den Ban and Hawkins, 1996).

9.5.3 Broader implications

Diversification implies the adoption of innovations, such as converting rice land into orchards, and managing a new type crop, such as fruits or flowers. The literature on the adoption of innovations often refers to the typical S-shaped curve which shows the cumulative adoption rate over time—relatively slow in the early and late phases of the adoption process and fast in between (for example, Lionberger, 1960; Rogers, 1962). The data on the long-term performance of the diversification programme do not permit a quantitative analysis in this regard, but they do indicate the trends that may be depicted as in Figure 9.3. The point here is to emphasise the considerable rate of “drop-outs” (which might be as high as 40–50% in the long run), in comparison with those farmers who stay with diversification, learn from it and further improve on their learning of new techniques. So the cumulative curve for the resulting number of permanent adopters may be relatively flat, and thus, the overall process of learning from experience is likely to be slow. This begs the question whether the process could not be accelerated by better extension techniques, implying at the same time, that it should be possible to avoid the expensive and disappointing experiences of large numbers of drop-outs.

Figure 9.3 Adapting the theoretical concept to actual experience with diversification



Note: Percentage and time frame in this conceptual diagram not based on any statistical figures

Another general implication of the study is to relate the three groups of farmers (as shown in Tables 9.4–9.6 above) to the gradual reduction of the agricultural labour force in Thailand in general and in the Delta in particular. The number of full-time equivalent farmers, which is difficult to determine for lack of differential data, is much lower than the number of farmers by the official labour statistics (40% in the delta, 1990 data). Due to the considerable extent of non-farm work and income among agricultural households, the number of part-time farmers (of various types) must be considerably higher than that of full-time farmers. Taking a long-term view and a simple linear projection, if 30 years ago farmers constituted 75% of the statistical labour force, the 1990 share of 40% in the Delta may further go down to 20% by the year 2030. However, the real numbers (in terms of full-time equivalent farmers) may only be half of those percentages (see Molle and Thippawal, Chapter 4, who report that the percentage of the labour force engaged in agriculture is only 33% in the central region), which would compare well with other countries at similar GNP per capita. Comparing the farmer groups from the diversification research to the overall national trends, the self-support farmers may be the closest to full-time farmers in

the long run, joined by some of the project-support farmers, while the remaining project-support farmers might continue to exist on a part-time basis. However, the drop-outs presumably would be the first ones to leave agriculture for good, selling their land to stronger full-time farmers.

It would be possible and interesting to try to confirm such—admittedly speculative—conjectures on the basis of some solid follow-up research along the lines of the analysis of the 310 diversifying farmers studied by Siriluck (2001).

9.6 Conclusions

Conclusions on the basis of the field surveys in conjunction with a more general assessment of decentralised agricultural planning and implementation are on rather firm grounds of data and comparative interpretation, but those related to the national agricultural restructuring programme are not. So there is a critical missing link between the evidence from detailed empirical research and the results of general programme monitoring, which should not be left unattended on the part of the Ministry of Agriculture and its agencies.

The diversification pilot project shows that Thailand is advancing as far as farmers' participation in extension work is concerned, although progress is more limited than desirable and targeted under the last two National Plans. The empirical study has shown that farmers act in a rational way, making decisions that are consistent with their own constraints and opportunities in a farming system framework. The "discovery" of the third group of farmers, the self-support innovators, is particularly relevant in this context. At the same time, this part of the analysis proves the importance of detailed and well-structured field research methods in order to gain real insight and to support policy formulation.

So the main recommendation arising from the empirical study is not to turn the diversification policy into a rigid programme, which would be difficult to change and adapt over time. The agricultural extension approach should be flexible in its reactions to changes in the local situation, and especially to the reactions and emerging needs of the target groups. This requires a structure that allows decentralised and democratic decision making. This style of approach however requires technical support for the officials so they can have the social competence and be able to practice a participatory style of leadership and two-way communication in their daily work. Furthermore support has to be on agricultural technology as part of the recommended packages for diversification, which are new for both extension officers and farmers.

With regard to the transition from pilot project to full-scale programme, the conclusion is that there was insufficient evaluation of the lessons that could have been learnt from the pilot sites. Apart from this, the local officers seem to have lost interest in the pilot project as soon as the much larger national programme was in sight. It is also not certain how good the guidance of the continuing diversification policy is, without detailed feedback from experience.

The longer-term observation shows that the two most pressing needs of 1993, low rice price and acute water shortage, were temporary, but it would have been very difficult indeed to predict the changes that happened afterwards. Moreover, it would have been impossible to foresee the crisis of 1997 and its specific impact on agriculture, which was the increase of rice prices in the world market, as well as in Thailand, partly due to the adjustment of the baht-dollar exchange rate.

Many farmers did gain from the diversification project because they had the right combination of experience and farm resources so they could do it on their own or with project support. However, many farmers who had experimented with fruit trees without being confident as to their skills and labour resources to handle the new crop, paid a high price of being in debt from the loan that still has to be paid back. At the same time, they gained from the windfall profit of high rice prices in 1997/98.

In retrospect, the extension officers have not been as efficient as they should to handle such a project. In combination with the unpredictable change in rice prices, this resulted in a difficult "loss of face" vis-à-vis the farmers who do not trust such officers anymore.

Due to the insufficient monitoring system of the national programme it is impossible to trace the long-term changes among the farmers' groups that had been surveyed at the beginning. The monitoring system, as well as the documentation of programme implementation, appears to be inadequate as a basis for assessing the long-term performance of this large programme. There is thus a very definite need for follow-up research to analyse the country-wide performance and impacts of the agricultural restructuring programme, which is one of the most significant and expensive policies for influencing socio-economic change in rural Thailand. This kind of research ought to be conducted by independent scholars in close cooperation with the implementing agencies, to ensure both data support and transfer of appropriate research methods.

9.7 Notes

¹ Reconciling the conflicting goals of the government, for example, increased food production and environmental protection, almost amounts to squaring a

circle. So it is difficult for the extension officers, especially those who work at the *tambon* level to encourage sustainable agriculture (such as the King's model of a self-sufficient rural economy), while at the same time promoting export-oriented production of cash crops. One of the *tambon* extension officers in Suphan Buri said that the sustainable agriculture concept, which is called "*kaset yang yuen*," turned the officers into "*kaset yuen ngong*" ("confused agricultural officers"). He used the word "*kaset*" to mean "agriculture" in the first phrase, while in the latter it means "agricultural extension officer." Similarly he used the word "*yuen*" also in two meanings. The former is mixed with "*yang*" which means sustainable or standstill, while the latter is mixed with "*ngong*," which means standing and confused.

² Reportedly, this budget came from the proceeds of the former rice export premium.

³ This has made it virtually impossible for the authors of the study presented in this paper to obtain any detailed data on the performance of the restructuring programme after 1995. This is unfortunate because it is now not possible to compare the detailed analysis of the baseline survey data (as outlined in this paper) with the actual implementation of the programme in the same provinces, or other areas, over the past five years.

⁴ Dr. Pote Chumsri, then the director of the Agro-Business Promotion Division of the DOAE, who played a leading role in initiating this project, was proud to say that this was the first project in Thailand, which was established in response to the real problems that farmers faced (personal communication at the beginning of the pilot project). So despite the good intentions and the correct analysis of declining returns from rice and other similar crops, the policy as implemented did not meet the objective of intensive farmers' participation.

⁵ This confirms the views of the FAO experts (Norman *et al.*, 1995) and other researchers who underlined the importance of structured interviews (in addition to other methods) as a means of obtaining the quantitative and detailed information that is needed for agricultural policy research.

⁶ In retrospect, this relatively low programme performance may be said to be fortunate for the farmers, because in this way, fewer of them were driven into debt by eager extension officers who were more motivated by meeting their area targets than serving the real interests of the farmers.

Chapter 10

Allocating and accessing water resources: practice and ideology in the Chao Phraya River Basin

François Molle

10.1 Introduction

Irrigation is a process which allows farmers to partly overcome climatic constraints. It enables the stabilisation of agricultural production by supplementing rainfall during occasional dry spells, as well as the expansion of cropping into the dry season when no cultivation would otherwise be possible. Securing the water supply also encourages farmers to engage in capital-intensive and risky production (such as fruit trees, orchids, aquaculture) by removing a factor of uncertainty. This translates into a growing pressure upon water resources, the chief production factor allowing intensification.

Command over scarce resources is an expression of power and a promise of wealth. Providing water is traditionally the prerogative of the king, who mediates its supply from supernatural forces. *Chonlaprathan*, the Thai word for irrigation, embodies the notion of a royal gift¹. Allocating water is a decision-making process situated at a convergence point of political, administrative, and users' spheres. The actual pattern of access to water may not correspond to the ideal or planned pattern of allocation. Those in need of water devise individual and collective strategies to bend or subvert the allocative process to their benefit. Water allocation and actual water usage are thus two interdependent faces of the same coin, moulded by the distribution of roles and power, and shaped by the physical constraints of hydraulic networks.

Over the past two decades, farmers in the Chao Phraya Delta have intensified their cropping patterns in order to counter falling agricultural prices, compensate

for reduced plot sizes, and fulfill rising consumption needs. To secure the water required for this intensified cropping they have pursued various methods to subvert or augment the government's system of water allocation. A farmer's access to water is increasingly governed by his locational advantages, investment capacity, and political clout. As a result, the overall distribution is becoming more inequitable. At the same time, the availability of irrigation water has begun to fall because of rising diversion to Bangkok consumption and other priority uses, and this fall will become steeper in the future. Under present conditions, increasing scarcity is likely to lead to increasing competition and further declines in equity. Schemes to counter these trends range from populist proposals for greater local participation to neo-liberal projects aimed at introducing economics-based tools for regulating water demand.

Both the evolution of this problem and the evaluation of different solutions have to be considered within the context of agrarian society and water management systems in the delta. Water management and related decision-making can be conveniently broken down into three levels. The upper level is where the overall policy and *strategy* are determined: long-term priorities are devised and roles are assigned to the actors. The second level is commonly referred to as the *tactical* level and includes decisions regarding the spatial and temporal allocation of water (typically at the seasonal level). Third is the *operational* level, in which short-term (typically weekly or daily) adjustments are done in order to rebalance or alter the effective distribution pattern. Each level defines a specific arena for negotiation, with specific actors and time horizons, where water management patterns shape the behaviour of users and vice versa.

The second section of this chapter presents a brief account of the hydrological regime in the Chao Phraya Delta, the evolution of a legal framework for water management, and the profile of declining water availability for irrigation. The third section describes the conventions evolved by the Royal Irrigation Department (RID) to allocate water in the basin (level 2), and how these have been undermined by farmer's strategies to secure the water for intensified cropping. The fourth section examines how the resulting inequality, and its potential for generating conflict, is managed at the local level (level 3). The last section examines how ideology shapes the different alternatives proposed in response to the challenges posed by the growing pressure on water resources (level 1).

10.2 Water and humankind in the delta environment

10.2.1 Hydrology and settlements

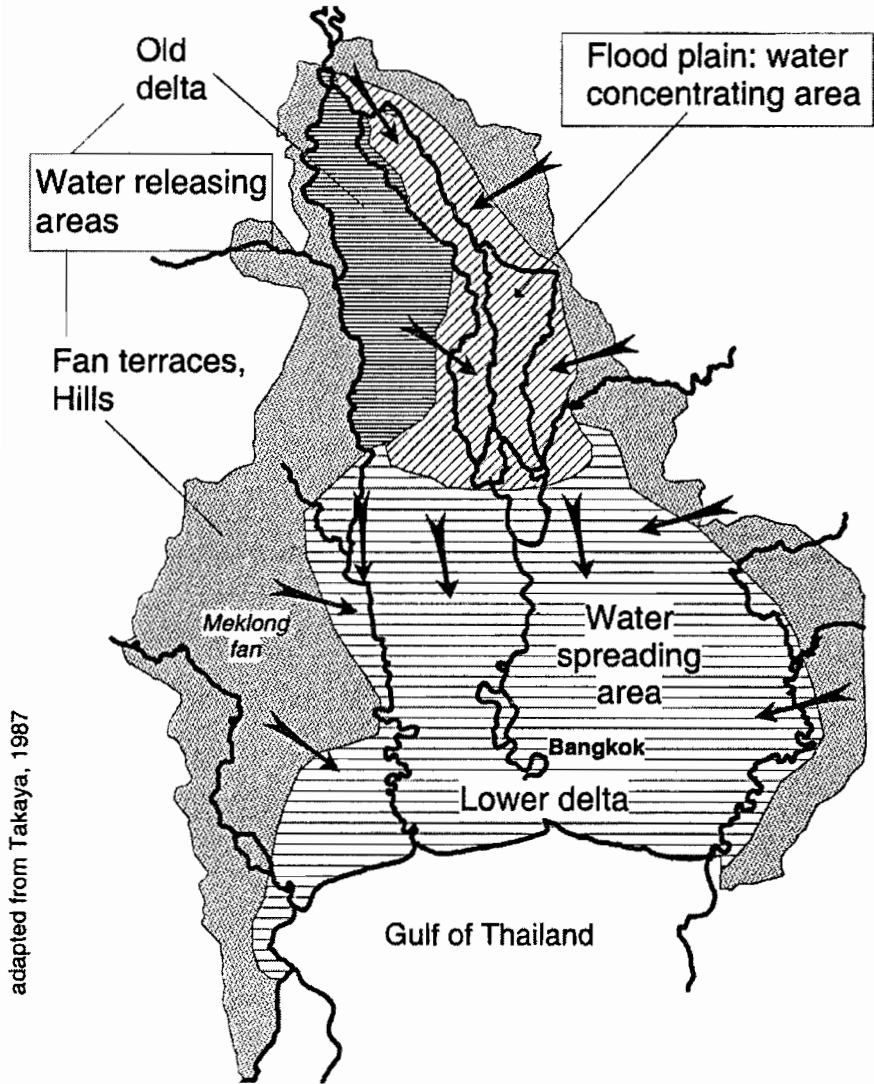
The Mekong, Chao Phraya, and Irrawaddy River Deltas, which share common landform features, have been reclaimed only recently—a telling indication that these natural environments were not particularly hospitable. From the Chao Phraya Delta, there is an endless litany of early travellers' reports that describe the "mosquito inferno" and the presence of wild animals (tigers, elephants, crocodiles) in this swampy savannah-like environment. What was the original hydrologic regime of the delta?

Run-off originating in the upper delta and on the lateral terraces merged with the flow of the Chao Phraya River in the floodplain of the delta (Figure 10.1, adapted from Takaya, 1987). With rising water levels in the main waterways, the drainage of the inner lands was impeded; at some point, water would back up into the tributaries, or even breach the river banks to flood the land. Floodwater would then reach the lower delta, a flat and broad tract of land. Flooding here was never high (one metre at the most), first because the area was large enough to accommodate it and second because the floodplain constituted a buffer, or flood-retarding and flood-relieving area (van der Heide, 1903). The coastal area, in its turn, offered a transitional brackish environment between the sea and inland that was baked in the dry season and washed out in the rainy season.

Not surprisingly, early settlements concentrated on the peripheral terraces of the delta and on its natural levees. These fertile strips of higher land bordering the numerous waterways of the delta were found chiefly in the upper delta, and along the Tha Chin and Chao Phraya River banks in the lower delta. The first Thai settlers, accustomed to wetland rice cultivation, started clearing the lowlands of the upper delta, and resorted to floating rice varieties where the depth of flooding was too high to accommodate normal deep-water rice. Although sensitive to flood vagaries, this system was best developed in the vast backswamps of the floodplain where immense rice fields were observed by travellers as early as the 17th century. Because of the vast tracts of land available and the limited population density, this cultivation system, characterised by a remarkable agronomic and technical adaptation to nature, proved highly efficient. In this *first adaptive phase*, water appeared as the gift of the Chao Phraya River.

With the shift of the capital to Bangkok-Thonburi, the lower delta, hitherto barely settled or reclaimed, became the focus of further reclamation efforts. This flat and swampy area had few raised areas for human settlement and was poorly

Figure 10.1 Natural water regime in the delta



adapted from Takaya, 1987

and irregularly supplied by the natural water regime. Mere adaptive strategies proved insufficient. Instead, artificially-made canals were gradually excavated across the lower delta, aimed at spreading and prolonging the benefit of the flood, as well as providing domestic water, landfills for homesteads, and transport links. Some limited degree of control was provided by sluice gates, which could retain water at the end of the rainy season. This second phase can be termed the *excavation phase*.

The advent of the Greater Chao Phraya Project, initiated in the 1950s, began the third phase of land development, the *irrigation phase*. While water was formerly supplied to fields in the lowlands “from below” as a result of the natural swelling of the rivers and ponds, it began to be artificially supplied “from above” through a network of gravity irrigation canals. By a reversal of fortunes, the terraces and higher parts of the upper delta, hitherto viewed as unproductive, turned out to be in the best location, while formerly suitable lowlands were disadvantaged by poor drainage conditions. Farmers quickly realised the potential impact of the transformation of their physical environment, and the prospect of agricultural intensification translated into abrupt changes in the land and labour markets (Gisselquist, 1976; Montesano, 1992; Molle and Thippawal, 1999).

In summary, along with this progressive “artificialisation” of the natural environment, water shifted from a status of a freely flowing, natural and unpredictable element to that of a partly stored, controlled and distributed resource. The hydrologic regime partly turned into a hydraulic one. As farmers in the flood prone area commonly observe: “nowadays water has a master” (*thuk wannu nam mi chaokhong*).

10.2.2 Rights and laws

These historical changes in the development of land and water resources were reflected by successive water-related acts of legislation issued during the 20th century. But whereas conflicts over the ownership of land in the late 19th century triggered a gradual privatisation and commoditisation of land (see Feeny, 1989; Molle and Thippawal, 1999), water resources did not undergo a similar process. Because of its fluid, stochastic nature, and of its vital role in life, with no substitute, water does not lend itself to the definition of rights (Morris, 1996). In addition, until the completion of main storage dams in the 1960s and 1970s, water was abundant and accessing it was not an issue; only recently did the basin “close” as the potential water demand outstripped the available supply.

Natural waterways belong to the public domain (public property or public use), but the government cannot bar anyone from using water from them, as is typical in open-access resource systems. Water already taken from the river belongs to the person or entity taking the water, despite Section 1355 of the Civil and Commercial Code, which stipulates that “a riparian landowner has no right to withdraw water in an amount exceeding his reasonable need to the prejudice of other land abutting the same waterway.” The first Act concerned with private irrigation was issued in 1939. It attempted to make private use of water for agriculture on more than 80 acres conditional upon official approval, and to empower officials to restrict these uses in the event of drought (Amnat and Worapansapak, 2000). This Act was ineffective as most farmers had areas of much less than the 80 acres (200 *rai*)² threshold and because means of water diversion or abstraction were technically limited. In the north, despite provisions allowing district officers to meddle in the traditional run-of-the-river *muang fai* systems, these People Irrigation Systems were in all likelihood affected only slightly and continued their secular activity (Cohen and Pearson, 1998).

With the development of storage dams, irrigation canals, and regulation facilities, new legal provisions appeared necessary. The Royal Irrigation Act of 1942 empowered the RID to develop, use, and manage water resources in irrigation canals, prohibiting the obstruction of flows. Gates were to be operated only by officers, who were also authorised to bar any person from withdrawing or using water from irrigation canals if it was perceived that such a withdrawal or use would cause damage to other persons (Amnat, 1997).

All of these legal provisions are typical of a context of open access where rights are loosely defined and the supply of free water is in abundance relative to the need. Although widely regarded as outmoded (Amnat, 1995), this legislation has not been updated to address the radically new challenges posed by the closure of the basin. Such a situation, commonplace in developing countries, is highly revealing of the daunting difficulties and political risk involved in redefining the patterns of water use (Allan, 1999).

10.2.3 Defining water scarcity

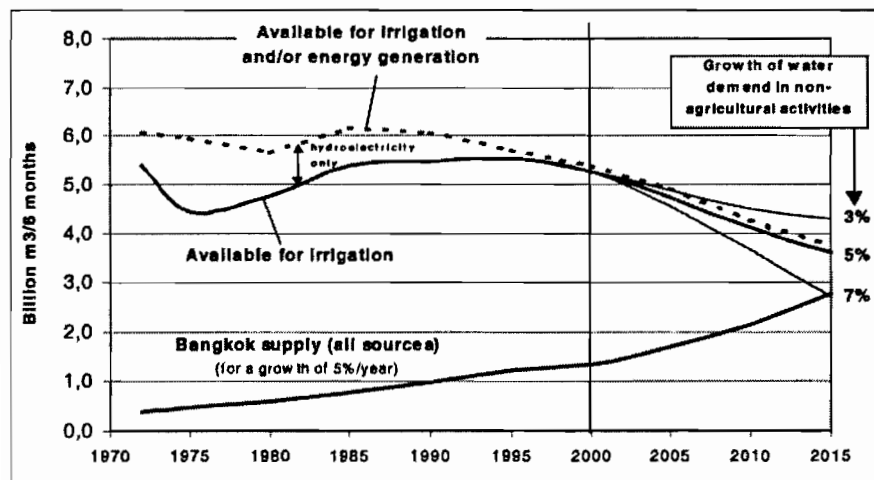
Who is entitled to use water in a situation of relative scarcity where demand far exceeds the available resources? During the rainy season, although episodic dry spells are sometimes experienced, irrigation schemes have little difficulty supplementing crops and users with the needed water. In fact, water inflow comes

mostly from rainfall or from uncontrolled (i.e., not captured by reservoirs) natural side flows in the river basins, upstream of the irrigated areas. Overall, rather than supplying water, water management is often geared towards limiting excess flows and flooding. In other words, water scarcity is not an issue in the wet season. The question is thus only relevant during the dry season (January–June) when in the northern region the natural run-off in the small basins is insufficient to meet the increasing demand, and when in the delta water stocks in storage dams are not sufficient to meet all downstream uses.

Pressure on water is neither felt evenly across the countryside nor throughout the seasons. Long-term trends are not readily observable as they are obscured by high year-to-year variations in the amount of water available in the dams for use in the dry season. It must, however, be made clear that as agriculture is eventually given the “leftover” water in the system after all other requirements are met, its share is bound to decline in line with the decline in dams’ inflows and the growth of non-agricultural uses (especially in Bangkok).

Figure 10.2 presents the evolution of dry-season water supply and demand in the delta in broad terms³ (assuming no additional source of water is tapped). The amount of water available increased in the 1980s because of better control of

**Figure 10.2 Projection of average water supply
in the dry season (middle/lower basin)**



unproductive dam releases in the wet season (more water stored). Such releases have also been better controlled in the dry season (the difference between the two curves is narrower). However, because such potential gains are now limited, the volume available is deemed to decline in the future⁴. With growth of the Bangkok Metropolitan Area (BMA) demand at 5% per year⁵, the water available for dry season agricultural activities will be cut by 45% between 2000 and 2015. The decrease is highly sensitive to the rate of growth of demand in the upper basin (+0.6 billion cubic metres [Bm³] over 15 years) and in the BMA. Keeping in mind the almost 10% yearly increases in BMA demand prevailing before the 1997 economic crisis, it can be seen from the chart that even more realistic rates of around 7% will have a dramatic impact on the remaining water available for agriculture. Demand has levelled off in the post-crisis economy but assuming a few more years of diminished demand only shifts the curve by the same amount of time and does not invalidate the trend in the mid-term. In all cases, the overall picture is one of a significant decline in water supply, at least in the absence of additional water resource development projects.

10.3 The current allocation of water: interventions and regulations

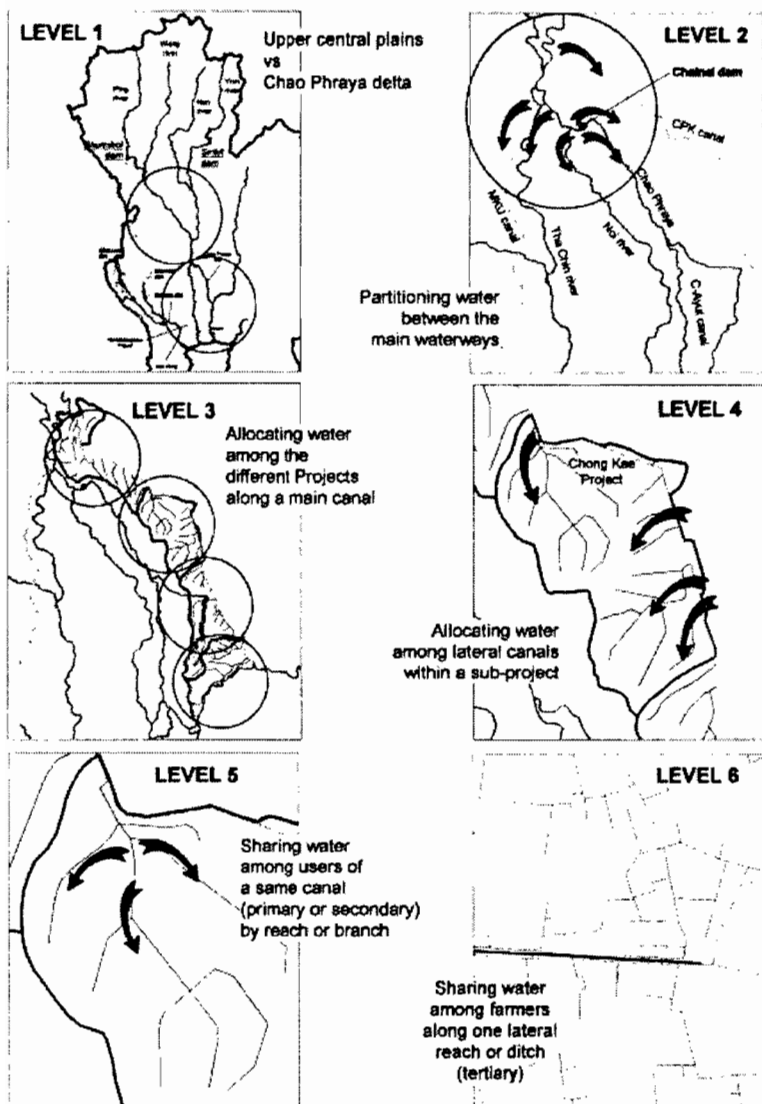
We will focus here on the irrigated areas located downstream of the two main storage dams (see Map 1 in Appendix). The irrigated areas can be conveniently divided into two groups: (1) the middle basin (between the dams and Chai Nat); and (2) the lower basin, that is the delta proper. We will examine how, when, and how much water is released from the dams, who its users are, and to what extent the regulation capacity is instrumental in defining who they are.

10.3.1 A multi-layer process

The *tactical* level is where the seasonal allotment of water is decided. Over its course from the reservoirs to the farm plots or other uses, the water stream is successively divided at different levels of the hydraulic network. At each level, different factors defining the patterns of allocation and use come into play. For the sake of simplification, six successive levels can be distinguished (Figure 10.3).

1. The first level is that of the basin. The inflow into the dams, and consequently their water stock, obviously depends on how much water flows in the upper basin and what percentage of it is used there. Similarly, after water is

Figure 10.3 Water allocation as a six-level process



released from the reservoirs, only the portion that has not been used in the middle basin will be available for the delta downstream.

2. The second level is that of the delta. The Chai Nat Dam diverts the flow entering the apex of the delta and divides it into smaller portions directed to each of the waterways branching off the Chao Phraya River at that point. Six of these waterways are minor canals, three are trunk canals, and two are major rivers serving as canals (the Tha Chin River and the Noi River).
3. The third level is that of the main canal, which successively serves several irrigation units (called projects), among which water must also be apportioned. In most cases the inflow in the main canal is not sufficient to supply all projects according to the potential demand.
4. The fourth level is that of the project. The amount of water entering the project is also generally insufficient to meet demand and it is necessary to allocate the inflow to some of the lateral canals within the project.
5. The fifth level is the lateral canal level. The inflow into the canal serves the different reaches of the canal or otherwise, depending on the policy adopted.
6. The sixth and last level is that of the ditch (tertiary canal) which branches off the lateral and along which farmers must share water in order to supply their plots.

It is important to stress here that the above hierarchy of levels chiefly applies to the upper delta, which is supplied by a conventional network of gravity irrigation canals (see Map 3 in Appendix). In contrast, the lower delta is largely “unstructured.” It is a flat area criss-crossed with thousands of interconnected excavated channels of varying size (totalling approximately 14,000 km in length) that are mainly supplied by water channelled from Chai Nat through the Noi River and other canals (see Map 3 in Appendix). The lower delta is also referred to as the “conservation area” because water is effectively trapped in this web of channels and is prevented from flowing to the sea by a series of dikes and regulators located along the seashore. Hydraulic regulation in this flat part of the delta is limited. Managers focus on maintaining a water level sufficient to allow transportation and pollution control (some flow is necessary to flush waste water out to the rivers). Users pump individually from one of the channels adjacent to their land. This is done on an individual basis with no coordination. If the overall water abstraction exceeds the available water then the water level drops and the first areas to be affected are those which are served with narrower and shallower channels, and which are most distant from the waterways that receive the inflow from the north.

In practice, the RID has little leverage on users in the lower delta because it cannot control them and cannot afford to let the conservation area run dry.

10.3.2 A top-down semi-controlled allocation process

Access to water at present can be typified as mixed. It includes a degree of open-access resource (as people pump freely in rivers and can hardly be controlled when they pump from irrigation canals) and centralised control (there is water in a given waterway only if managers have released water into it, at least in the dry season)⁶. The whole allocation process can be considered to be centrally organised with the RID as the chief player (however, as will be shown later, its degree of control over the six steps of the process is varied). The RID's theoretical planning for the allocation of water distinguishes a ranking of priority between the different uses:

1. Domestic use (especially the BMA, with some industrial use);
2. Controlling salinity intrusion at the river mouth;
3. Irrigation of orchards, vegetable, and shrimp farms;
4. Rice cultivation;
5. Inland navigation;
6. Energy generation.

Energy is generated in the hydraulic power plants when water is released from the reservoirs. Inland navigation and salinity control are ensured by maintaining a minimum flow along the river's course and at its mouth. The diversion for the BMA is located in the north of Bangkok and requires an inflow of 45 m³/s. Except for navigation, these uses receive priority. This is generally ensured by controlling the release from the storage and diversion dams (see Map 1, in Appendix). Thus, agriculture is the sector that is most affected by allocative decision-making at the different levels.

While approximately five million *rai* of land in the delta are used for dry season rice cropping, only three million, on average, will succeed in growing a second (or third) crop. This is the fundamental issue that the allocative process has to address. To make the matter more complex, decision-making has to adapt each year to two main fluctuations. The first concerns supply and can be represented by the available water stock (AV) in the dams on the 1st of January, at the onset of the dry season. This stock may vary between roughly 5 and 12 Bm³, which, considering carry-over stocks that must be ensured at the end of the dry season, yields a usable target volume (TV) of between 3 and 10 Bm³. The second fluctuation is the

“intensity” of demand and is strongly dependent upon the price of rice (in the short term) and on agrarian pressure (in the long term). While the potential demand remains at five million *rai* (and much over this value if we consider triple cropping), the degree of mobilisation of farmers at the different levels of the negotiation process increases when rice prices are high.

What are the official (or theoretical) rules used to guide the spatial allocation of water to the (too) large area capable of growing a dry season crop? The areas which do not grow wet season rice (e.g., the West Bank⁷) are given first priority; next are considered areas (if any) which have experienced crop loss of over 50% in the previous wet season and are greater than 300 *rai*. Water is then allocated to those who are “in turn” and, if any remains, to the areas with fully developed on-farm infrastructures (“land consolidation”). This policy followed a rotation which had been established in order to cope with the gap between supply and demand: each project defined two sub-areas which were irrigated every second year, with the “out-of-turn” half receiving only intermittent low flows, defined as domestic water (or *upaphok boriphok*, water intended to meet the needs of villages such as backyard orchards, animal farms, small factories, etc). This rotation was followed only loosely and then abandoned in the early 1990s, when water shortages made it impracticable.

We may now turn to a brief description of the formal water allocation process in the basin (for more details, see Molle *et al.*, 2001a). Each November, a policy meeting is convened with representatives of RID, Electricity Generating Authority of Thailand (EGAT), Office of Agricultural Economics, Department of Agricultural Extension, and other organisations concerned. This meeting sets the target volumes and target areas for the whole country⁸. For its part, the RID (through its regional offices) consults the provincial agricultural services and comes out with a crude repartitioning of the target cropping area for each province, with areas broken down according to crops (rice, field crops, trees).

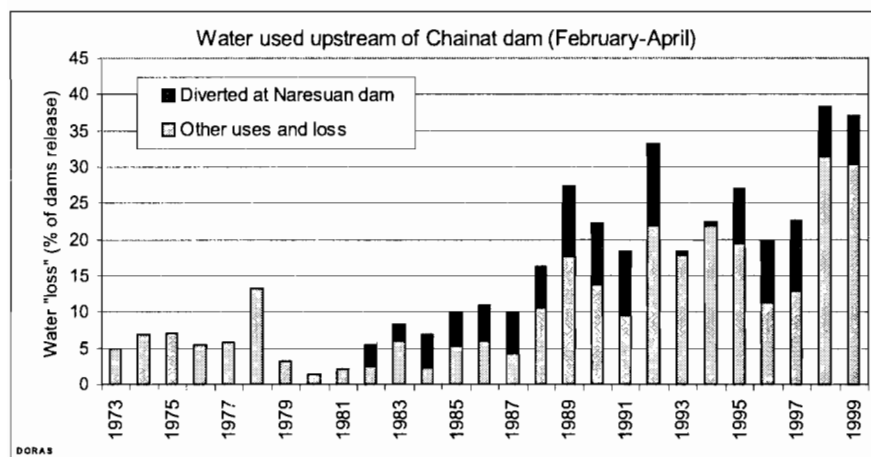
At this point it is interesting to note the presence of the provincial administrative level in the process. While water distribution is primarily concerned with spatial units derived from the structure of the hydraulic network (whereas hydrology is concerned with water basins), confrontations arise due to the interests of the territorial administration, and of local political representatives alike, who wish to control the benefits derived from water allocation. The RID has to conform, at least officially, to a politico-administrative process in which it is accountable to the provinces for how much water will go (or is supposed to go) to each of them. This is illustrative of the pervasive predominance of the three-tiered centralised Thai

bureaucratic "polity" (Bangkok > province > district, with its extension towards the sub-district level; see Nelson, 1998a) which is apparent in several other circumstances⁹.

The apportioning at the macro-levels (1 and 2 in the classification given above) of the TV (say, for example, 6 Bm³ for the Chao Phraya Basin) is decided by the RID Central Office. This allocation is further specified by a weekly timetable (used by EGAT to plan dam releases and energy generation) that details the allocation between the main waterways branching off at Chai Nat. Along the different main canals (level 3), water is allocated by the RID Regional Offices¹⁰, while levels 4 and 5 are the responsibility of the projects. All these planning decisions are made in a straightforward top-down and supply-driven fashion by the RID. The pre-season allocation process is obviously the first arena where some division of the "cake" takes place. Routine consultations are made with provincial authorities but the allocation of respective shares to the different main canals (surprisingly) is done with little negotiation, despite all representatives making sure that there is no drastic revision of the basic *status quo* defined by past-year experience. This suggests that the division operated by the RID already embodies the relative weight of the provinces concerned (see below), and that the loose nature of the schedule also makes cut-throat negotiations futile as real deliveries are unlikely to dovetail with the planned ones¹¹.

This theoretical planning will of course be altered by "real world" constraints of several kinds. Three main factors drastically curtail the RID's effective control over water distribution in the basin. First is the lack of control upon the middle basin where water is abstracted by 300 pumping stations managed by the Department of Energy Development and Promotion (DEDP), and diverted to RID irrigation projects (which encompass approximately 700,000 *rai*). Figure 10.4 shows an estimate of the percentage of dam releases abstracted or diverted in the middle basin. Discounting the discharge diverted at Naresuan Dam (which is destined for the Lower Nan area), other uses have grown spectacularly in the last 10 years. This diversion includes use in DEDP and RID projects, where the actual volumes far exceed official diversion figures, and uncontrolled private and collective pumping.

The second factor is the "de-regulation" of cropping calendars which has resulted in a loss of RID control over water abstraction. Water management is usually characterised by a scheduling which reflects decisions made on allocation and which is supposed to provide users with information on when they will get water. But over the last decade, cropping calendars have changed through the use of secondary water sources (notably tube wells in the upper delta), the substitution

Figure 10.4 Water abstraction in the middle basin (dry season)Source: Molle *et al.* (2001a)

of wet broadcasting for transplanting (no nursery needed, cropping can start as soon as water is available), and the farmers' tendency to start dry season cropping just after the rainy season crop, thus capitalising on field wetness and on water still available in the waterways¹². The RID's rule-of-thumb conventions for allocating water (by channel and timetable) have not adjusted to reflect these changes in cropping calendars. Farmers then resort to various forms of direct action to resolve the difference between their water needs and the RID's decisions. They invest in pumps. They plant early and exploit the RID project officers' known reluctance to risk the loss of standing crops. They call on politicians to pressure RID to increase deliveries. These strategies will be discussed in more detail below (Section 10.4). The combined result of these various actions is a loss of RID's control, and a tendency towards greater inequity in water distribution.

It appears that the lowest one is ranked in the different levels of the allocation process, the more uncertainty in water supply is experienced. This explains why project officers pay little heed to the formal schedule of supply to their project; it also explains why, most of the time, the schedules prepared by the projects are not considered when regional offices plan their weekly schedules.

Spatial inequities in water allocation can be judged from the study of cropping intensity in the different projects of the delta over the last 20 years carried out by

Molle *et al.* (2001a). The western part of the upper delta and the West Bank stand out as the most intensive rice growing areas; some areas, in particular, have been practising triple cropping for the last 10 years. The West Bank owes its higher cropping intensity to its favourable location, to additional supply from the Mae Klong Basin, and to the impossibility of controlling farmers' water use. The western upper delta, for its part, has benefited from several factors. The first one is the priority formerly given to land consolidation areas, which can be found in the Borommathad, Chanasutr, Samchuk and Don Chedi projects (see Map 3 of the Appendix). As farmers in these areas had to reimburse part of the investment and also had more productive land, this was a justification for preferential allocation. Second, the area is, in its upper part, provided with numerous tube wells which allow early cropping (sometimes forcing special allocations from RID). Third, the area is very suitable for High Yield Varieties cultivation (hence for dry season cropping)¹³. Last, the province of Suphan Buri has a well-known leverage over the Ministry of Agriculture through its governor and some of its MPs, so special water requests are readily answered¹⁴. In the course of time, all of this contributed to shaping a preferential pattern of allocation towards the western part of the delta, which is implicitly incorporated in the average breakdown used by the RID, and tends to be taken for granted.

What is the outcome of such spatial heterogeneities? A study of three villages with contrasting levels of access to water (translating into different cropping intensities), reported by Molle *et al.* (2001c), showed drastic discrepancies in the productivity of land and corresponding crop incomes, but it also showed that local farming systems have evolved in line with the relative scarcity of water. Because opportunities to diversify crop activities (principally animal farming and off-farm activities) were available, the village economy was rebalanced to some degree, partly offsetting the impact of the unequal allocation. This was possible because of good linkage with nearby urban markets and because of the development of the non-agricultural sectors. The general evolution of the agrarian system in the last two decades therefore has been dictated by both water allocation policies and the evolution of the wider economy. In turn, this agrarian evolution conditions whether these policies are socially acceptable or not; a lack of opportunities outside agriculture would have probably raised the pressure on water above observed levels.

The diverging criteria and preoccupations of politicians/local administrations on the one hand, and of water managers on the other hand, appear clearly in times of drought. Uncomfortable with seeing water supplies reduced, politicians lobby

the government, in particular the Ministry of Agriculture, to obtain a higher target area. At the end of 1998, for example, the dams were at their lowest levels with only 3.9 Bm³ available for the 1999 dry season. Objective technical considerations led the RID's Central Office to define a "zero *rai*" option, due to concerns about the impact a severe water crisis would have on the water supply of Bangkok. This technical stance was challenged by a more politically oriented one; the farmers' demand was particularly high at that time because of attractive rice prices, and this pressure ended up being passed on to the governmental level. On such grounds, the plan was reviewed and a target of 1.9 million *rai* was set for the basin (with 1.7 for the delta). Knowing about the poor status of dam storage as early as November and about the foreseeable prohibition of dry season cropping, many farmers rushed to start an early crop in November or December. This generated an unusually high water demand in January, jeopardising the allocation plan and clearly threatening the supply to Bangkok in case of another catastrophic hydrologic year. The balance at the end of the season was appalling: the total area planted soared to 3.4 million *rai* (compared to the plan of 1.9 million) including 1.2 million *rai* of triple cropping. In fact, the water situation eased because of abundant rainfall in April, enticing farmers to grow a late dry season crop which contributed to this high figure. But matters could easily have evolved towards a much darker scenario.

This example shows that the absence of clear-cut technical standards for the definition of the TV allows politicians to stretch the dam releases to extremely risky levels. (Ironically, the fortunate heavy rainfalls of April–June 1999 and the high cropping area recorded may have reinforced the impression that interceding on the farmers' behalf had been the right decision!) A few politicians, most particularly those linked to the political parties controlling the Ministry of Agriculture, wield significant power over in-season adjustments of allocation, especially in periods of crisis when planned values no longer provide any guideline.

10.4 Water distribution: individual and collective strategies

The water effectively received by farmers is of course partly predicated upon the tactical decisions taken "upstream." However, at the local level, several means exist to readjust water deliveries. When we get closer to the final plot, the relationships between farmers and those in charge of water (the RID's field staff and their immediate superior) also become more personalised. In addition farmers must find ways to share and distribute water locally, especially in situations of shortage.

10.4.1 The RID and the farmers

Let us first examine how farmers make the decision to engage in dry season cropping if there is such wide uncertainty about the forthcoming supply. Each project organises meetings at the zone¹⁵ level in order to inform farmers about the cropping area allocated to their zone. This is generally done together with the gatekeepers, zone men and sub-district extensionists. Rather than focusing on the figure itself, farmers first give attention to the overall policy adopted each year: "it is prohibited to plant," or "there is little water this year," or "this year, water is good." This forms the basic "hearsay scale" on which farmers rely in order to decide to engage in cropping or not. The farmers also take into account the planned cropping area but they await further advice from officers to better qualify the risk. The officers often suggest that a larger area can possibly be planted but that the RID cannot be responsible for possible water shortages. The way this is put is also interpreted as an encouragement rather than the opposite.

According to this crude information and to their experience, farmers assess the probability of getting water down to where they farm (this is of course very location specific). In practice a "glove pattern" can often be observed, where green "fingers" of cultivated land follow the courses of waterways. The length and width of these fingers reflect the relative level of water availability. It must be noted in passing that engaging in rice cropping can hardly be decided in a purely individualistic way. Those who start a sole crop (often relying on a well or a pond) face severe pest pressure (specifically from rats) and are likely to lose most of their crop. In addition, seepage to adjacent fallow land provokes surges of weeds and complaints from neighbours. Thus there is a collective dimension in local decision-making.

In normal situations, project managers try to ensure a continuous flow to all their lateral canals, even though there might be a rotation between two or three reaches within a given lateral. If the policy¹⁶ is to follow a year-by-year rotation in which only half of the project is supposed to grow rice, then the flow to the other half is maintained at a lower level, but rarely cut off completely, at least in the head reach. The way supply and demand adjust to one another in a context of rather high uncertainty is not readily obvious and cannot be easily reduced to either the classically defined demand-driven process (where supply is adjusted to a given demand) or the supply-driven one (inflows are fixed and known in advance and the irrigated area is calculated accordingly). A careful analysis shows that it may in fact be a blend of both, with a delicate and fluctuating dosage of ingredients, and ad hoc interventions.

Unless rice prices are really depressed, farmers usually attempt to grow as large a dry season rice area as possible, and a triple crop if this can be done. They must evaluate the risk of doing so according to the information given by the RID and the media. As mentioned earlier, by starting their crop on large areas (by resorting to secondary water sources or by using the water available at the end of the wet season), they may force the RID to further supply their crops until the end of the cycle. In case of drastic shortage, they usually request local politicians to intervene in order to obtain an extra supply. In general, this is done through MPs belonging to political parties with influence at the government level, or through other influential individuals. Interventions have to be made at the highest level because such increases in supply are eventually dependent upon incrementing the discharge at the head of the main canal concerned, at Chai Nat, which is under the control of RID's Bangkok Central Office.

RID project officers have mixed feelings about these interventions. They may feel somewhat weary of having outsiders meddling in issues within their responsibility, but they also sometimes (consciously) trigger them by explaining to farmers that the cause of their problems lies further upstream in the basin and is beyond their reach.

RID project officers both want to serve their farmers¹⁷ and to minimise risk. In some instances the second aspect may override the first, and officers are likely to adopt strategies aimed at limiting the expansion of the cropping area. Occasionally, they are found opening check regulators of canal middle-reaches, allegedly to provide water for domestic consumption to downstream areas, but in reality to prevent upstream areas from growing too large in area, which would dramatically increase the risk of future shortage. For officers, shortages mean farmers' unrest, political interventions, and hierarchical superiors demanding explanations, all of which must be avoided as much as possible. They have some margin of flexibility because of a degree of slack in water allocation; they may sometimes deliver extra and unreported water supplies, by setting pumps along the rivers or by disguising the releases as *upaphok boriphok* (domestic consumption) water. They may also under-report water use when quotas are tight.

One of the main difficulties faced by the RID is the management of low flows in canals that have been designed to provide gravity supply only at or near full supply. By investing in an impressive pumping capacity to overcome water scarcity, farmers have escaped the main constraint of gravity irrigation networks and have also tapped secondary water sources (drains, ponds, aquifers). If operational

constraints experienced by the RID have forced farmers to develop their pumping capacity, it is all the more true that—in return—this has discouraged whatever regulation improvements RID would have otherwise been pushed to achieve. Rotational arrangements are part of the paraphernalia but as their implementation entails significant transaction costs, RID officers understandably prefer the actual *status quo* according to which their role is to ensure water in the canal, even at a very low water level, while farmers have implicitly integrated the fact that they will often need pumping devices to access water.

On the negative side, managerial control has effectively been substituted by increased monetary costs (pumping equipment and operation), the burden of which is borne by the farmers. A more subtle detrimental aspect of this process has also been the embracing (or the strengthening) of a pervasive individualistic concept of gaining access to water. Although collective arrangements are sometimes necessary and implemented (see Molle *et al.*, 2001b), there is ample evidence that individual pumping has implicitly reinforced the acceptance of the first-pumping-first-served principle, and that locational advantages necessarily translate into privileged access to water. “Head enders” can pump water as soon as it appears, in total independence from any collective rotational arrangement or other efforts aimed at raising the water level in the canal or increasing equity. The spreading acceptance that farmers along the canal do gain privileged access to water chokes claims of greater equity and fits the RID’s concern to control the expansion of the cropping area.

Political interventions aside, what additional leverage do farmers have to elicit preferential water supplies from the RID? It is commonplace that farmers in irrigation systems worldwide tend to bribe field staff to get undue access to water. In the present Thai context, although gate operators do sometimes receive some gifts to turn a blind eye to a surreptitious night opening of a gate, such practices are generally limited and account for relatively little of the overall malfunction. Mention must also be made about the link between uncertainty in water supply and possible rent-seeking behaviour. It has been postulated, and supported in particular by some Indian cases (Wade, 1982), that managers deliberately engineer unreliability in order to exact bribes from farmers willing to ensure preferential allocation. This argument does not apply in the context discussed here and, all in all, corruption does not appear as widespread here as is suggested by the literature on South Asia¹⁸.

The objectives, constraints, risks and trump cards of both farmers and RID project officers are schematised in Table 10.1.

Table 10.1 Aspects of farmer-officer interactions during the dry season

	Farmers	RID project officers
Objectives	Grow as much rice as possible, in area and frequency	Serve farmers, while trying to limit the cropping area down to low-risk standards Limit complaints from farmers and from superiors
Strategy	Force the RID to ensure sustained supply by starting a crop when water appears or with water from other sources On-farm water storage, wells, drains	Limit supply to control the spread of the cropping area Fix a low “commitment” target area, as a protective measure Refer to water supply as <i>upaphok boriphok</i>
Constraints	Lack of on-farm infrastructure; pumping needed Rats, water seepage, in case of isolated cropping	Limited control over the flow allocated to the project; fluctuations and uncertainty of inflow
Risk	Excess areas, beyond the target, may face water shortage, reduced yields or crop loss.	Water shortage Complaints, protests from above and below
Trumps	Intervention of politicians Low sensitivity of rice to spaced out supplies Secondary water sources	Forward request/complaint to higher levels Divert non-computed water to drains in case of quota restriction; request special supply in case of shortage; pump extra water from rivers
Pressure-reducing factors	Low price of rice. The risk is higher and the pressure on water reduced. Rainfall	Same as farmers

10.4.2 Sharing water among farmers

Sharing scarce resources without clear negotiated and enforceable rules often gives way to conflicts (Ostrom, 1992). Despite the absence of such formalised rules, it is possible to observe and distinguish some behavioural patterns apparent in cases of conflicts incurred by the lack of water.

- The first and most common reaction is conflict avoidance, to adapt to the situation and to search for other opportunities ("*tham jai*" option). The principal option within agriculture is digging a well or pumping from other sources. Acknowledging the unfavourable position of the plot may also be a push factor towards engaging in non-agricultural activities and keeping agriculture as a secondary activity, or even giving up farming.
- The second reaction is to cooperate and to try engaging in some collective action ("*chuai kan*" option). This is generally only possible at the local level; farmers will group to pump at the head of the canal or will agree on some rotation within the lateral (under the supervision of RID field staff). This may also include the collective maintenance of a ditch.
- The third is *intermediation*. Most commonly, village headmen and sub-district heads, more rarely other local leaders, are called in to solve a dispute; a compromise is found in order to avoid social disruption. To lose a little is seen as a much more desirable outcome than to face public outrage or to damage local social relationships. Intermediation allows the avoidance of face-to-face confrontation and lowers the probability of losing face. It also avoids taking the matter to the district level, a solution abhorred by most villagers.
- The fourth is the *patronage option*. Farmers (in general grouping together) will try to obtain a change in their favour by approaching politicians with adequate power who are expected to behave as patrons. These patron-client relationships are common in Thai society (Hanks, 1975) and easy to observe in political life (Arghiros, 1992).
- The last reaction is (unresolved) open conflict, but this is very seldom the chosen option. It has been observed in some case of latent conflicts between villages, sometimes driven by ethnic differences.

These options deserve a few comments.

Farmers in the delta display a very pervasive acceptance of inequalities. The question of how a farmer feels about growing only one crop while canal head-enders can grow two in most dry seasons is always shrugged off with some

laughter (see Molle *et al.*, 2001b). The deep-seated feeling that one's situation is not socially determined but, rather, governed by the accumulation in former lives of merits and demerits, obviously has an impact on the way farmers look at what outsiders perceive as inequities¹⁹. Asked to comment on wealth disparities among farmers, villagers also rarely display any kind of aggressiveness or strong reaction. This strongly implies that the most "natural" and common option is the first one.

Conversely, this acceptance of inequalities is paralleled, in a more positive tone, by widespread sentiments of tolerance. Farmers in the Don Chedi Project (west of the upper delta), for example, are widely sympathetic to fellow farmers located outside the irrigated area who are developing large-scale diversion of the same canal water which is already insufficient for their own area. What is an obvious source of new competition, surprisingly, is not perceived as such. It is not hard to find examples in the literature in which similar situations elsewhere escalate into severe conflicts.

If inequity may appear morally sanctioned, one should not infer that fatalism precludes challenging the existing situation. In some cases, there appears to be a clear limit on the degree of inequity that is socially acceptable. The high pressure on water in the dry season experienced during the last four years triggered a series of rotational schedules in many projects of the upper delta. In 1997, dry season cropping rocketed, boosted by high rice prices and large water supplies (partly due to a policy to compensate for some damage provoked by flooding in 1995 and 1996). Because of the dramatic increase in water demand, unusual protests arose from farmers located at the tail end of canals who were afraid of being deprived of water, as head-end farmers were starting to engage in triple cropping. This led to the intervention of politicians and provincial authorities who became involved in the setting of rotational arrangements for water distribution. With the participation of several segments of the administration, including the police, these ultimately short-term arrangements proved successful in ensuring more equity.

Several important lessons can be learnt from these arrangements. First, they clearly indicate that higher pressure on the resource can lead to unprecedented mobilisation of farmers in unfavourable locations. Second, the RID is no longer in a position to enforce rotational arrangements at any scale and needs the support of the provincial authorities and of the police to make them work, especially when they cover an area overlapping several districts or provinces. In contrast, politicians can show their influence by acting as brokers, while the local administration lends state legitimacy to the move and backs enforcement through the involvement of the police. Third, despite showing that increased equity could be brought about by

collective organisation, these rotations were nevertheless short-lived and disappeared as soon as the situation returned to "normal."

Collective action therefore appears to be of limited significance. The social fabric of the rural Chao Phraya Delta is widely considered to differ from that of the other regions of Thailand because of its characteristics as a "frontier society," its evolution driven by the development of the rice market economy, and its specific ecological setting. (Kemp, 1992; Shigetomi, 1998a and Chapter 13). The individualism of farmers in the central plain and their lack of propensity to act collectively are thus partly rooted in the region's history. However, there are a few examples of endogenous contractual arrangements for water management which are activated when the conditions demand and allow it.

Depending on the water status (as defined by the discharge to a given secondary canal relative to the planted area), farmers may resort to short-term informal agreements, such as waiting for the water to fill the entire canal before starting pumping, rotations between two or three reaches of a canal, pumping collectively at the head of the canal, etc. These arrangements are often proposed by RID field staff (zone men) or by some influential local leader (Molle *et al.*, 2001b). If supply is nearly as great as demand, or contrariwise drastically low, no such arrangement is possible. Rotations typically occur in intermediate situations, where potential gains from collective action are sizeable. Collective simultaneous pumping at the head of a secondary canal and along its course is an interesting example of a complex arrangement. This situation occurs when little or no gravity inflow can be obtained in a given lateral. Farmers therefore close the head regulator, set a number of low-lift axial pumps at the head of the canal, and pump together. As the flow is insufficient to raise the water level in the lateral, a second pumping operation is needed at the plot level. Combining these operations, including organising the queue at the canal head and ensuring the fair repartition of water along the canal, is achieved rather smoothly with a wide acceptance of observed inequalities so long as they are due to topography or other site-specific factors and not to outright cheating. This demonstrates that farmers can respond efficiently to a rather complex organisational need.

While there is a propensity to individual behaviour and a lack of strong built-in social incentives for collective action, farmers in the delta are not deprived of the social capital needed to act collectively. The possibility of lasting arrangements is undermined by the great uncertainty and fluctuation of water supplies. Individual pumping provides a socially accepted means to access water on an individual basis. Farmers' collective mobilisation can only be obtained if there is a real

decentralisation of power and decision-making, although it also requires a series of other site-specific factors (Molle *et al.*, 2001b).

4.5 Policy: the web of ideological idioms

Water policy is at present a prominent issue on the political agenda of many countries. It appears particularly confrontational in a context where water resources are in a transition from the status of common-pool resource in sparsely populated agricultural areas, to that of a collective resource to be managed in a more complex world that ought to be respectful of both the environment and of basic equity and efficiency standards. In Thailand, as in many other places, several schools of thought have developed to face the challenges posed (Molle, 2001a). They include: 1) NGOs and social activists attached to the notion of water as a natural gift and a human right; 2) international agencies and their followers, geared towards implementing in-depth reforms supported by economic regulations; 3) administrative bodies arguing for an increased coordination between departments and more managerial power; and 4) line agencies, consultants and construction companies, committed to more water resource development in order to match demand.

From the confrontation of these points of view²⁰ results a web of contradictory arguments where custom, power, and ideology, veiled or otherwise, form a complex and fascinating mix. Despite toying with a water law for over a decade, and despite the sense of urgency derived from water crises and from the externalities of mismanagement (shortages, pollution, land subsidence in the Bangkok area), the government is understandably reluctant to address an issue with high political risks. Defining water rights in a way that amounts to re-allocation will generate political stress. As Allan (1999) has put it, "regional politicians have a powerful intuition that economic principles and the allocative measures which follow logically from them must be avoided at all costs. . . . Governments are more likely to rely on the exhaustion of the resource to be the evidence that persuades water using communities that patterns of water use have to change." This is reminiscent of the progressive sinking of Bangkok, which entails horrendous costs in flood protection and flood damage, and has been denounced for almost three decades. Corrective measures aimed at raising the price of underground water to the level of tap water have been hitherto successfully challenged by the influence of the Federation of Thai Industries (*Bangkok Post*, 2000c).

If the inertia of the administration can be ascribed to political risk and opposition from the business sector, it is also due to the fragmentation of responsibilities

among different departments, the vulnerability of departments to political meddling, and the inadequacy of the legal apparatus (Christensen, 1994). Pramote Maiklad (the former Director General of the RID) complains that “everybody knows there is a problem but they want someone else to do something about it” (Cumming-Bruce, 1999). A high-ranking officer of the Ministry of Agriculture admits that “the agencies are unable to co-ordinate their policies because they are *supervised* by different parties in the ruling coalition” (*The Nation*, 2000 June; emphasis added).

10.5.1 Neo-liberal solutions

Regulatory measures for the water sector have been repeatedly proposed by consultants and international agencies, most notably the ADB. A detailed scrutiny of the underlying rationale, however, reveals intriguing gaps between the theoretical framework advocated and the real world (Molle, 2001b). Upon the journalistic assumption that water efficiency is allegedly as low as 30% are built misleading rationales aimed at justifying the pricing of water. But this assumption ignores the real functioning of a closed water system like the Chao Phraya Delta, where it can be shown that only 12% of the controlled supply in the dry season is lost to non-productive uses or is uncommitted (Molle *et al.*, 2001a). Even at the plot level, efficiency reaches high standards (60%), partly because the cost of pumping discourages overuse. The rationale for cost recovery is equally unconvincing. Subsidies are only one element of a broad policy matrix and cannot be evaluated in isolation from taxes and other government interventions. Schiff and Valdés (1992) have shown that agriculture in Thailand has been heavily taxed and, in the overall game, has been on the giving rather than receiving end. This implies that the “free water” subsidy can be seen as a small compensation. Low rice prices also benefit urban populations and indirectly the other sectors of the economy. The alleged “huge drain” that irrigation operation and maintenance expenditures impose on the national budget amounts to only 0.16% of the national income and it would probably not be difficult to find other “drains” with much less economic and social impact on the Thai population (Molle, 2001a).

The influence of mainstream neo-liberal economics is also apparent in some proposals geared towards establishing water markets (TDRI, 1990). Even a cursory examination of the institutional, legal, and political situations indicates that these proposals are blatantly at variance with the background of legal consistency, administrative accountability, and law enforcement needed (Sampath, 1992). Indeed

the true situation is that “capability in both management and regulation is limited and the social and environmental risks of getting it wrong are considerable” (Morris, 1996). Ironically, concerns over sectoral re-allocation of water are put forward to show the potential economic gains of establishing a water market, despite the fact that it is precisely this aspect that the government has been handling most successfully hitherto. Because of the priority in the centrally managed decision-making process, non-agricultural sectors are considered first and their development is hardly constrained or impeded by the lack of water. Sectoral deadlocks are particularly crucial in the western USA because of the specificity of the prior appropriation rights system. However, this is not the case in Thailand, where establishing rights might create precisely the kind of problems they are supposed to solve, should the rural sector—as occurs in the USA—be reluctant to relinquish its rights.

Such proposals of water pricing and full privatisation also meet the interest of powerful companies, and these policies receive regular support from “analysts,” complacently relayed by leading national newspapers²¹. These proposals for economic regulation are greeted with foot-dragging by the line agencies concerned (fearing a modification of their power), are disregarded by most politicians (“what politician will go to his constituents and say ‘I am going to vote for water charges?’” questions Cumming-Bruce [1999]), and are vehemently opposed by NGOs and social activists who consider water as a social good and the free use of it as a human right. As expressed by a scholar at Thammasat University, “natural resources—such as water—are essential to all, and should not be managed by market mechanisms. Otherwise, water would not flow by gravity but by purchasing power. Commoditisation of water should not be allowed because the right to natural resources is a basic right all human beings have.” This view is echoed by some farmers, who inquire why they should “have to pay for the water that Mother Earth and the forest give us” (*The Nation*, 11 June 2000). The diversity of viewpoints adopted is also well exemplified by the several contradictory projections of the evolution of water use in the upper basin that have been proposed by consultants and academics²².

10.5.2 “Bringing farmers in”: the recurring motto of participation

Another crucial arena of political and ideological confrontation is that of people’s participation in water resource management. It can be observed from the earlier description of the allocation process that farmers and other water users are,

formally, almost totally absent from the allocation process. However, their indirect influence through politicians partly compensates for this, although interventions are made without transparency and end up favouring some areas at the expense of others. The top-down nature of the process has always been paralleled by a rhetoric of decentralisation and people empowerment.

Based on the overarching principle that farmers must be involved in allocation, management, and maintenance decisions, the World Bank in the 1980s supported the setting up of Water Users Organisations (WUOs) at the ditch and lateral levels. Despite the resounding failure of this attempt, the idea recently came back to the fore as a component of a plan initiated by the Asian Development Bank (ADB) to reform the water sector. Couched in the idiom of community empowerment, participatory management, accountability, and capacity building, to which are added new principles such as cost sharing, economic efficiency, and privatisation (ADB, 2000; Halcrow and Partners *et al.*, 2001), the reform aims at breaking the prevailing nexus between the RID as patron and farmers as passive recipients, replacing it with a plain contractual relation between a service provider and a client. The ideology of accountability and participation (but not that of commoditisation and privatisation) finds some common ground with that of self-reliance, cooperation, and participation adopted by governmental (in line with the 1997 Constitution) and academic circles (Vandergeest, 1991), as well as with the rhetoric of the NGOs on grass-roots democracy and community-centred development (Rigg, 1991).

Despite such consensus on the necessity to bring farmers (and other users) into the decision-making process, little success has so far been registered. Most programmes of the past were well-intentioned voluntarist undertakings aimed at fulfilling a “blank” identified by bureaucrats in Bangkok. Groups were established in a top-down and prescriptive manner with the assumption that farmers would adhere to the activities or to the structures proposed after due training and after being shown where “their interest” lies. This is expressed by Daundaun (1992) who states that “bringing a WUO to its goal is a matter of patience and efforts. It is a continuous task of repeated monitoring and problem resolution;” emphasis is often laid on “strengthening water user organisations” (JICA, 1994) and on “efforts by the RID and other agencies to help [WUOs] develop” (Metha, 1995). The process is therefore envisioned as a task of convincing somewhat apathetic and reluctant stakeholders that their interest lies in the structures proposed to them. Strong emphasis is always laid upon the necessity of involving farmers in the process but farmers’ enthusiasm hardly comes as a result.²³

These attempts are undermined by the inappropriateness of the conceptions underlying state involvement in the countryside. Despite “more training,” “better on-farm infrastructures and canals,” “improved cooperation between agencies,” and “continuing efforts by RID and other agencies to help them develop, most WUAs [Water Users Associations] stopped functioning soon after their creation” (Metha, 1995). Stressing both the importance of community involvement and their poor responsiveness, officers are caught up in the contradiction inherent in the neo-populist discourse of “empowerment” which comes with both an interventionist thrust (behind “conscientisation” or “educating villagers”), and a priority allegedly given to local knowledge and participation (Long and Villarreal, 1996). Attempts to institute Participatory Irrigation Management are still perceived locally as state-initiated and state-oriented²⁴, without real benefit for the farmers in terms of improved access to water²⁵.

Relationships between state agencies and farmers have long been marked by a degree of paternalism countered by a mixture of passivity and suspicion. The idea that farmers are not educated, stubbornly grow rice with wasteful techniques, and do not cooperate for water management is commonplace. Such a vision also permeates the way officers envisage reforms, group setting, or co-management and can be found more generally in the Thai administration as a whole (see Nelson, 1998a and Chapter 14). For Atiya (2000), “although they are known as civil servants, many bureaucrats think of themselves as the people’s masters. They think of rural villagers as backward and passive, unable to initiate anything for themselves. This attitude bars many of them from getting to know the people and whatever needs they might have.” This is echoed by Chai-Anan (1985) who sees state officials “inclined to blame the people for lack of enthusiasm, ignorance and disinterestedness,” and by Rubin who emphasises that “many of the practical and material problems of rural development are attributable to the Thai perspective concerning superior-inferior relations” (1974, cited in Rigg, 1991).

Organised groups also tend to be a political issue. Politicians usually cultivate local leaders for their ability to relay political influence and to act as canvassers (see Nelson, Chapter 14). Collective organisations, such as WUAs, are attractive entities for politicians to patronise, as they can use their power to elicit preferential water allocations and be politically rewarded at election time²⁶. A study of one of the few remaining WUAs in the delta (Ban Rom Cooperative, often presented as a success story and, in any event, a showcase for the RID) clearly showed a three pole interaction between the farmers, the RID Project staff, and a local MP (Molle *et al.*, 2001b). The MP wields influence on the WUA (all the office chairs he

donated bear his name) and RID's officers admit they have to give a "bonus" to the WUA because of its efforts to conform to the organisational blueprint fostered by the agency. The feeling that their bargaining power to get water in the dry season is increased because of the existence of the WUA is shared by most of the members, but the study showed that this advantage was nevertheless limited.

The fact that farmers often turn to local or national politicians to solve their problems (when they cannot be solved by RID field staff) is indicative of the cost and ineffectiveness of formal legal processes (Christensen, 1994) but also of the cultural background which emphasises individual and group access to politicians and bureaucrats (epitomising traditional patron-client relationships and the pervasiveness of dyadic relationships and personal networks; see Shigetomi, Chapter 13). This attitude is germane to Nelson's observations (Chapter 14) on the absence of collective citizen action and regular political discourse organised in political parties, paralleled by networks of personalised relationships organised in *phuak* (cliques).

Hunt's remark (1989) that the interest in WUOs is based on a wrong extrapolation of the more successful experience of community-based irrigation systems is all the more relevant in the Thai context. Communal irrigation in Northern Thailand dates back seven centuries and is widely praised, and sometimes idealised, as an example of local wisdom and social cohesion. Uraivan (1995), for example, states that "People's Irrigation System (PIS) can be viewed as an integrated system consisting of an intricate intertwining of local village technology with human commitment of cooperation, and a supportive philosophy which lends this system its coherence and cohesiveness." The extrapolation of the scale, ecological setting, and historical context of such a system to large-scale state-run schemes commonly leads to misconceived analyses.

10.5.3 Transplanting experience

We have mentioned earlier the contradiction between the decentralisation rhetoric and the very nature of the Thai bureaucracy, which prompted Rigg (1991) to state that "a truly decentralised, grass-roots development approach comes into conflict with bureaucratic methods and Thai society." Reforming the highly centralised bureaucratic and top-down process of water management means a sweeping institutional redefinition of the role of the state, the establishment of middle-tier organisations representative of water users, notably farmers, and the integration of decision-making at the level of the river basin. River basin management has now gained worldwide interest and many models are proposed, often based on French,

Australian, American, or other experiences. Shah *et al.* (2000) have warned that “uncritical ‘copycat’ replication of successful institutional models—either by enthusiastic national governments or at the behest of enthusiastic donors, is the sure formula to failure. The history of institutional reform in developing country water sectors is dotted with failures of such copycat reform.”²⁷ It is obvious that the mere formation of a River Basin Organisation does not ensure integrated management (Schlager and Blomquist, 2000). Such reforms are best seen as far-reaching transformations of social relationships and prevailing rights, and hence will be difficult and time-consuming to achieve (Wegerich, 2001).

An examination of the eight pilot Water Basin Organisations (WBOs) established by the Office of the National Water Resources Committee (ONWRC) or by the ADB shows that farmers are grossly under represented. The WBOs of the upper and lower Ping Rivers, for example, have only two farmer representatives each, compared with 22 and 20 officials respectively. To some extent, WBOs might suffer from the same lack of political and institutional support, and of formalisation, which affect, “upstream” of them, the Office of the National Water Resources Committee (ONWRC) and, “downstream”, the Water User Groups. Therefore, the odds are high that in the absence of a sweeping legal redefinition of powers and roles, these pilot WBOs will remain formal institutions with no real power and minimal people’s empowerment. What is known about the resilience of the Thai bureaucratic polity and its enduring hierarchical and paternalistic qualities should preclude any optimism on the extent of the decentralisation process, as well as on the propensity of the administration to hand over its power swiftly and willingly.

10.6 Conclusions

For a long time, water resources in Thailand were a natural, uncontrolled, and often destructive element which shaped settlements and life. With the advent in the 1960s and 1970s of large-scale public irrigation schemes and storage dams, this principal factor of production (particularly for dry season cropping) came under the control of the state. The allocation of water follows a typical top-down decision-making process that partly embodies the bargaining power of the different provinces concerned. Because of the the scarcity of water relative to demand, interventions (political or otherwise) that influence the distribution pattern of water amount to significant power: MPs and other constituencies’ representatives have long mediated requests for water as a way to act as patrons and gain political rewards in times of election.

However, state power over water has been significantly curtailed at several levels. At the basin level, it has proved very difficult for line agencies to control the effective diversion or abstraction of water in the middle basin (and to resolve the competition with one another), resulting in less supply and growing uncertainty in the delta. In the irrigation areas proper, the RID's management has been dramatically challenged by a boom in farmers' pumping capacity. With the capacity to access any stored or running water, irrespective of whether the level of water allows gravity supply or not, farmers have largely evaded the control of the RID on the allocation of the flow. By so doing, they have lowered the RID's responsibility to control water levels, and have therefore strengthened individual strategies for accessing water. In addition, they have learnt how to play with cropping calendars, starting early or late crops with the contribution of tube wells or rainfall, as a way to force the RID to allocate more water in order to avoid the loss of standing crops. Non-agricultural users, too, have encroached on irrigated areas and tapped irrigation water, or have depleted aquifers (provoking critical land subsidence in the BMA), capitalising on the absence of adequate legislation and on the lax enforcement of existing laws. Attempts to regain control through the establishment of ad hoc Water Users Organisations have failed, as farmers have remained passive in front of organisational blueprints devoid of any provision to increase their control over water and imposed by a state caught up in the empowerment dilemma (*helping farmers to help themselves*). The overall picture is that of a state apparatus weaker than commonly assumed.

While farmers have attuned their strategies to this situation, in particular by finding political support to access more water, they have also learnt how to exploit their political weight and the coverage of the media (which invariably portrays them as the destitute segment of the nation). They do this to obtain increased deliveries even when they are at fault for having planted rice against the instructions of the RID, or when low dam stocks are signalling high risks of shortage. Except in the case of the political vs. technical discussion about the overall seasonal target, most farmers' attempts to improve their lot are done in a totally opportunistic and generally individualistic fashion. As a result, the spatial macro-pattern of water allocation shows sharp discrepancies between canals, and there are few collective arrangements at the secondary level to improve equity. This is partly due to the overly high uncertainty in water supply, which discourages or undermines any attempt to establish rotations or other arrangements.

Locally, farmers display heterogeneous reactions to water stress. The most common reactions, stemming from a culture of conflict avoidance and a propensity to take

inequalities for granted, are to either fully capitalise on an advantageous location (e.g., along a main canal) to achieve double or triple cropping; or to compensate for a disadvantageous area by tapping secondary resources (ponds, drains, wells) while seeking the intermediation of local leaders or politicians; or to simply adopt non-agricultural strategies (pluri-activity, off-farm work, migration). The demise of agriculture since the mid-1980s, due to the dramatic transfer of labour force to non-agricultural sectors, has undoubtedly contributed to easing the tension on water.

While the current top-down allocation processes and *ad hoc* patterns of distribution associated with individual pumping allow very efficient use of irrigation water, they prove ineffective in ensuring more certainty and equity. Average cropping intensity indexes by projects show wide disparities, with an advantage in favour of the western part of the delta. At the same time, water conflicts in the upper basin and a declining supply to the delta calls for a formalisation of water service agreements²⁸. Proposals for a reform of the water sector stem from a confrontation of viewpoints in which underlying ideologies or veiled interests strongly shape the nature of the measures envisioned. The rhetoric of people's participation and empowerment appears as a consensual tenet, as no one will admit opposing it, but its meaning differs according to who—NGOs, state officials, academics, or international agencies—embraces it. The ADB-led reform aimed at establishing water pricing and water markets appears insensitive to real world constraints. As Mollinga *et al.* (1999) have shown in an Indian case, the “devolution or decentralisation of resources control to users is a highly complex, social and political issue, which requires special mechanisms to go beyond reinforcing the unequal and undemocratic *status quo*,” and therefore can only be envisioned with a long time horizon²⁹.

In other words, a reform will meddle deeply with the distribution of power in administration as well as in political circles, redefine relations between the state and citizenry, go against deep-seated cultural representations of hierarchy and social roles, and potentially threaten those who tend to benefit from the existing patterns of water allocation. Reforms also require legislation, administrative coordination, accountability, law enforcement, and technical management, which are tantamount to a drastic societal change. The crux of the matter, therefore, is to assess whether the situation is serious enough to merit such critical change. International consultants, economists, and academics who make the case for change may underestimate the difficulties lying ahead and confound the real world with that of theory. It is a matter for further reflection (and wonder alike) that

reforms can be gleefully and technocratically devised with so little reference to cultural, administrative and political considerations, as if problems could be solved by awareness campaigns, capacity building, and bylaws.

The dialectic between growing water scarcity in the delta on the one hand, and increasing inequity and potential conflict on the other, is already in motion and will become more intense. At the same time, a perceptible change in mentalities (Chaiwat, 2000), and the slow but gradual increase in participation of civil society offer some hope that reforms, to follow Vandergeest (1991), will occur as a “right” defined and negotiated by stakeholders rather than as an ambiguous “gift” granted by an entrenched bureaucracy.

10.7 Notes

¹ The symbolic permanence of this is evidenced by the fact that all main storage dams in Thailand have been named after a member of the royal family. The two major dams controlling the supply of two-thirds of the Chao Phraya Basin were named after His Majesty the King (Bhumibol Dam) and Her Majesty the Queen (Sirikit Dam). “On November 21, 1996, the Royal Thai government and the Thai people joined in naming their king ‘Father of Water Resources Management’” (Sithiporn Na Nakhon Phanom, 1999), which was also in recognition of the King’s deep interest in issues of water and rural development.

² At that time, the average farm area was around 30 rai in the delta (see Molle and Thippawal, Chapter 4).

³ This chart shows average trends rather than year-to-year data which can include high fluctuations due to varying water stocks in the dams at the beginning of the dry season. It is assumed that dam water release during the wet season will remain unchanged (2.9 Bm^3), while agriculture in the dry season is being attributed the remaining share of the water balance. The net inflow in the two dams is assumed to continue to decline by 1 Bm^3 over the next 25 years (a conservative hypothesis) while the BMA is projected to grow at 5% per year. The gradual diversion of the Mae Klong River to supply the Thonburi area, up to a maximum of 45 cms, is also considered, together with a decrease in underground water use in the BMA by 50% in the next 10 years. For details on the assumptions made, see Molle *et al.* (2001a).

⁴ In the 1990s, the tendency has been to offset this decline by reducing carry-over stocks, thus increasing risk and occasioning water shortage in 1994 and 1999.

⁵ This hypothesis is also consistent with the projections of the National Economic and Social Development Board for the 9th Plan (2002–2007), with annual growth rates of between 5 and 6%.

⁶ Of course there are system wide management constraints. Water allocated to the delta or BMA has to flow through the lower reaches of the Ping and Nan Rivers, where it can be appropriated by other users.

⁷ This is inherited from the situation in the 1980s when the West Bank gave up wet-season cropping (with traditional rice varieties) to grow a pre-monsoon crop (before the flood period). This crop was quickly doubled by a post-monsoon crop, which turned the lower delta into a double cropping area.

⁸ In 1981, the Cabinet appointed the Dry Season Cropping Promotion Committee, chaired by the Minister of Agriculture, to prepare an annual plan, objectives and promotion measures for dry-season cropping. A sub-committee was appointed to collect relevant data and, each year, to prepare a plan. After acceptance of the plan, users and agencies would know the schedule for dam release and operate accordingly (Binnie and Partners, 1997). During the 1991–94 drought period, it proved impossible to manage the system according to the plan and the committee ended its work. However the sub-committee continues to meet yearly in order to achieve some coordination between agencies.

⁹ This translates in particular into a sometimes intriguing overlap of bureaucratic units. As every province is provided with representatives of all the central departments, there is a province-level RID office even in those provinces (such as Ayutthaya, Ang Thong or Sing Buri) with areas *entirely* included in one or several of the RID Irrigation Projects of the delta. Although these offices mediate investment decisions made at the provincial level, such as a gate in a drain, the excavation of a natural pond to provide a reservoir to local populations, the raising of a dike, etc., they are as a rule located within the command area of the projects and therefore amount to a duplication of decision-making processes.

¹⁰ This is an intermediate level between the Central Office in Bangkok and the Irrigation Projects. Thailand is divided into 12 Regions. The middle basin is controlled by Regional Office No. 3 (Phitsanulok), while the delta is managed by Offices No. 7 (left bank) and No. 8 (right bank). The Mae Klong area belongs for its part to Regional Office No. 10 (Kanchanaburi).

¹¹ Molle *et al.* (2001a) provide graphic evidence of huge discrepancies between the inflow in the main canals and the corresponding planned schedule.

¹² This drives farmers to start their crops in November or December while traditionally dry season cropping was scheduled to start in February.

¹³ With only limited areas with flood-prone rice systems, which were initially disregarded for dry season cropping. In addition these areas have now been transformed into double cropping areas, such as the lower tip of the Don Chedi Project.

¹⁴ This situation may however evolve, depending on which parties are part of the ruling coalition and which "control" the Ministry of Agriculture.

¹⁵ A sub-unit of a project (approximately 1,000–1,500 ha)

¹⁶ Despite this policy being obsolete, it is still sometimes formally adopted (but not strictly adhered to).

¹⁷ This is not merely a declared intention from officers seeking approval of their work (or a naive recognition of it). It also mirrors a pervasive paternalistic relationship between officials and villagers, which often borrows traits from traditional patron-client relationships (see Nelson, 1998a).

¹⁸ We focus here on water allocation; maintenance and construction works might deserve another treatment.

¹⁹ As nicely put by Redmond (1998), Thais see no inherent justice in life: "Is life fair? No, but why should it be? . . . Life is not something to be legislated, but to be indulged in. Life and Justice are like two estranged sisters, one promiscuous and the other proud, who refuse to speak when they meet on the street."

²⁰ None of these actors can be considered as homogeneous in terms of interest or ideology. For example, the Metropolitan Water Authority's website bears a motto which suggests that agencies can have mixed feelings: "Tap water is not a commodity but something obtained from the management of natural resources, therefore it is a treasure whose ownership right must be extended to all people." NGOs, in turn, do promote grass roots participation as a corrective to state intrusion but this may also serve the interest of local elites (Delcore, 1999).

²¹ A good example can be found in "Privatising Thailand's water" (*The Nation*, 28 April, 2000), where Christopher Lingle, an "independent (sic) corporate consultant," explains how "opponents of privatisation are guided by outmoded ideology or are pursuing their own self-interest."

²² Pal and Panya Consultants (2000) estimate that water use in the Ping and Nan basins will increase from 6.7 Bm³ in 1996 to 9.3 Bm³ in 2016, resulting in a reduction of the inflow at the Chai Nat Dam by 1.5 Bm³ over these 20 years. These estimates are based on a projection of domestic and industrial use and on the "irrigation Project development potential." This seems a rather optimistic scenario and most probably overrates the reality to come. JICA (1997), examining the need for trans-basin diversion to the Chao Phraya River Basin, tabulated the expected

water demand in the Nan, Yom, and Ping basins in 2016 as 11.2 Bm³ against 6.5 Bm³ in 1993. In sharp contrast to these studies, which agree that the future demand for irrigation water in the Chao Phraya River Basin will increase, Binnie and Partners (1997) posit it will remain constant. This assumption seems to be based on the fact that paddy land is decreased by 1% each year in the delta and on the premonition of a significant shift out of rice to field crops. This fails to understand that the water demand is governed above all by dynamics in the dry season, when multiple cropping is possible if the conditions are attractive. If there is enough water, dry-season cropping will offset by far the decrease in paddy land. In a similar fashion, TDRI (2001), using economic modelling principally based on the World Bank's projection of world rice prices, considers that water demand might first rise but later decline in the medium term. The complexity of agricultural dynamics at the national level, with its linkage to the global economy, together with the high uncertainty regarding rice prices, tend to make such a projection exercise rather perilous. In any event, a decrease in water use would constitute an interesting precedent, with probably few examples in the world.

²³ "Farmers should be involved to an appropriate extent in every phase of project development" (Daundaun, 1992); "Farmers should be treated as key participants, not just as a supplementary element of the system" (JICA, 1994); "Farmers participation is key to project success. The Water User Group is a fundamental institution to facilitate farmers participation" (Metha, 1995); etc.

²⁴ This can suggestively be seen in the use of the term "*phi liang*" (*phi* is elder, *liang* is to feed or by extension to raise) applied to RID with regards to its establishment of WUOs. Interestingly we have, albeit occasionally, seen this word used both by RID officers and by farmers.

²⁵ The successive efforts to establish and strengthen WUOs have not only been unsuccessful and wasteful in terms of budget and energy, but they have also contributed to the spread of mistrust and a lack of interest regarding state-initiated groups. This is reinforced by the frenzy of the Thai government to pile up state-supported groups aimed at various activities—rice banks, buffalo banks, fishing groups, cooperatives, peer groups for credit (*klum sacha*), cooperative shops, cottage industry groups—even though most groups appear to be apathetic.

²⁶ Politicians try to appear as benevolent patrons bringing benefit to the community (roads, water supply, donation to the temple, etc), in other words as patrons. The most striking observation reported by Arghiros (1992) concerning a case study in Ayutthaya is that an estimated 90% of villagers did vote for the candidate who had either bought their vote or "earmarked it" by entering into a patronage relationship

with the village. This “internalised compulsion to respect the transaction,” although sometimes reinforced by intimidation, provides a fascinating example of the pervasive effectiveness of reciprocity in patron-client relationships.

²⁷ India, for example, tried to transpose the TVA (Tennessee Valley Authority) model by constituting the Damodar Valley Authority, but this led to a resounding failure. A similar early enthusiastic copycat drive in Thailand appears in Trivat (1962), who thinks that “it seems timely to take TVA’s experience to another area for water resource development particularly the Chao Phya river. . . . A new and modern task requires new and modern tools; a spirit of enterprise and a creative outlook are required in this new organisation for getting things done similar to TVA.”

²⁸ I intentionally do not use the word “water rights” here. Rather than property rights, which appear totally unrealistic (see Molle, 2001a), *participatory mechanisms* of negotiation should be established at the basin level for defining macro-allocation and monitor effective use.

²⁹ See the following statements: (i) “A water tax could be levied, in a manner similar to the paddy land tax, over the whole area at present cultivated and the future extension of this area, as far as the fields are benefited by the [irrigation] system. . . . water rates could in general be assessed in some proportion to the quantity of water utilised, and would most probably be a suitable taxation for dry season crops and garden cultivation.” (ii) “The light taxation affects any large scale government programme to improve conditions for the peasants. It is evident that not until the government has assurance of steady and increased income from local taxes can it expect to support large scale farm improvement projects. . . . As yet the government has not come to the conclusion that at least a partial support of such a project should come from equitable taxation of the peasants. Any program designed to aid the farmer, such as large scale irrigation, is recognised now only as a national investment and a responsibility of the government. That this policy sooner or later must change is self-evident, for without local taxation the peasants’ demands for agricultural, educational, health, and transportation improvements can not be met.” The interesting point about these two statements is that they are not issued from a recent consultant report, as one would believe, but from Van der Heide’s report and De Young’s “Village Life in Modern Thailand,” dating back to 1903 and 1955 respectively.

Chapter 11

Lan Laem from 1980 to 1996: profile of a rice growing village in Nakhon Pathom province

Atsushi Kitahara

11.1 Introduction: background of change

A Japanese team of Thailand specialists carried out a fixed point survey in two Thai villages, Lan Laem, Nakhon Pathom province, and Nong Kun, Roi Et province, in 1979, 1980, 1983, and again in 1995–97, and has published two final reports in Japanese, in 1987 and 2000 (Kitahara, 1987; Akagi *et al.*, 2000)ⁱ.

Discussed in this chapter are several important hypothetical themes that have been drawn from the second part of the monograph of both final reports. Such fixed point surveys have not been undertaken very frequently, and it would be useful to summarise the essence of the results first published in Japanese, especially on Lan Laem, *amphoe* Nakhon Chaisi, *changwat* Nakhon Pathom, with which I have been involved during these last fifteen to twenty years. A more complete analysis of the survey should be made available in the future.

When our team visited the community of Lan Laem for the first time in 1979, it was still an isolated and pastoral rice growing village. Lan Laem is located at the foot of the Mae Klong River fan terrace, which stretches eastward from its apex near the Vachiralongkorn Dam, which was constructed in the mid 1970s and from where several feeder canals flow down over the fan terrace to the east, along the Tha Chin River (see Map 5 in Appendix). The construction of the irrigation canal network coincided with the advent of the Green Revolution, and villagers of Lan Laem had just begun to switch from old rice varieties to new high yield ones when we started our study. Thus, regarding the production aspect of rice farming,

dramatic transformations were occurring with the adoption of the Green Revolution packages, which included new varieties, water control, mechanisation, and new inputs of fertiliser and pesticide.

However, with regard to the consumption aspect of the household economy, there was no such remarkable revolutionary process. In 1980, there was not yet electricity or television in the village. Moreover, transportation was still slow and difficult. There was no paved road from the local centre of Nakhon Chaisi to the village, and there was no public bus access from the eastern state road 4 (Petchkasem Road), 14 km away from Lan Laem, to connect the village with the centre of Bangkok. There was only a small minibus route, along the fan foot, from the village to the provincial centre, Nakhon Pathom. In the small canals across the village, adults could still enjoy fishing small fish to cook for dinner and taking a bath there in the evening, after returning home from the rice fields or from the construction work around the village. Every day, children and young people enjoyed swimming in the canals after finishing their class in the village primary school, and/or after helping their parents in the fields. The ordinary house of the rice cultivator was made of teak and tiles in a traditional style. The total number of households in the community was about 120.

In 1983, a first class pavement road was constructed and, at almost the same time, electricity came to the village. The end of a new feeder canal network also reached the villagers' rice fields in 1983, and they could accommodate new High Yield Varieties (HYVs) in the irrigated fields. It was the beginning stage of a drastic change in villagers' livelihood and farming practices (see Isvilanonda and Hossain, Chapter 5). However, the change in the early 1980s was different from the qualitative change observed in the second stage during the mid-1990s. In the first stage in the early 1980s, the villagers' lifestyle began to change, but only in a partial and transient way, mainly because electricity was not fully available. The average monthly expenditure for household consumption was still about 1,000–2,000 baht. In all, 77 households could still make their living by mostly depending upon the income derived from rice farming. Some of the youth, who wished to work in the urban formal and informal sectors, could not commute every day from the village in the same way as today and had to migrate for short or long periods to Bangkok. Nevertheless many of the young, as well as most of the middle-aged villagers, remained engaged in professional farming.

The lifestyle of most villagers retained its rural characteristics, clearly different from the urban style, and this was reflected in the comparatively lower amount of monthly household expenditures. For instance, it was too luxurious to drink a cold

beer in the village and it was impossible to buy one at the small shops with no refrigerator in the village at the beginning of rural electrification. Today it is normal to observe beer drinking in the village. A limited number of children used to go to the junior high school (middle school) at that time. Today 100% of the village children attend at least up to the junior high school level, before looking for work in the urban formal sectors. Electricity and education appear to be the two main factors that have changed the villagers' lifestyle.

In 1996, when our team surveyed Lan Laem for the second time, we found that it had completely changed from a "rice growing village" under the Green Revolution into a "rural informal sector village" of miscellaneous non-farm works mostly under subcontracting relations with outsiders. Most of the villagers had given up rice farming, which had not been able to generate sufficient income to allow the radically new lifestyle of the villagers. Most of the youth commuted every day to nearby factories or metropolitan industrial zones, by getting on a company or public bus which ran on the new paved road to the centre of *amphoe* Nakhon Chaisi, or which took them to the western fringe of the city industrial zones. Most of the middle aged and elders, as well as housewives, were engaged in cottage industries and/or in small shops of subcontract or independent types. Most of these miscellaneous self-employed jobs can tentatively be called the "rural informal sector." As shown in detail in section 4, the most successful and networked villagers have been transplanted from the urban informal sector, but some of them have also emerged in the community itself and their businesses have evolved into rural venture businesses.

Table 11.1 shows the evolution of the occupational structure of the villagers. The rural informal sector is comprised of occupations of type 7, 8, 9 (partly), and 10. While the total number of rural informal workers was 47 in 1980, it amounted to 228 only 16 years later.

The professional farm households totalled 26 families (or 22%) in 1980, and 31 (16%) in 1996 (Table 11.2). However, in 1996, only 18 farms were found to cultivate over 20 *rai*, against 26 farms in 1980, while 13 farms had shifted to cultivating vegetables and sugarcane. Table 11.3 clearly shows the decline of smaller scale rice farmers with land under 20 *rai*. In 1996, when a young farmer was asked the number of professional farmers under 30 years of age, he replied that it was safely below 10 persons for the whole *tambon*. This erosion of monocropping rice farms and the emergence of specialised larger farms are in line with the regional trends identified by Molle and Thippawal (1999).

The aforementioned transformations of a village in suburban Bangkok at the western fringe of the lower Chao Phraya Delta exemplify the drastic change in

Table 11.1 Occupation by family member (unit: person)

Occupation	1980	1996
1. Self-employed family farmers	232	118
2. Agricultural hired worker	38	29
3. White collar	11	22
4. Factory worker	35	91
5. Commerce and service	22	10
6. Artisan	20	20
7. Home work and others	8	63
8. Driver	5	18
9. Construction and daily worker	21	42
10. Self employed	13	105
Total	396	508

Note: Young unmarried non-resident members included.

Table 11.2 Household occupations (unit: household)

	1980	1996
1. Professional agriculture	26 (22%)	31 (16%)
2. Part time agriculture	37 (31%)	52 (28%)
3. Non agriculture	57 (47%)	105 (56%)
4. Total	120	188

Note: The household head's occupation.

rural society which can be observed all over the delta (see Tomosugi, 1995). It is impossible to explain these changes from the mere viewpoint of farming and ecological transformation processes, as would be inferred from a vision of peasant life centred on agriculture and farming. On the contrary, the major on-going changes should rather be explained by the impact of socio-political and economic

Table 11.3 Scale of rice farming household (unit: household)

Size class (<i>rai</i>)	1980	1996
0–5	14	0
5–10	12	1
10–15	25	3
15–20	5	0
20–30	10	5
Over 30	16	13
Total	82	22

conditions in the delta, with strong connections to international markets and politics at a more global scale. Indeed both endogenous and exogenous factors should be considered, but the latter appear to be the determinant factors governing rural change in the delta. It seems that both orthodox agronomic experts and agriculture officials have neglected this latter factor².

11.2 Generational division of labour and development of a rural informal sector

In Lan Laem we can observe a division of labour between the younger, middle and old generations. Work in factories and in the formal sector is most common for the younger generation, while middle-aged and old people, as well as housewives, are found predominantly in the informal sector and in daily wage work. This is a characteristic of the labour market structure in the formal sector in Bangkok and all over Thailand. Recently, most of the younger villagers belonged to the common working class of the formal sector, who graduated from primary school (usually 13 years old) in the past and from junior high school (usually 15 years old) at present. Usually they continue to work for a full 30 years or so, and are then fired or forced to resign voluntarily at 40–45 years old. (Some villagers say: “I resigned as I was tired of factory work.”) After they leave the factory and service in the formal sector, they must choose either to remain in the city, by shifting to the informal sector, or to return to their home village to engage in one of the miscellaneous jobs

of the rural informal sector. This can be called the generational division of labour between the younger generation formal sector workers and the middle and older generation informal sector workers.

The 1980 and 1983 interview survey data suggested this division of labour trend across age classes, especially for the workers from the landless group of Thang Rot community, which is a small branch neighbourhood, which split from the old main village, Mu Yai, in the 1930s. They are descendants of the landholders of the main village or landless immigrants from other villages, and settled in the still deserted periphery of the main village to form a small community of the dispersed type. In the early 1980s, the middle-aged and elderly of Thang Rot, who returned home from urban work, could only find limited kinds of rural daily work such as construction and on-farm labour. Presently, in the late 1990s, most of the villagers, including the descendants of landholding families, easily find many kinds of miscellaneous work in the village informal sector.

The 1996 survey showed this tendency for the whole village. The situation has been changing as a modern employment system has gradually been established, especially for the managerial and white-collar class in the urban formal sectors, but the situation may not have changed radically for the ordinary worker, and Lan Laem young workers still leave their factories at the age of 40.

The village level data show an age distribution of factory workers that suggests a sheer decrease after the age of 40. The distribution in the 1996 questionnaire data is shown in Table 11.4. However, data on the age distribution of the informal sector workers point to a more complex situation. We can estimate the rate of informal sector workers from the total of "home work and others," "part-time driver," "construction and others" and "self-employed work" (see Tables 11.1 and 11.4). We can observe a contrast in age distribution between factory workers and the miscellaneous informal workers in rural areas. One reason why the percentage

Table 11.4 Age distribution of factory and informal sector workers

	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	Over 60
Factory workers	17	41	21	3	0	0
Informal sector workers	6	32	57	49	32	52
Family farm workers	6	10	22	36	20	24

Note: Informal sector includes 5, 6, 7, and 10 in Table 11.1.

of informal sector workers in the 20–30 years age bracket is relatively high is that it includes young and middle-aged housewives, most of whom are engaged in subcontract piece work at home.

One may wonder why villagers do not return to their former rice farming activities after coming back from the urban formal sector to their home village of Lan Laem. The basic reason is that the inherited family land has usually been sold to outside land speculators during the bubble period of the early 1990s, and they would need to rent their former land from the new owner. Villagers told us that about two-thirds of the villagers' total land had already been sold to outsiders and urban land speculators, and the price of land was too expensive for ordinary villagers to buy back.

Another reason is the low profit from rice growing with cheap rice prices over a long period of time, which, ironically, has made Thailand the main rice exporting country in the world. Even in 1980, a net profit of over 1,000 baht per *rai* was realised for 26 rice families with farms over 20 *rai* in size. In 1996, only six cases of rice farms with more than 20 *rai* of land were found (including one fruit garden), while 18 families (including four fruit cum vegetable gardens) cultivated more than 20 *rai* (see Table 11.3). Table 11.3 also shows how rice farms below 15 *rai* have disappeared, and that most of their middle-aged and elderly members may have moved to the non-farm rural informal sector.

There are still 118 self-employed professional farmers, and they represent 23% of the labour force (Table 11.1). As can be easily observed from Table 11.3, there are comparatively few farmers from the younger generation. Generally, the large-scale rice farms over 20 *rai*, as well as professional vegetable gardens, are operated by middle-aged farmers. However, most of the farms are not yet operated by the older generation, as is the case in East Asian countries.

The agricultural diversification policy of the government (see Siriluck and Kammeier, Chapter 9) came too late for this *tambon*. From the early 1970s to the early 1980s the most active villagers had a keen interest in changing rice land into vegetable and fruit gardens without any government support or promotion policy, but they had to give it up as it proved to be barely profitable.

In the late 1980s, large vegetable farms were started in the southern part of the former rice fields by migrants coming from polluted industrial areas in Thonburi, and they were still in good operational condition in 1996. Just recently, however, the soil has been badly damaged by salt water, which normally is restricted to the delta seashore. It is said to have originated from underground water of the upper fan terrace incorporated in the water brought by the feeder canal to Lan Laem. In

1980, the lower part of Lan Laem was also damaged by the remaining salt of ancient marine sediments. Whatever the cause, salt water forced most of the immigrant vegetable growers to give up their gardening and this new type of farming eventually proved unsuccessful here. Some of the immigrants hope to move again to new non-polluted areas (Akagi *et al.*, 2000: 284–87).

Agriculture in Lan Laem has drastically changed from the Green Revolution times to the post-Green Revolution of the late 1980s and the early 1990s. In the early 1980s, some 60 percent of villagers were still engaged in rice farming, and could grow two crops after the construction of the feeder canal brought sufficient water to Lan Laem. Then some native villagers began to plant new commercial crops (various vegetables and fruits) and, in the late 1980s, new migrants joined this movement. By the late 1990s, only a limited number of native households still continued to cultivate rice on a large scale, while the commercial farming of vegetables and flowers proved unsuccessful. Other farmers have completely given up their commercial farming, and have moved to professional non-farm work.

One of our strongest impressions was that part-time farming, which was commonly observed in the early stages of high-growth economic development in East Asia, could only occasionally be seen in Lan Laem, as well as Bang Klang in the same *tambon*. It may suggest the quite different nature of the relation between agriculture and industrialisation in urbanised rural central Thailand. However, we should be cautious not to generalise this proposition to Southeast Asia. In the case of highly populated Java, for instance, some part-time farming has been observed (Rotge, 2000: 67–69).

Using the data of the 1980 survey and the follow-up survey, Tasaka analysed in detail the rice economy of the Green Revolution and peasant differentiation in Lan Laem (Kitahara, 1987: Chapters 7 and 8; and Tasaka, 1991). In 1980, 26 farms over 20 *rai* received a net profit (including family labour cost) comparable to that of today, especially in 4 cases with over 45 *rai*. In 1996, the average net profit of the 20–25 *rai* rice farms was 39,925 baht and farms over 30 *rai* could gain a net profit over 100,000 baht (see Table 11.5). An economic threshold may have been about 25 *rai*, as those with farm land under 25 *rai* could barely meet their average monthly household expenditure of 4,000 to 5,000 baht with the profit derived from rice farming.

In 1996, one former professional rice grower with a farm over 100 *rai* estimated that the net income (including the family labour cost) of rice farming on 30 *rai* with three family workers was 52,000 baht, at a price level of 4,000 baht per ton. The net average income per family worker was about 1,500 baht per month, and

Table 11.5 Costs and profit of rice growing at farm level in 1996

Farm size	Farm costs	Sale amount	Net profit
Over 50 <i>rai</i>	66,990	158,750	91,760
40–45	68,058	180,930	112,872
35–40	49,910	169,875	119,965
30–35	64,340	168,450	104,110
25–30	44,140	117,467	73,327
20–25	70,075	110,000	39,925
15–20	46,305	89,425	25,235
10–15	24,015	60,800	36,785
Under 10 <i>rai</i>	15,360	28,800	13,440

3,000 per month in the case of double cropping. He said that it was best for family members to engage in non-farm work if the price was below 3,000 baht. This example of peasant calculation clearly shows the low profitability of double rice cropping under the present rice price levels. The problem comes from the abrupt increase in household expenditures for everyday consumption.

Under such economic conditions, the number of farms over 30 *rai* has decreased to 13, and the smaller scale farms below 15 *rai* have almost disappeared, as mentioned earlier (Table 11.3). This suggests that rice farming has become a sector of commercialised farming practised by a limited number of farms, instead of the most popular activity as in the Green Revolution boom days. In our 1996 survey, attention had to be shifted from general topics such as land inheritance and rice cultivation to others such as commercial land sale and vegetable gardening (Akagi *et al.*, 2000: Part II, Chapter 3).

The size of farm land cultivated by each household has also changed during these sixteen years, as shown in Table 11.6. The 1996 figures include the 82 new migrants who did not live in the village in 1980. The most important farmers among them are vegetable gardeners who immigrated from the fringe of Thonburi because of water pollution there, as mentioned above. The trend towards small-scale farming is apparent. The farms with land over 20 *rai* have decreased from 22 (21% of a total of 106) in 1980 to 15 (8% of a total of 188) in 1996. In contrast, the farms with size under 10 *rai* have increased from 32 (30%) to 95 (51%). The landless have remained rather stable in percentage, at 31 (29%) and 55 (29%).

Table 11.6 Size of cultivated land (unit: household)

1996\1980	0 <i>rai</i>	>0-10	10-20	20-30	Over 30	New	Total 1996
0 <i>rai</i>	10	5	4	1	3	32	55
0-10	17	24	12	3	2	37	95
10-20	3	2	2	6	2	8	23
20-30	1	1	1	0	0	2	5
Over 30	0	0	2	1	4	3	10
Total 1980	31	32	21	11	11		106\188

Table reading: line [10-20], for example, indicates that there were a total of 23 farms in that range in 1996, and shows in what classes they were found in 1980.

The table also identifies the 106 original households of the 1980 survey among the 188 households found in 1996. If we limit ourselves to the original sample we can see that the number of farms over 20 *rai* changed from 22 in 1980 to 10 in 1996. The number of farms within the 10-20 *rai* bracket moved from 21 to 15, those under 10 *rai* from 32 to 58, and the landless from 31 to 23. Both land division at inheritance and land sale may have caused this shift.

11.3 Mechanism of farming decline and spread of non-farm work

There are many opinions and views on the reasons why farming and agriculture have deteriorated and non-farm work has spread all over rural Asia. I have tried elsewhere to look at the mechanism and the causal relationships of these phenomena (Kitahara, 1999b). I mainly emphasised the production side, especially the reorganisation and the new formation of a diversified regional industrial structure, which changed the agro-based structure into a more diversified one at the macro level, and the appearance of a small percentage of owner-operators and many informal workers within the village at the micro level.

Here I will try to explain the causal relation in quite another way, by relying upon the field data of two different years. I will emphasise the livelihood and consumption aspects of rural change. The orthodox agro-economics of the "agriculture first" approach, or the rural level growth linkage model as its variant, have neglected to pay full attention to these aspects because of their assumption

about the vital role of farm production surplus. The new model should not be derived from a simple household survey at the micro level, but should also cover the consumption goods market at the macro level in the provinces. This overall mechanism of consumption and lifestyle formation from the outside market towards the community and its households is an important factor that shapes the present rural economy in the Chao Phraya Delta.

From this angle, we can easily understand the spread of non-farm work in the rural economy of Asia. In a sense, we should go back again to the Chayanovian model, which supposes that the production process is subordinated to the consumption process in the context of self-sufficiency. Presently, in the new situation of a market economy, we can observe a household economy predominantly dictated by consumption needs with which the mere farm income cannot catch up.

In 1985, a geographical economist and specialist of Southeast Asia, T. G. McGee, proposed such a hypothesis (McGee, 1985). He claimed that peasants become workers not because of problems of landlessness or peasantry differentiation on the production side, but because of their wish for a better urban way of life on the consumption side. This is also germane to the "land dilemma" dichotomy discussed by Molle and Thippawal (Chapter 4), who show that rural-urban moves in the last two decades have predominantly been motivated by urban "pull." This hypothesis is also strongly confirmed by the Lan Laem case.

Recently, Ellis (2000) tried to systemise a "livelihood approach," which emphasises strategies of rural households geared towards sustaining livelihoods with all their capital and other resources, including social and cultural ones. His populist oriented essay is most likely to apply to low-industrialised regions such as Africa and South Asia, and is not readily applicable to the different context of a more commercialised Asian rural economy where consumption and livelihood aspects are the decisive factors of rural transformation. The drastic change in lifestyle under the global commercialisation process is the main reason for rural change in the Chao Phraya Delta. It has not been caused by an endogenous logic of achieving higher agricultural productivity aimed at raising income, but rather by the exogenous logic of market expansion beyond the farming sector.

In the case of Lan Laem, this lifestyle change coincides with a certain stage of development symbolised by the development of rural electrification and transportation. Indeed, industrial development and urbanisation may be the basis of this change, but they would not directly alter the lifestyle of rural people and households if they themselves were not inclined to adopt new urbanised lifestyles. In Lan Laem the critical watershed event was the introduction of electricity to each

household and the widening and paving of the old muddy road in the early 1980s. At first, the impact was moderate and people still kept their traditional lifestyle, especially regarding consumption of modern durable goods.

In 1980, when electricity had not yet come to the village, the main consumption goods owned by villagers were transistor radios (95%), bicycles (86%), motorcycles (42%), and wrist watches (65%). Only 4 out of 120 households used televisions, with home made electricity generated by oil motors. Under this type of lifestyle, they did not need to spend much for household expenditure. The average monthly expenditure was 1,000–2,000 baht, and rice farming households still led a modest lifestyle relying mostly on the rice income. They could even get sufficient surplus if they had land of 20 *rai* or more.

However, this lifestyle drastically changed from the late 1980s to the early 1990s. As a result, in 1996, villagers had televisions (93%), bicycles (72%), pick-up trucks (25%), refrigerators (81%), electric rice cookers (92%), and gas ranges (90%). Some began to have private cars (3%) and air-conditioners (5%) which served as status symbols just as television did 16 years ago. These changes in durable goods symbolise the drastic change in the villagers' lifestyle. The average household expenditure in 1996 was about 7,000 baht, which is roughly 5 to 7 times more than 16 years ago. If the 4,000–6,000 baht average range is considered together with an inflation rate of roughly 100% over the period, the rate of increase in household expenditures is still considerable, at about 2 to 3 times.

On the other hand, during the same period rice prices at the village level went from about 3,000 to 4,000–5,000 baht per ton, which is well below 2 times. This simple and yet telling comparison of the increase in rice prices and household expenditures suggests that the desire for a change in lifestyle was the driving force of economic diversification. We hope these phenomena of rural transformation will be systemised into a new paradigm allowing a persuasive explanation for the transformations in the rural delta economy and society, as well as all over suburban rural Southeast Asia.

11.4 Outline of the rural informal sector in Lan Laem

When the formal sector workers return to their home village around the age of 40, their parents have often sold most of their inheritable land to urban speculators who have invested in land because of the high return in the bubble economy period. Even if they can return to their former occupation, they often find that farm activity is comparatively less profitable. Even if profitable, farm work is considered

too hard and dirty by those who have experienced urban life. Therefore, their next occupation is likely to be in the rural informal sector.

Indeed there were still 118 professional farmers, equivalent to 23% of the workforce in 1996, but the younger generation was not well represented, as already mentioned. On the other hand, 133 persons were employed workers, including 111 simple technical and 22 technical, while 228 persons were totally in the rural informal sector including 18 drivers, 42 construction and daily workers, 105 self-employed, and 63 home workers and others.

Some of the informal sector workers are part time and largely inactive, as in the typical case of palm leaf processing work carried out by older people. But the total number of active informal sector workers is equal to, or greater than, the number of employees in the urban sector. Thus, informal sector workers in the village total more than one-third of the whole labour force and these miscellaneous works are very important as employment opportunities for the middle-aged and elderly people, as well as for housewives.

In Lan Laem some outside business managers immigrated (or commuted) to engage in professional business. The main case is an automobile parts foundry with some 120 employees (this number was cut by two-thirds soon after the economic crisis). Other cases include a mineral water factory with five employees (the owner-manager is a relative of a village family), a sculpture foundry arts shop with some ten employees (the owner-manager is a college professor), and a seasonal pickle-making workshop with a few employees.

Most of the indigenous villagers themselves were engaged in miscellaneous works of the informal sector: (1) an independent small manufacturing workshop; (2) a subcontract workshop for recycling paper and vinyl bags of chemical fertiliser; (3) a car, motor-cycle and machine repair shop; (4) subcontract sewing and embroidery home work; (5) home handicrafts products made out of water hyacinth (*phak top chawa*); (6) palm leaf processing; (7) jasmine flower processing; (8) bulldozer owner and contract land levelling; (9) tractor owner and contract land preparation; (10) truck owner and contract transportation; (11) pick-up and wagon car owner and contract driver; (12) vegetable collection and wholesale; (13) contract cooking for village level parties and gatherings; (14) small and medium sized miscellaneous goods shops; (15) a small restaurant and food stall; (16) stall shops; (17) fortune teller; (18) music instrument and machine renting, and band for village level parties; and (19) construction contracting.

Most of this informal sector work may be similar to employed work in terms of income, profit and working conditions as well as working status. However, a

limited number of the villagers were given the chance of a venture business with profit making, rather than employee status with a smaller income. Some owner-managers of (1), (2), (8), (9), (12), (14) are such cases. We can call them small-scale self-employed entrepreneurs rather than typical informal sector workers.

Husband P. and wife W.'s manufacturing workshop of second-hand wood material from construction sites is a typical case of (1). S.'s subcontract processing workshop of second-hand vinyl bag recycling, and P.'s trading arrangement for them are both cases of (2) (Kitahara, 1997: 51–53). A manufacturing workshop of concrete house pillars run by a father and his son is another good example of (1), which has gained a wide reputation beyond the provincial boundary because of its excellent quality.

T. owns two tractors and runs a medium sized miscellaneous goods shop, which is one of the highest profit makers in the village. He has developed into a young businessman, partly supported by the capital and network of his father, the former village headman. B. was an active tractor owner and contract cultivator in 1980, but shifted to bulldozers and mechanical diggers and now performs earth digging and filling services at construction and housing sites. He accumulated more than 200 *rai* of farm land through this business. Vegetable collector and wholesaler C. is comparatively modest in his profit and accumulation, but he could buy back his ancestral house compound and the land thanks to his business profit.

These limited cases can be called business entrepreneurs rather than simple informal sector workers. Their business opportunities have been widened by the expansion of urban markets into rural areas during this 10-year period. Moreover, part of their demand has been generated by the cash income that formal sector workers of the younger generation have brought into the village. Such cases suggest that the rural informal sector is generally driven by the growth of the urban sector rather than a result of the development of the rural farm sector. From the perspective of market organisation, the informal sector businesses might be classified into three types: the first depends upon the broader market network and connections beyond the village level, the second depends upon the smaller local market at the village level, and the third is an intermediate type.

The first type of a wider network includes (1), (2), (4), (5), (8), (9), and (10). The second type of a local market corresponds to (3), (6), (7), (11), (13), (14), (15), (16), (17), (18), (19), and the third type of an intermediate market includes (8), (9), (10), (12), (16), (17), (18). Obviously, some categories overlap. It is natural that the most profitable sectors, in which these typical entrepreneurial villagers are

engaged, are concentrated in the first and the third types, rather than in the second type, except for a few cases of small daily goods shops within the village.

As shown above, the development of the rural informal sector suggests, first, the necessity of reconsidering the rural development policy by the government, which has over-emphasised increases in productivity or the multi-cropping of commercial crops (and animals) in the agriculture sector, including the urbanising rural regions. Second, it suggests that the development policy for rural industry should also be considered from the viewpoint of manufacturing development and formation of modern entrepreneurship, alongside that of the conventional emphasis on employment creation (Kitahara, 2000: part II, Chapters 1 and 2). Third, it is crucial for rural industry to be linked with urban and foreign markets. We can easily observe that traditional cottage industries will deteriorate if they cannot enjoy a broader market beyond the limited community level (Regnier, 2000: Part III; Kitahara, 2000).

11.5 Persistent family structure

As confirmed by the national censuses, the nuclear family is not in a dominant situation. On the contrary, we can observe a decrease in the nuclear family and an increase in the extended family (either the stem or composite family; see note of Table 11.7). However, this does not yet imply the ageing of the rural society, as generally observed in rural East Asia. In Lan Laem, there is some necessity for young couple families to live with their parents, thus achieving a division of labour: the young commute daily to the formal sector, while the parents take care of the home and grandchildren (if any). Thus, children do not effectively leave the family to migrate to the urban area.

The distribution of family types in 1980 and 1996 is given in Table 11.7. First, there is an increase in single person and couple families caused by an increase of aged families (among 17 such families, the family head is over 60 years old in 8 cases). Second, we observe a drastic decrease (from 60% to 47%) in the percentage of nuclear families, a category that appears to be now mostly composed of young families (66% in 1996 against 32% in 1980). Third, the increase in extended families can be attributed to the increase in older family heads. The proportion of stem families with family heads over 60 years old has increased from 24% to 59%, and that of composite families from 42% to 72%.

Indeed, the increase in single person and couple families suggests a certain number of older people whose children have left the village, but the increase in

Table 11.7 Change in family type

	1980	1996
Single person	1 (1%)	9 (5%)
Husband and wife	3 (2%)	8 (4%)
Nuclear family	72 (60%)	88 (47%)
Stem family	25 (21%)	51 (27%)
Composite family	19 (16%)	32 (17%)
Total	120 (100%)	188 (100%)

Note: Stem family = head's family + one child's family, or head's (or wife's) parent(s) + head's family.
 Composite family = head's family + (more than) two children's families + (and/or) others.

extended families suggests that such a problem of deserted old people is not so severe. Their children still take care of their old parents within three generation families living in the same house, or at least by staying in the same compound and the same village.

Basically, the decreasing rate of nuclear families is caused by the decrease of younger families due to the demographic transition, but we do not yet observe an increasing rate of older nuclear families. Among the extended families, we can observe an increasing proportion of older family heads (40% are over 60 years of age and 24% are over 70 years old), but they still live with or close to the younger generation families. It may indicate the emergence of a problem of older people in the following generations.

At present the number of young people below 20 years of age still amounts to 308 persons for a total of 916, and the ratio is 34%, which may not yet have reached the critical stage of absolute population decrease. One problem however, is the low percentage of the population below 10 years old, compared to that of the 10 to 20 years old age group, and it points to the initial stage of a smaller percentage of the younger population for the following generations.

The situation in Lan Laem is somewhat different from that in the nearby small community of Ban Klang³, which seems to have reached a critical level. At Ban Klang (or Ban Phai Khat), which also belongs to *tambon* Wat Lamut and consists of some 40 households, there is an emerging problem in the family structure (Kitahara, 1999a).

The figures relative to Ban Klang in 1996 are as follows. First, the rate of single and coupled families among people over 60 years is high (8/21). Second, the rate of typical nuclear families to the total families has decreased: 14/47 in 1996 against 20/44 in 1972, with only 5 family heads under 40 years old. Third, the stem family's cycle appears to be constrained, maybe because of difficulties in relaying the family head status to the younger generation who work in the non-farm sector and cannot fully commit to community life. The rate of stem families with the head over 70 years old is 5/14 (36%). Fourth, a low percentage of young population is consequently observed, as shown by the number of young below 20 years of age to the total population, 56/203 (28%).

These points suggest the initiation of a stage where the young migrate to urban areas, and where the older parents stay alone, or at least continue to take care of their extended family, to which families of non-residential or commuter children loosely belong. It is reflected in the decrease of young nuclear families and in the simultaneous increase of older single person and couple families, as well as in the increase in loose extended families with older heads and families with no children.

Compared with such a worrying case, the case of Lan Laem is still fortunate in the sense that the younger families are still firmly settled in the community as creators of new families, or the active members of a parental family. This is made possible by the daily commuting to urban factories. Indeed we are not in the presence of a typical part-time farming family based on the generational division of labour between the young formal sector workers and the older family farm workers, as is typically observed in the former rural East Asia. However, the system of stem family is also maintained, based on the generational division of labour between the younger commuter for the urban formal sector work and the older villagers engaged in the rural informal sector (instead of family farm work). This situation is reflected in the comparatively healthy family structure, as analysed earlier. The village economy mainly based on agriculture has faded away and been replaced by this new type of labour division. However, the traditional family culture has not yet been critically affected.

This is proved indirectly by the percentage of the 10, 20 and 30 years old age groups within the total population. The population graph shows that the percentage of the population not staying at home, but leaving temporarily to work outside the village, was very high in 1980 but that it has become smaller in 1996. This means that the young people no longer leave the village to stay in urban regions for formal sector work, as they can commute from the village because of the convenience of improved bus routes.

The future, however, is not necessarily guaranteed. A certain number of the younger people may prefer to emigrate to settle in big cities, if they are able to continue working in the formal sector until their old age, or if they are able to look for new informal jobs after they are forced to quit the formal sector between 40 and 50. The present case of Ban Klang can be interpreted as an initial stage of such a scenario. The policy implication is that Lan Laem should not follow this troublesome path in the future, and that the division of labour across generations should preferably be sustained under the more stable extended family system.

In the 1980 survey, the traditional “multi-household compound,” which is composed of the parent’s family and the children’s families living together in the same compound, was one of the hot issues under consideration⁴. A trend towards a smaller sized multi-household compound (a few households at best) and shorter duration (usually one generation) was already foreseen (Kitahara, 1985). In 1996, this tendency was generally found to persist for the recent generations of some older compounds, but new cases of large scale multi-household compounds have also been formed based on inherited and/or purchased compound land, among a limited number of families led by influential parents (Kitahara, 1996b; Akagi *et al.*, 2000). As these large scale cases show, the multi-household compound will still endure for a certain number of villagers in the future, and it will be one of the conditions for making the younger generation stay within the village.

In this way, the traditional family system has not disappeared and parts of it are still maintained in increasingly urbanised Lan Laem. It is expected to last if the younger generation can commute to the metropolitan area every day, and if they still prefer to live in a rural environment as before.

11.6 Conclusion

The present conditions in Lan Laem can be characterised as a mix between a semi-urbanised economic life, for both production and consumption sides, and the enduring traditional social and cultural structure. In this tentative summary, we can only touch on the sustainable aspects of the family structure, but we also observed other aspects of the permanence of traditional life and culture in the village. Most of the traditional rituals and ceremonies are still performed, although they are partly commercialised today. For example, several village level professional cooks now supply food on such ceremonial occasions in place of the former self-supply cooperative cooking by the local housewives group. However, most of the meaning and interpretation of the ceremony by the villagers has been kept alive.

The most commercialised examples are wedding and funeral ceremonies. They have been almost completely commercialised and standardised in a Bangkok style, by being designed and organised by professional and semi-professional contractors at the village level. This tendency is especially clear among the upper and middle status villagers who are engaged in commercial business or in village administration positions such as headmen and members of the Tambon Administration Organisation.

The ideal is a balance among the new factors and the traditional factors. The village society can be basically reproduced in a rather urbanised and commercialised setting if the generational division of labour between the younger formal workers and the senior informal workers can be sustained, while keeping the traditional family structure alive, which will depend on maintaining a constant percentage of the extended family and multi-household compounds. At the macro level of the economy, this sustainability will be supported by a stable urban formal labour market for the younger workers and the expansion of a rural informal sector market, as well as of a highly selected number of commercialised farms, for the senior people. The everyday fluidity of the population thanks to convenient transportation access and the amenities of a rural dwelling base for the younger generation, may be the enabling conditions. At least it might be possible during a mid-term period of 10 to 20 years. The serious problem is, however, how to stop the constant exodus of younger people in order to ensure the reproduction of the rural community for a longer term of several decades.

In most of the Chao Phraya Delta villages, especially in the metropolitan area, rural life has been changing along the same lines, at least in the economic field, and we cannot expect a professional rice growing society to prevail anymore⁵. However, traditional social and cultural resources have been maintained and the problem is how to use this social and cultural capital to achieve some new type of sustainability under the changing rural life confronting an ever-advancing urbanisation.

11.7 Notes

¹ In 1979 our team started a village level survey project titled "Comparative Survey of Thai and Japanese Village Structure," financed by the Japanese Ministry of Education. The title was a tentative one and, once the Ministry had approved the project, a comparative survey of two villages located in central Thailand and in the northeast was undertaken. In the 1979 summer vacation, in order to select the two

survey villages, we had an extensive survey in Khon Kaen and Roi Et provinces in the northeast and Nakhon Pathom province in central Thailand. By comparing the preliminary field data, we finally decided to choose two different types of rice growing villages: the first, a rather static community, "Nong Kun" in Roi Et, and, the second, a rather dynamic community, "Lan Laem" in Nakhon Pathom). The 1979–80 first survey members were Osamu Akagi and Takao Takeuchi for Nong Kun, and Atsushi Kitahara, Yoshihumi Shimizu, and Toshio Tasaka for Lan Laem. The 1995–96 second survey members were Osamu Akagi, Takao Takeuchi, and Yasuhiro Takai for Nong Kun, and Atsushi Kitahara, Yuko Matsusono, Masaru Fujii, Hiroko Seki, and Yasuhisa Taniguchi for Lan Laem.

² The theoretical suggestion of this aspect can be found, for instance, in such work as Hart, Turton and White (1989), Saith (1992), Koppel et al. (1994), and Ellis (2000). I tried to generalise the transformation of East and Southeast Asian agriculture in a presentation at the 1st Conference of the Asian Sociological Association in 1999, published in the proceedings (Kitahara, 1999b). The recent work by Vincent Rotge also emphasises the strong impact of rural-urban linkage around Yogyakarta, Indonesia (Rotge, 2000: Chapter 10).

³ This small community is located in the central part of *tambon* Wat Lamut, 4 km away from Lan Laem. I happened to visit in March 1972 for the first time on the occasion of an extensive observation survey all over the rural Nakhon Pathom area, and I made a simple household survey for about 10 days in the beginning of April 1972. Afterwards I carried out a second survey in 1980 and a third one in 1996, and compared the data of the three surveys in a recent paper (Kitahara, 1999a). The main reason why our team chose Lan Laem as the 1980 field survey site was that I already had some knowledge and acquaintances in this area.

⁴ As is well known, this concept is a legacy of late Professor Mizuno (1968).

⁵ This phenomena may also be applicable to the suburban Yogyakarta area in Java, Indonesia (Rotge 2000).

Chapter 12

The cultural factor in rural-urban fringe transformation: land, livelihood, and inheritance in western Nonthaburi

Marc Askew

12.1 Introduction

In 1970 the province of Nonthaburi was described in a guide to Thailand's 73 provinces as a distinctively agricultural area. Conveniently located on the northern and northwestern boundaries of the Bangkok Municipal area, it was recommended to weekend travellers from the city as a place famous for its durian gardens; here they could tour a traditional landscape of placid canals and rice fields, and make merit at old and renowned temples (Supha, 1970: 114–16). Above all, the province was identified by the image of its many small orchards worked by sturdy Thai gardening families (*chao suan*) (Yani, 1995: 83). But within two decades, the province experienced a radical transformation in its economic base and its landscape. During the 1980s manufacturing companies, attracted by cheap land and available labour, located plants in the western districts of the province. Contiguous with the official northern boundary of the Bangkok Metropolitan Administration (BMA), the eastern part of Nonthaburi (which straddled both banks of the Chao Phraya River) became a favoured site for housing estate projects. During the same decade, the expanding road and highway networks to the north of the BMA opened formerly inaccessible agricultural land, and attracted the burgeoning housing industry. From the early 1990s, housing estates (*muban chatsan*) spread across the river to the western side of the province as new state highway projects cut across the province. Due to the construction boom, residential land uses comprised 23% by 1990 (compared to 12% six years earlier), a figure far in excess of the other four provinces bordering the BMA (Banasopit *et al.*, 1990: 34; Somkiat, 1989:

40). By 1995, agriculture accounted for just 4.2% of Nonthaburi's Gross Provincial Product, despite the fact that agricultural activities still dominated overall land use (71%). By contrast, manufacturing contributed 29% and construction activity 11% to the province's economy. Trade and services were Nonthaburi's principal economic sectors (Planning Office, Nonthaburi Province, 1996: 12).

By the 1990s, Nonthaburi's annual population growth rate exceeded all other provinces in Thailand (Alpha Research, 1994: 24). In the wake of these population changes, the Ministry of the Interior belatedly reclassified sections of former rural districts to sanitary districts (*sukhaphiban*) and upgraded existing sanitary districts to municipal status, with the result that by 1990, 40% of the province's population resided in these officially-designated "non-rural" areas (*thesaban*) (NSO, 1993)¹. In 1996, the preamble to the amended master plan for the province commented that parts of Nonthaburi were now indistinguishable from *Krung Thep* (Bangkok), and despite the persistence of considerable agricultural activity among household in its western districts, the role of the province was to act as a receiving area (*rong rap*) for the expanding population and burgeoning economic activities of the metropolis (Planning Office, Nonthaburi Province, 1996: 5).

In recent years the transformation of the "urban fringe" of Bangkok and other Asian cities has attracted the increased attention and study of policy-makers, planners, regional geographers and a variety of other social science researchers. A number of prominent geographers have identified the mixed and dynamic functions of these spaces as a new regional phenomenon heralding the breakdown of distinctively "rural" and "urban" geographies. The ecological and economic spaces formerly defined as "urban fringes" are now generally viewed as interacting components of new "mega-urban" regions of Southeast Asia—territorial formations with multiple and contrasting land uses forming an economic space combining both rural and urban characteristics (McGee, 1989; Ginsburg, 1991). It is argued that this new hybrid regional form in Southeast Asia owes its primary origins to the driving force of global investment flows following regional and global industrial restructuring and state driven export-oriented industrial policy (Douglass, 1995; Greenberg, 1994). There have been a number of propositions among scholars emphasising the internal diversity of these complex areas and the possibility that traditional village settlements may persist while serving dormitory functions (Greenberg, 1994; Webster, 1995). Recent research, however, shows that local as well as global investors are determining the distribution and concentration of land uses (Parnwell and Luxmon, 1997). Nonetheless, these more refined depictions of Bangkok's extended metropolitan regions have told us little of the social dynamics

and communities within this complex and dynamic space; they have focussed largely on surface distributions with only passing attention to the localised socio-economic dynamics of landscape production. The few detailed social studies conducted in these mega-urban regions of Southeast Asia show that ordinary local people have played a crucial role in shaping the changes taking place (Allen, 1994; Brookfield *et al.*, 1991).

Studies of the rural-urban fringe are dominated by the metaphor of "invasion," applied to the process whereby industrial and residential extensions of the metropolis encroach into the countryside. Among regional and environmental planners, much attention has been given to the impact of industrial land uses on urban fringe agriculture, with the prevailing assumption being that agriculturalists would somehow continue farming (in favour of selling their land to housing developers) if their land was not degraded (Anuchat and Ross, 1992: 17)². This is a rather simplistic assumption that proves to be wrong. In fact, responses of agricultural households to changes in their immediate environment need to be seen in the context of broader long-term household strategies in an environment of social and economic change. As this chapter aims to demonstrate, the conversion of land to non-agricultural uses is only a final phase of a longer process of agricultural decline and the changing expectations of agricultural households.

At the local level, it is easy to portray the people of the fringe areas as victims of the incursion of the city. The sheer ecological and visual change to former rice-farming and orchard areas is dramatic. Housing estates, freeways, factories, department stores, and modern transport are juxtaposed dramatically with rice fields, canals, and small village settlements. As one gardener of Bang Kruai District, Nonthaburi, remarked to me: "*sangkhom muang khao ma kin mot loei*" (urban society has come in and consumed everything). Yet this is only part of the story. Together with his neighbours, this same gardener attended a public hearing on the new master plan for Nonthaburi (in 1996) and vehemently opposed the classification of his land as "rural and agricultural" on the grounds that the land values of his holdings would be depressed. The same gardener vowed that his children would never work in agriculture; his eldest daughter was studying marketing at a private university and on graduation she would marry her boyfriend and live with him in a new housing estate in one of Bangkok's suburbs across the river. This highlights something about the ways that these households and their members participate in a complex process of change and consumption. The characteristics of this process are distorted when the expanding urban frontier is used as a territorial metaphor to encompass broader processes of social change, as

if the city has been imposed on an innocent and unchanging rural populace. In territorial terms, agricultural settlements may be apparently surrounded or absorbed into a new “urban” landscape, but the fundamental changes in household strategies have contributed to such transformation long before such physical encroachment commenced³.

This paper is based on ethnographic and survey research which I conducted in two sub-districts of Nonthaburi province in the period 1995–96. The research combined the compilation of family histories and participant observation, and aimed to investigate how agricultural smallholders perceived and acted in their changing environment, both outside and within their immediate surroundings. A key theoretical approach guiding this research was that local socio-economic actors play an important part in the overall process of change. In this I follow the work of those few geographers who have investigated the interplay between agency and structure in rural-urban fringe dynamics (Bryant, 1995; Spencer, 1993). These researchers propose that the re-shaping of these regions should be studied at two levels: first the societal/state/economy level, where forces of change have a key role in structural changes, such as transportation systems and industrial policy development; and secondly (but not less importantly) at the local level, where the larger processes are mediated by localised factors and land-uses, traditions, and patterns of culture. A critical area of study in this local context is land, its function and meaning for landowners and users. This chapter argues that strategies promoting household livelihood and reproduction on the part of gardeners (*chao suan*) and rice-farmers (*chao na*) have, over the past three generations, played an important part in the underlying transformations of these areas. These strategies are informed by practices that can be characterised as the critical “cultural factor” underlying the transformation of the landscape. This “cultural factor” is not distinct or separable from economic processes. It is a dynamic which actually endows income generation and property with social meaning.

12.2 Bang Khanun and Phimonrat: settlements in transition

The two sub-districts (*tambon*) of Bang Khanun and Phimonrat are located in the districts (*amphoe*) of Bang Kruai and Bang Bua Thong respectively, on the western side of the Chao Phraya River. They represent the diverse and complex landscape within which agricultural households pursue their livelihoods today. Bang Kruai is an old orchard area, and Bang Bua Thong a rice-growing district. These settlements once formed part of the richest agricultural region of the Chao

Phraya Delta, a traditional farming ecology based on rain-fed crops sustained by the seasonal inundation of natural and man-made water channels. The rich alluvial soils of the delta have sustained settlements for centuries. In the Bang Kruai district, in the south of the province, ethnic Thai village settlements devoted to fruit and rice cropping seem to have existed from at least the early sixteenth century (La Loubère, 1691). As elsewhere in the delta, small villages clustered along the natural levees of the river banks and routes of canals, with their gardens and rice watered by the seasonal flooding of the river. From this period the pattern of settlement in the south was relatively dense, as is evidenced by the large number of *wat* dating from the sixteenth century, pointing to the existence of communities capable of producing a surplus to be translated into the important task of merit making⁴. The villagers of Bang Khanun were linked into a web of economic exchange extending from small markets to the large market town of Talad Khwan, which later assumed importance as an administrative centre under the name of Muang Nonthaburi during the 17th century (Terwiel, 1989: 89, 121–22).

Until the late 19th century, however, the regions beyond the main waterways focusing on the Chao Phraya were unpopulated and inaccessible unless settlement was made feasible by extending canals, a process often undertaken on a modest scale by communities themselves (Tanabe, 1977: 27). Areas to the north and centre of Nonthaburi have a varied settlement history. Mon refugees (who migrated in a series of waves from the 17th through to the 18th century) were encouraged to farm the sparsely populated districts around Pak Kret and Pathumthani (formerly Sam Khok) from the 17th century. By the early 19th century these clusters of Mon villages had become the most substantial settlements between Nonthaburi and the old capital of Ayutthaya to the north (Terwiel, 1989: 122). To the west of the Chao Phraya River, settlement began to spread from the Bang Bua Thong Canal, pioneered from the 1840s by Lao war captives and later prisoners taken from the defeated Malay sultanate of Pattani. The Phimonrat Canal, originally a small modified natural stream leading to the west from the Bang Bua Thong Canal, was settled first by Lao households (probably from the 1850s). They were joined in later decades by larger groups of Malay families who had first been settled in the Pak Kret area. They built their homes on the banks of this modified natural stream, cleared the surrounding forests for rice-cropping, and established familiar religious institutions to sustain their communities.

The central provinces bore the brunt of the transformation of the Thai economy in the nineteenth century. This transformation involved the expansion of rice production and other export products for trade on the world market, according to

treaties imposed by the British, and later other western powers (Chatthip, 1984: 36–50; Douglass, 1984). The push towards an export-oriented agricultural economy in the central plains gave the impetus to population settlement, land clearing, and state-directed canal building (Tanabe, 1977: 51–61). The communities of Bang Khanun and Phimonrat were enmeshed in this broader process which saw expanding production and an increasing monetisation of the peasant economy. In the 1860s major state projects such as the new Mahasawat Canal (linking Bang Kruai to Nakhon Chaisi in the west) opened further land for settlement in the Bang Khanun area. At the turn of the century, the small stream used by the farmers of Phimonrat was widened in order to facilitate settlement and allow for the easier transportation of rice to Bangkok. As Tanabe has noted, government projects designed to facilitate transportation for an export-oriented rice economy were of themselves not sufficient to ensure population settlement. Large tracts of these newly excavated areas were given to noblemen and royal family members, but they experienced difficulty in attracting Thai peasants. The expansion of cultivation was rather spurred by the decline of the *corvée* labour system and the dismantling of the pre-capitalist *sakdina* system of population and labour control which gave greater opportunities for peasants to search for and attain smallholdings of their own (Tanabe, 1977: 61). Even before land titles were issued in the late 1890s, farmers could acquire rights to cultivate new land, which included the right to sell or mortgage holdings (Wales, 1934: 121–22). Pioneer farmers eagerly embraced opportunities for proprietorship in a new market economy. Indeed, the increasing formalisation of the system of registering land from 1874 seems to have been prompted by an escalation in disputes over land claims by smallholders (Sharp and Hanks, 1978: 77). In Phimonrat the first major wave of settlement and land acquisition seems to have occurred from the mid-1890s until well into the first decade of the twentieth century. Recollections of elderly farmers of Phimonrat indicate that some of these settlers held rice fields of up to 150 *rai*.

From the later decades of the 19th century the livelihoods of the peasant households of Phimonrat and Bang Khanun were becoming linked to broader markets through an expanding group of rice-trading middlemen and rice millers. Production was almost exclusively devoted to rice among Phimonrat households, while in Bang Khanun families engaged in both market-oriented fruit growing as well as rice cultivation. In the latter area the growth of a metropolitan consumer market in Bangkok led to peasant households converting rice fields to orchards to the point where, by the 1940s, little rice land remained in the Bang Kruai district. This may have also been a response to the progressive reduction of landholdings

through family inheritance. Although relying increasingly on a money economy for their livelihood, these households were sustained by patterns of subsistence production, using local food resources as a basis for household sustenance. In Bang Khanun, women commonly sold or bartered orchard surpluses at local canal-based markets to supplement family needs. Customary practices of labour exchange were common in both areas until well into the twentieth century. Patterns of communality were reinforced by a physical isolation imposed by slow waterborne transportation.

Economic differentiation emerged increasingly throughout the 1920s and 1930s as a result of differential rates of land acquisition and indebtedness. Chatthip Nartsupha and Michael Douglass have outlined the high degree of landlessness characteristic of the central region, as well as the emergence of conspicuous inequality between large and small landowners. While the accumulation of particularly large holdings was generally restricted to the Ayutthaya and Rangsit areas, these scholars' broader themes are applicable to some of the trends taking place in the Nonthaburi area. An increasing availability of cash income enabled some rice farmers to engage in conspicuous consumption (expensive merit-making activities and marriage ceremonies) and consumption of luxury foods as well as leisure activities (including gambling) (Chatthip, 1984: 15; Douglass, 1984: 66–68). For whatever cause, indebtedness and the need for cash led increasing numbers of farmers to borrow money from neighbouring villagers or local rice millers on the security of their land. This pattern is also evident from family histories compiled in Phimonrat and Bang Khanun.⁵ Those households without land worked as hired labour for land-owning neighbours. Larger landowners also drew on the services of labourers from the northeastern region. In contrast to present-day labour arrangements, these labourers were hired on a yearly basis.

Old Bang Khanun residents recall that visits to Bangkok were rare among family members well into the 1940s, taking place once or twice a year for the purchase of essential supplies unobtainable locally (mosquito nets, for example). Phimonrat farmers rarely ventured beyond the market and district office of Bang Bua Thong, a journey on foot which took the best part of a day to accomplish. As illustrated by the cases in the discussion below, engagement in a wider status system was taking place well before WWII among some families in these settlements. However, the years after WWII ushered in a period of accelerated change in both the social horizons of households and their connections to an increasingly diversified labour market and economy. The processes outlined by Sharp and Hanks for the village of Bang Chan in Minburi in the post-WWII years

are broadly representative of the changes occurring in Bang Khanun and Phimonrat (Sharp and Hanks, 1978: 225–26). The period saw a diversification of income sources among villagers into petty trade, transport, and construction, as well as expanding opportunities for education and the status resources of white-collar work for the children of the better-off households. The nature of the villages was changing as a result. Some households had little to do with agriculture. New arrivals purchased small plots from farmers to build houses. Children of farmers and gardeners (who pursued occupations in government service or other non-agricultural work) built houses next to their parents, contributing to an increasing densification of village settlement. These were added to the existing house plots of farm labourers, who, although having no rice land or orchards, generally owned their homes. By the 1990s, as seen in the following section, a high proportion of village home-owners could not be equated with agricultural livelihoods, despite the fact that many could claim kin connections with, and might be living next door to, agriculturalists who worked the fields and orchards beyond the canal banks.

By the 1950s motorised boats transported goods to markets and also transported the increasing numbers of family members in urban-related occupations to Bangkok. The eastern side of the province bore the brunt of ecological transformation during the 1960s and 1970s as commerce, housing, and industry expanded northward from central Bangkok along newly constructed road and highway networks. But on the western side, including Bang Khanun and Phimonrat, radical change in the local living and working environment of agricultural households was delayed until new bridges were constructed across the Chao Phraya River from the seventies. Today, the Bang Kruai district is linked both to the metropolis and its surrounding districts by both canals (the traditional transport routes) and newly constructed roads. The Rama VII Bridge joins Bang Kruai to the eastern side of the province. Bang Bua Thong, to the north of Bang Kruai, was formerly reached only by canals and a few minor roads, but has been made accessible by the recent construction of the north-south Talingchan–Suphan Buri Highway. In 1983 a new bridge crossing the Chao Phraya River connected the Bang Bua Thong district via Ratanathibet road, to the eastern side of the province and beyond. Both Ban Kruai and Bang Bua Thong districts are characterised by an increasingly diverse land use, since road construction has influenced patterns of land sale and conversion to commercial or residential use.

In Bang Bua Thong, the mid-1980s saw light manufacturing establishments locating in a number of *tambon* bordering Phimonrat. In 1994 the total number of establishments at district level numbered 193, employing over 3,500 people. Most

of these firms were small, with only 2 employing over a hundred people (Department of Town and Country Planning, 1994: 110). The bulk of recent population growth and new housing development lies to the east of *tambon* Phimonrat, close to the town of Bang Bua Thong, but by 1992–93 land purchases in a number of villages heralded the arrival of housing estates in the immediate vicinity. By 1995 there were seven housing projects nearing completion, focusing on the land close to the highway, but also scattered to the westward along the road recently cut through the rice fields on the initiative of the local Tambon Council, headed by Phimonrat farmers. Entering *tambon* Phimonrat from the eight-lane Talingchan–Suphan Buri highway in mid-1995, one passed huge advertisements proclaiming the modern lifestyles available in Muban Bang Buathong Phase 4 and Wirotville, the latter featuring large units in “*satai roman*” (Roman style) for “*khon mi radap*” (people with class). Further eastward, crossing a bridge over one of the small lateral canals, a less congested landscape opened out to reveal farmers ploughing their fields, some of them wedged between new *muban chatsan*. Signs indicating the names and official numbers of the *muban* (villages) stand next to new entrance lanes (wide enough for vehicles) recently cut through to the villages lining the canal 500 metres walk from the road. On the canal there is a busy commuter traffic of motorised boats plying between the villages and the town of Bang Bua Thong—mainly carrying housewives going to and from the town market and school children—but the road has clearly become an alternative focus of activity, with a variety of shops and small petrol pumps servicing passers-by.

In Bang Khanun too, signs of the new wave of housing estates in 1995 were conspicuous, with three estates under construction on the *tambon* border, and another one inside the *tambon* boundary already completed and open for inspection. With its road yet to be widened, the area still appeared verdant with thick canopies of coconut palms and densely planted orchards of banana, jackfruit, and mangosteen. Yet hand-painted signs advertising land sales betrayed this apparent isolation. While most gardeners still lived in homes along the Bangkok Noi Canal or its subsidiary streams, new white-stuccoed homes were noticeable, announcing their owners’ modern lifestyles with driveways and fancy gates. As in Phimonrat, a steady commuter traffic comprising a diverse assortment of *song thaeo*, motorbikes, decrepit bicycles, and Hi-Lux vans highlighted the contrasting incomes and livelihoods of the local people. Most strikingly symbolic of the recent orientation to the roadway was the newly constructed gateway to Wat Bang Khanun, welcoming visitors with its shining gilt and mirrored glass tiles. Next to it a noodle stall conducted a healthy business with elderly women merit-makers and garden

labourers. The following sections of this chapter explore the emergence of these hybrid local landscapes in relation to the evolving and adaptive livelihoods, family strategies, and status concerns of local households.

12.3 Land, labour, and income

The gardeners of Bang Khanun practice a livelihood that seems little changed since the days of their forebears. Their densely planted orchards, seemingly small forests of coconut and betel palms, jackfruit, durian, pomelo, banana, and other fruit varieties, rely on the monsoonal rains to periodically water the channels of their low-lying plots. Many gardeners commonly plant a variety of fruit crops which ripen throughout the year, in order to assure a continuous income. This pattern of cultivation, known as *lom luk* (literally meaning “up and down” or seasonal) reflects, to an extent, the traditional concern of gardeners to ensure household subsistence, self-reliance, and flexibility. This method contrasts with tree-fruit specialisation, known as *yan ton*. The cultivation of fruit orchards has always been oriented to markets, but gardening also has the advantage of producing food for daily consumption. This is one reason given by many gardeners for the fact that their lifestyle, when compared to rice farmers, is extremely comfortable, involving steady work all year round in contrast to the intense periods of seasonal labour demanded of rice farmers. Nonetheless, within this approach is a canny business assessment of the vagaries of market prices and the seasons, the perennial factors creating uncertainty for agriculturalists.

Despite the apparent simplicity of planting practices, they reflect a keen awareness of the gardeners’ orientation to the market, and the fruit varieties planted by the *chao suan* have evolved accordingly. It is thus common to find a pattern combining plants of a very old age (durian, coconut, and betel palm), together with recently planted fruit crops such as orange, pomelo, and lime, a response to the expanding demand for these in the growing metropolis. Another reason for the development of these crops is the increasing age of the gardeners, most of whom are now aged 50 and above. The harvesting of tree fruit demands considerable exertion as well as expenditure on the hiring of labour, assets which many elderly gardeners do not have unless their children continue to work the orchards as a vocation. So changing the mix of crop types has been one adaptation to changing conditions. Yet another reason is to replace the fruit trees damaged by major floods, particularly that of 1983 and the most recent and most devastating flood of 1995. Traditional tree crops such as the durian take a long time to mature

(7 years to full maturity). Moreover, many durian trees have died through the effects of floods, and environmental changes brought about through air and water pollution in the metropolis have led to a severe decline in the fruit yield of these traditional tree crops. Today gardeners of limited means prefer to invest in crops which will assure a quick return and yield saleable fruit throughout the year.

The average size of garden holdings is small, generally between 2 to 4 *rai* (0.8–1.6 acres). Gardeners say that some twenty years ago it was possible to make a reasonable living from 2 *rai* but this is now no longer the case, due to increases in costs of labour, fertiliser, pesticides, food and family expenses. The size of the holdings today also reflects a progressive pattern of land division through inheritance which has gradually reduced family holdings over the generations. In 1990, average incomes of gardening households (40,000–50,000 baht) were lower than the province per capita income (62,797 baht), and substantially lower than estimated average incomes for households in the greater Bangkok region (82,764 baht) (NSO, 1997). Gardeners' annual incomes were not substantially higher than those of workers in skilled trades in the same district, and substantially lower than average incomes of government employees (70,000 baht) (NRDC Data Base, 1990; Agricultural Office, Bang Kruai District, 1994: 26).

Yet these average income figures can be misleading. Some gardeners can enjoy extremely high incomes through specialisation of crops, but this demands a greater investment and risk than many have the capacity or the will to take. This is one of the key distinctions among orchard operators in Bang Khanun, reflecting disparities in income and approach. The better-off gardeners are those who either concentrate on producing tree fruits (such as orange, durian, jackfruit, mangosteen, and satorica) which enjoy higher prices in the market; or grow fruit tree cuttings which are in great demand in the provinces where fruit growing has expanded; or focus on the expanding urban consumer market for flowers, such as roses or orchids. Profits from these endeavours on limited holdings of 3 to 4 *rai* can yield annual incomes in excess of 100,000 baht per year.

The characteristics of agriculture and incomes in Phimonrat contrasts strikingly with those in Bang Khanun. In contrast to Bang Khanun, where the majority of gardeners own their land (82%), less than half of the rice-farming households of Phimonrat own all the fields they work. Moreover, a quarter of these households own holdings of less than 10 *rai*, which is insufficient to produce an adequate income from rice farming alone. Ten *rai* of rice land harvested twice a year yields an estimated net income of just 22,000 baht, which is just over half the annual income of factory workers in the district. Those who work 20 *rai* of rice-land are

not substantially better-off than full-time factory workers either (averaging 44,000 baht per year as compared to 40,000 baht). On these estimates, only a third of Phimonrat farmers (those with over 30 *rai*) earn incomes above the average of regularly employed wage workers (NRDC Data Base, 1990; Agricultural Office, Bang Bua Thong District, 1994: 23–24). It is thus hardly surprising that many rice farmers also work as hired agricultural labourers or in other occupations, notably those relating to the building industry. Family histories reveal a pattern of ever-reducing landholdings due to the division of land for inheritance. And, as with other rice-farming communities, smallholders have faced problems of increasing debt through the need to invest ever-larger amounts of money into buying or hiring machinery, paying for fertiliser, and hiring labour for planting and harvesting. Increasingly, loss of land has been the result (see Chantana, 1993: 6). There are numerous cases of rice farmers mortgaging their holdings to the local rice miller or to better-off farmers in the area, and eventually losing title to this land through their inability to repay debts. Indeed in the case of one village, all the farmers grow rice on land that they once owned, but now rent from the local rice miller due to indebtedness.

From the early 1970s, many Phimonrat households turned to fruit trees to supplement their vulnerable and declining incomes. It made sense to utilise the slack period after harvest for extra money, and planting a variety of fruit crops in small sections of a farmer's holding offered the advantage of gaining supplementary income throughout the year. Gradually, some rice farmers in Phimonrat devoted their efforts completely to fruit cultivation, since more income could be gained from cultivating less land, even though the initial investment per *rai* was higher than rice. For example, from planting one *rai* of land with mango trees, a farmer could eventually earn an annual income of an estimated 19,200 baht, or over seventeen times the amount that could be earned from planting the same area with rice (1,100 baht) (Agricultural Office, Bang Bua Thong District, 1994: 23). It was a rational response to the constraints imposed by small landholdings and the transformed family occupational structure where fewer children (and often none) were engaged in the agricultural enterprise.

Administratively defined as "rural," the two *tambon* under consideration here are grouped into wider districts (*amphoe*), which comprise adjacent municipal (*thesaban*) and sanitary (*sukhaphiban*) sub-districts. These classifications and boundaries primarily reflect evolving patterns of population density and the ways the state has mapped them. To highlight the specific characteristics of the households in the two *tambon*, it is useful to view occupational and workplace features at this

amphoe level first, since this reflects the immediate environment of the households, including the market towns, the housing estates with new populations, and the key transportation nodes where a diverse service industry has recently grown. Viewed at this level, we see that many households of *amphoe* Bang Kruai and Bang Bua Thong pursue non-agricultural occupations within Nonthaburi province or further afield in other parts of the metropolitan region. In 1990, according to Ministry of the Interior surveys, households with members solely engaged in agriculture comprised just 21.7% of households in Bang Bua Thong and 29.6% in Bang Kruai (Amyot, 1994: 160). Considered at a district level, the role of agriculture as a sole income-earning activity is clearly less important than household livelihood based on non-agricultural wage and salary earning. In Bang Bua Thong, factory work is an important source of income for household members, with a greater proportion of women engaged in industrial labour. In Bang Kruai, the workforce is more diverse, and in contrast to Bang Bua Thong where the majority of wage and salary earners find work within the district, most non-agricultural workers of Bang Kruai (79% of males and 82% of women) travel into the metropolitan district to work (Amyot, 1994: 162).

Not surprisingly, the proportion of Phimonrat and Bang Khanun households engaged in agriculture are somewhat higher than the district averages. In *tambon* Ban Khanun, families categorised by local officials in 1994/95 as agricultural households represented only 188 of a total of 550 families (34%), while in *tambon* Phimonrat 51% were counted in this category (Agricultural Office, Nonthaburi, 1995: File No. 4; Agricultural Office, *tambon* Bang Bua Thong, 1994: 19)⁶. These agricultural households are defined as those families owning or renting farmland with household heads engaged in agriculture. In fact, despite this designation, these families have a varied occupational structure linking members to the non-agricultural sectors of industry, commerce, and government service both in the inner metropolitan area or their own region. Table 12.1, derived from my survey data in 1995, shows that agricultural activity provides varied proportions of income for different families, and is the sole support of only a minority of households living in the villages of these *tambon*.

An occupational survey of families in the two *tambon* in 1995 showed that in Phimonrat village only 26.6% of households headed by agriculturalists had all adult children following the occupations of their parents, while 44% of these agricultural households had no adult children in these occupations. For Bang Khanun, the proportions were 14.7% and 41.1% respectively. Yet a significant proportion of these families headed by farm operators had adult children distributed

Table 12.1 Proportion of total household income derived from agriculture, horticulture and aquaculture, households in *tambon* Bang Khanun and Phimonrat, 1995

	None	>20%	20–49%	50–79%	>80%	Total No.
Bang Khanun	50.8	11.4	8.1	6.5	22.9	70
Phimonrat	35.0	7.2	4.1	9.2	44.3	102

Source: Author's 1-in-5 household survey of 3 villages in Bang Khanun and 4 villages in Phimonrat, 1995.

across the employment sectors. Thus in Phimonrat a further 24% of these households had at least one adult child sharing in their parents' enterprise, while in Bang Khanun, families headed by farm operators with at least one adult child working the family orchard comprised 44% percent of all surveyed agricultural households.

Clearly, families continue to engage in agriculture at a variety of levels in these villages in the context of an overall decline in rice farming and gardening across the generations. The significance of agriculture in terms of its role in supporting household livelihood is determined by the capacity of households' landholdings, their access to labour and capital inputs, and the market. As will be illustrated below, these patterns need to be assessed in the context of continuities and changes in the function of land as a multiple resource, and by viewing the household as a dynamic historical agent deploying resources towards the acquisition of status as much as survival. This approach thus focuses not on the conventional question of the viability of agriculture on the rural-urban fringe, but on the cultural practices of households.

12.4 Land and status

The sale and conversion of land to new residential, industrial, and commercial uses is one way of portraying the central dynamic which transforms the landscape of the urban fringe. Viewed from particular localities and family histories, it is rarely that simple, either as a process or an outcome. To comprehend patterns of land disposal, we need to appreciate that landholdings have many meanings and functions for households. In common with peasant households elsewhere in Thailand, families in Phimonrat and Bang Khanun have traditionally utilised land

as a multiple resource—for survival, for profit and accumulation, and for social capital (for example, in the marriage market). While today land no longer provides the sole income for a large proportion of households, and non-agricultural work often offers individuals and families better incomes, it still constitutes the key historical foundation for economic advancement and has determined to a large extent contemporary patterns of differentiation among households.

Possession and transmission of land through inheritance has played the pre-eminent role in determining life chances and status. In both Bang Khanun and Phimonrat, local people have a keen awareness of the property holdings of their neighbours and measure their status accordingly. Traditionally, land gave wealthier families the capacity to reproduce and expand landholdings and status through further land purchases, arrangement of favourable marriages of their children, and the education of their offspring. In Bang Khanun, a household's capacity to afford education for sons (and later, daughters) provided them with access to work in government service (*rap ratchakan*), an occupation which still continues to be held in high esteem for its status and security benefits. Family histories in Bang Khanun show how wealthier families in the 1930s were investing in sons' education for government service, with the result that the occupational profiles of their households diversified, even though the core household remained committed to an agricultural way of life. The case of Lung (Uncle) Pherm, 82 years old when I interviewed him in 1995, illustrates this process. Lung Pherm was born into a gardening family which was considered to be very well-off. His father and mother held land in two sub-districts, comprising 33 *rai* of both rice land and orchards. After his marriage at the age of twenty in 1935, his father gave him 20 *rai* of orchards. He and his wife later purchased a further 10 *rai* of orchard land in Bang Khanun, where they moved to live. On his father's death, Lung Pherm inherited a further 13 *rai* of orchard land, raising his total holdings to 43 *rai*. Lung Pherm's wife bore eleven children. Of these, two sons followed their father's occupation as gardeners, while two entered government service, one as a military officer and another as a school teacher. Three of his daughters also received secondary and college education and entered government service. The youngest of these daughters studied to university level and entered teaching. Another daughter finished her secondary schooling, married a gardener, and maintains an orchard in another district. Lung Pherm's orchard land allowed him to generate enough income to educate his children while maintaining an adequate living. It also allowed him to distribute land to those sons and daughters who continued in agriculture. In addition to two sons who continued gardening and the unmarried daughters who

stayed with their parents, one of the sons in government service often returned to the orchards to assist in the family enterprise.

As suggested in the case above, the process of dividing land for inheritance could affect the fortunes of succeeding generations engaged in gardening because landholdings were progressively reduced. In this sense the practice of diversifying families' occupations into various non-agricultural sectors could be seen as a strategy of survival as much as status acquisition and maintenance. Nonetheless, the initial possession of larger holdings and the income derived from them ultimately framed the opportunities of children and grandchildren to maintain their economic status, whether in agriculture or not. The case of Lung Suthin is instructive here. Lung Suthin (68 years of age) is the retired headmaster of the local school of Wat Bang Khanun. His parents' total orchard holdings of 10 *rai* had generated sufficient income for them to support his and his sister's vocational education, yet they seem never to have considered abandoning gardening. On completion of his teacher training, he returned to Bang Khanun to work at the local school and in 1948 married a woman from the neighbourhood where he had grown up. He and his wife used their orchard to supplement the modest government income from his teacher's salary. They lived and worked on a holding of 5 *rai* of orchard land inherited from Lung Suthin's parents. Lung Suthin maintained a lifestyle of both gardener and *kharatchakan*, and is still highly respected in the community. Like women in the neighbouring garden families, his wife pursued the traditional role of *mae kha* (female vendor), selling the garden surplus at the nearby floating market. Given their large number of children, neither occupation, on its own, would have been enough to maintain their growing family. But when combined, these incomes permitted both the maintenance of the family's livelihood and the advancement of the children's life chances through education. They raised a large family of eleven children, and were able to support their education through secondary school and technical or commercial colleges. Only his youngest son continues the occupation of gardener on Lung Suthin's garden land. He is a chemistry graduate who made a deliberate choice to return to gardening to be with his parents and pursue an alternative lifestyle to his peers who work in commerce and industry. He stresses that the land is *moradok* (family inheritance), and thus should be maintained and nurtured.

Bang Khanun residents who consider themselves poor in comparison with their neighbours, explain the origins of their condition in terms of their parents' lack of land, or the absence of inheritance. Mrs Chum (aged 37 years) for example, emphasises that she and her two sisters and four brothers attended

school for only four years because her parents had no orchard land and could not generate enough income to pay for any further education. Until the time of her marriage she worked in the small orchard of her maternal grandmother and worked as a daily labourer on neighbours' holdings. Life improved for Mrs Chum and her husband when her grandmother died and bequeathed to her a house and orchard holdings of 2 *rai*. She, her husband and her sisters have divided the crops between *lom luk* and roses. They do not grow the roses in enough quantities to sell as single flowers, but rather use them to make garlands that are then sold at the large market of Pak Khlong Talad in Bangkok. The orchard produce brings them a bare income of around 3,000–4,000 baht per month. Given the limited family income, Mrs Chum does not expect her children to be educated beyond the early years of secondary school.

Similarly among the Muslim rice-farming families of Phimonrat, fortunes have been based on transmission of and access to land, as well as the capacity of landholdings to sustain livelihood. The stories of men and women who are now without farming land indicate that the progressive reduction of landholdings and the continued uncertainties of incomes from these small farm holdings were fundamental constraints to the maintenance of livelihood and economic status. Pu (grandfather) Abdullah is 81 years of age. His father was a large landholder of 150 *rai* of rice land. Grandfather Abdullah was one of four children who received an inheritance of around 35 *rai* each. While this was a medium sized rice farm, Grandfather Abdullah became progressively indebted to the point where he lost this land to those neighbours to whom he owed money. He then worked as a farm labourer for neighbouring rice farmers and later tried his hand as a vendor in inner Bangkok. With little education and no land, his seven children worked as farm labourers or vendors. For others with insufficient land, farm labouring (*rap chang*) was combined with cultivation of their own fields. This was the case with Mrs Si-Ar, who inherited half of her parents' small farm of 16 *rai*.

Among the communities of the rural-urban fringe, land continues to play the fundamental role as an economic foundation for household strategies and the acquisition of cultural capital. However, agriculture is less and less the basis of occupations. However, it should be noted that, occupational diversification has a long history—especially among Bang Khanun households—and was evident as early as the 1930s among families of means. The further trend towards occupational diversity within lower-income families more recently is the result of an expansion of livelihood possibilities accompanying change in the economy generally, particularly over the last three decades. From the level of the household, it is

important to acknowledge that this process is one in which households have played an active part. The households of Ban Khanun and Phimonrat are marked by a major contrast in the lifestyles between generations. While an older generation of grandparents and parents are largely wedded to agricultural vocations, many are adamant that they do not wish their children to enter agriculture. There is a general consensus among parents that there is no future in agriculture (*mai kaona*), and besides, it involves hard manual work (*tham ngan nak*). An extremely important consideration among parents is to ensure security for their children's' futures. The uncertainties of agriculture determined by the external market, fluctuating climatic conditions, and disasters (especially floods) provide a fragile basis for a secure life in old age. It is not surprising, then, that in responding to a survey question about preferences for children's occupations, the highest proportion of household heads specifying desired occupations for their children stressed that government service was the most desirable. Government service represented comfortable work with regular income (*sabai*), and it was secure with the assurance of a pension on retirement (*mankhong*) (see Table 12.2). Thus, in considering decisions of households to dispose of land on the urban fringe, these already existing orientations and expectations of farming and gardening families need to be acknowledged. Long before the asphalt met the rice fields, farming households have been in transformation.

Table 12.2 Aspirations for children's occupations among parents in agriculture, Bang Khanun and Phimonrat, 1995

Work type	% Household preferences	Number
Achieve high educational qualifications*	22.0%	38
Business (self-employment)	3.4%	6
Career with regular salary	13.9%	24
Government service	29.0%	50
Professional	2.3%	4
Let children decide	29.0%	50
Total	100.0%	172

Source: As in Table 12.1.

*Note: These respondents did not specify occupations but stressed the importance of children achieving the highest possible qualifications as preparation.

12.5 Responses to change: the uses of land

As has been well documented, the adverse environmental impact of the advancing urban frontier of housing, industry and commercial activity on agricultural land has clearly played a critical role in rendering an already fragile agriculture virtually untenable as a basis for household livelihood (Banasopit *et al.*, 1990: 51–52). Although fewer households now rely completely on agriculture as an income source, environmental changes have impacted negatively on the last generation of full-time farmers and gardeners. Thus, viewed strictly from the perspective of agriculture, urban expansion is entirely negative. In Phimonrat, nearby housing development and industry have polluted canal water and brought pests (such as mice) to ravage the remaining rice fields. Farmers reminisce that there were once about twenty species of fish to be caught in the local canal, as well as shrimps, which formed part of their diet and subsistence. In the eastern half of Phimonrat—closest to the highway where housing estates have made the greatest incursion—fewer and fewer rice farms are viable. Most rice farming is practised to the west, where less land has been sold. In Bang Khanun, polluted river and canal water has had a major impact on the health of fruit trees which once flourished. Gardeners argue that the marked decline in durian yields over the past two decades is due to changes in air temperature, air pollution in the metropolis, and the continued vibrations caused by traffic using nearby roads.

Yet agriculturalists actively participated in the changes to their own environment. In Bang Khanun and the surrounding district, gardeners had been quick to take advantage of new technology by attaching engines to their boats, a trend that added to increasing water pollution through the release of oil and petrol into the canal water. In Bang Khanun and Phimonrat over the last five years, farmers have donated land for the construction of subsidiary roads to connect their settlements to the expanding road network. While adding many conveniences (allowing better access to services, markets, and hospitals, for example), these initiatives opened these districts to an expanding housing industry. In describing the development of roads in their areas, agriculturalists invariably use the term “progress” (*khwaam charoen*) in a positive way to describe recent changes.

Moreover, many households have also welcomed the changing patterns of settlement. In Phimonrat for example, while farmers may individually complain that the canals have been polluted, they also stress that the factories that began operations in nearby *tambon* from the early 1980s afforded employment opportunities for their children close to home. In the household surveyed in

Phimonrat, the greater proportion had members working in factories. Prior to this development, changes were already underway in the Muslim families of Phimonrat. While formerly it was customary for daughters to stay at home until marriage, factory work offered the potential to add to families' incomes. Daughters began working in the industrialising district of Prapadaeng (southeast of the BMA) in the 1970s. But the new factories in the Bang Bua Thong district allowed Muslim girls to work closer to home, which was a major advantage to parents, ever concerned to protect their daughters' sexual virtue. Pa (Auntie) Mo has two daughters who once worked in Prapadaeng, but now work in a nearby umbrella factory. She expresses a general view of the factories among her neighbours by noting "*diawni sabai*" (now we are comfortable). The factories are now an established part of the landscape and the livelihood of family members, including household heads. In one village (Ban Ronkrachom) the village headman works as a guard at a nearby factory and communicates with his assistants by mobile telephone. In addition, the advent of factories in Bang Bua Thong presented new opportunities for families who live nearby to supplement their incomes by selling food to factory workers.

12.5.1 Alternative uses of land

From the mid-1980s an increasing demand for land for housing led to an escalation of land prices in the provinces surrounding Bangkok. Agricultural land also increased in market value in the areas now made accessible to developers through the expanding road networks. In Phimonrat in 1985 the average selling price for a *rai* of land was 30,000 baht, which rose to between 70,000 and 100,000 baht in the following five years. By 1995 prices per *rai* had soared to 2 million baht, and to 3 million baht for land located close to roads. In Bang Khanun the price per *rai* had been around 50,000 prior to the land boom, but by the mid-1990s prices were equivalent to those in *tambon* Phimonrat. In this environment, one response of farmers and gardeners was simply to sell all their holdings. In such cases this did not mean that the householders abandoned agriculture. Among households where agriculture was still actively practised, (particularly among farmers and gardeners who had not reached an age when they could not work), profits from land sale were often used to purchase land in other provinces where agricultural land was cheap. Some farmers in Phimonrat moved to Rayong province, to continue farming. In Bang Khanun, Chon Buri is a favoured site, since the province had become the major fruit-producing region of the country, and land was still affordable. Others shifted to Suphan Buri province to the west of Nonthaburi.

The landscape to the east of Phimonrat may at first glance give the impression of a wholesale desertion of the area by its former occupants. However, the movement of farming families and the uses of their land was determined by calculations concerning its most effective deployment. Notably, very large housing estates of over a hundred units are not conspicuous in the district because of the difficulty faced by developers in assembling sufficient land banks of individual holdings. The land for the largest housing estate near the main highway could be purchased easily because the Christian church at Bang Bua Thong owned the whole parcel. Further to the westward, along the Bang Bua Thong Sai Noi Road (which local farmers had originally opened), the housing estates are generally smaller. This points to a pattern of land sales where the original owners have often not dispensed with all of their land, but only individual parcels.

The logic of a landholder selling only part of his/her rice fields is based on a strategy of maximising the uses of assets for the household, particularly preserving sections for passing on to children, and retaining still productive or otherwise useful land. Thus Hadji Dawo planned to sell 17 *rai* of his holdings which were already surrounded by a housing estate. However he was preserving the remaining 8 *rai* for his 6 children to inherit. Selling sections of land in the climate of high land prices prevailing from the late 1980s to the mid-1990s offered farmers the advantage of paying their debts while preserving sections of their land for continued production, as we saw in the case of the two brothers Ibrahim and Ismael above. Lung Yaya sold 2 *rai* of his 11 *rai* holdings in 1989 at 800,000 baht per *rai* in order to liquidate debts incurred to a neighbour and the agricultural cooperative. With the 1 million baht remaining to him, he arranged for a pilgrimage to Mecca with his wife (50,500 baht) and made improvements to his house. He kept that land which he had converted to orchard, and with family help in the orchard and supplementary payments from his adult children, he is still able to maintain an adequate income.

For some Phimonrat people who had struggled all their lives to make ends meet, the chance to sell their insufficiently productive land during the land boom gave them new opportunities. Mrs Si-Ar, mentioned earlier, had farmed 8 *rai* with her husband, but both had also needed to work as farm labourers to gain additional income. In 1994 they sold this 8 *rai* to a property developer known to their son, who was a driver for a construction company. With the proceeds of the sale (8 million baht) Mrs Si-Ar purchased a truck for her eldest son to establish him as an independent transport contractor, and deposited the remaining funds in the bank, with plans to later build a new house on a small plot of land inherited by her husband

in a neighbouring *tambon*. Such strategies are of course not available to completely landless families, but to some extent, land sale has increased the status of some economically marginal households in Phimonrat. In this *tambon*, the partial sale of holdings over the decade to 1995 has commonly been used to repay debts, fund children's education, rebuild homes, and purchase vehicles (see Table 12.3).

12.5.2 New income-generating activities

A more common approach to complete or partial land sale in Bang Khanun and Phimonrat has been the reorientation of income-generating activities towards the new opportunities presented by changes in these districts. More road traffic and more housing settlements with diverse populations has created an environment conducive to a range of family business activities which support overall household livelihood. On the border of *tambon* Bang Khanun, where a sealed road has been upgraded to carry traffic to the *amphoe* office, families have shifted the locations of their homes and opened small noodle stalls to cater to the *amphoe* staff and to local people who travel to the *amphoe* office and the hospital located behind it. Larger, more specialised concerns include restaurants attached to houses. Some gardeners have leased sections of their properties close to the road for outsiders to construct restaurants, but most often these are run by family members, relatives, or their friends.

Some families, which found themselves favourably located for new patterns of activity and traffic movement in the area, have deployed their landholdings in ways that have assured complementary income sources both from outsiders and for family members. At the bridge where the road crosses the Bangkok Noi Canal leading to the Bang Kruai district offices, one family has succeeded in attaining conspicuous success in the following way. Garden land near the banks of the canal was developed for the building of a four-storey apartment block to accommodate the increasing number of office workers employed in the western suburbs of the BMA as well as *amphoe* officials. A relative from Bangkok purchased this land. The strip of land between the apartment and the canal was reserved and leased to other relatives who opened a canal-side restaurant which succeeded in attracting considerable custom. The land behind the apartment block was retained by the family, which built a new two-storey home as well as a small building adjacent to the apartment car park. In this building they operate a laundry and small grocery. In this case the family has completely abandoned gardening and the remains of the old orchard can be seen behind the walls which surround their land. Deeper into Bang Khanun, several families have benefited from partial land sale and built new

**Table 12.3 Use of funds from the sale of agricultural land
in Ban Khaisam and Ban Rongsuat, *tambon* Phimonrat, 1985-95**

Owner's occupation	Quantity sold	Quantity remaining	Use of holdings	Reason for sale/ use of funds
Rice farmer	11 <i>rai</i>	20 <i>rai</i>	Rice growing	Pay debts
Rice farmer	10 <i>rai</i>	10 <i>rai</i>	Idle land	Too old to work/funds for retirement
Teacher	1 <i>rai</i>	House plot	Domestic use	Children's education
Ag. labourer	200 <i>wa</i>	1 <i>rai</i>	Orchard	Building new house
Gardener	1 <i>rai</i>	3 <i>rai</i>	Orchard	Children's education/pay debts
Rice farmer	2 <i>rai</i>	House plot	Domestic use	Land surrounded by housing estate/raise capital
Rice farmer	30 <i>rai</i>	30 <i>rai</i>	Rice growing	Children's education/pay debts
Gardener	10 <i>rai</i>	5 <i>rai</i>	Orchard	Children's education
Rice farmer	10 <i>rai</i>	5 <i>rai</i>	Orchard	Pay debts/building new house pick-up, truck
Storekeeper	2 <i>rai</i>	10 <i>rai</i>	Orchard	Children's education/pay debts
Rice-farmer	14 <i>rai</i>	2 <i>rai</i>	Given to children	Children's education purchased house plot and built new house
Gardener	3 <i>rai</i>	25 <i>rai</i>	Orchard	Pay debts

Source: As in Table 12.2.

*Note: Sale funds were used to rent 65 *rai* of rice land in a more convenient location.

suburban-style modern homes near the newly widened road which leads into the orchards of Bang Khanun. These homes have been designed to include shops facing the road, which are operated by the wives of the gardeners. Households and individuals with less capital have also begun to locate small noodle shops along the narrow road leading into Bang Khanun.

In Phimonrat a similar pattern of entrepreneurial activity has developed along the new road through the sub-district. Some newly prosperous local families have completed rebuilt homes next to the road and opened stores attached to their residences. More typically, however, most local business concerns are fairly modest. For example, one family, whose old rice lands abut the road, operates a

small petrol pump in addition to an eating house and general store which attracts business from both locals and the increasing number of passers-by, including building contractors, truck drivers, and construction labourers. Behind the store the family has established a large pond for commercial fish breeding. Behind this fish pond they still maintain about 8 *rai* of rice land. These various enterprises have been developed for different members of the family to maintain. Another case of this family division of labour can be seen in the use of the brothers Ibrahim and Ismael's now disused rice land bordering the road. They have kept the roadside land for the use of two of their married sons who formerly worked in Bangkok. One son, who works as a radio technician, has built a small wooden home incorporating a room that is used by his wife as a hairdressing shop. Another son works with his wife in the adjoining building selling meals to Muslim neighbours.

The logic of this diversification of land uses among households in Bang Khanun and Phimonrat is to maximise the longer-term income generating potential of families, often in combination with agriculture. This is a pattern that highlights major generational differences within families, where parents and grandparents still pursue agriculture because it is the only occupation they know, while their children engage in lighter forms of work associated with petty trade and small business. The retention of family landholdings also reflects a prevailing concern of parents for their children's future. While windfall gains may be made by selling land, many parents with children who have yet to finish their education want to keep sections of their land to build homes for their children. In Phimonrat people frequently exchange tales of newly enriched neighbours who sold all their landholdings and spent the proceeds unwisely on expensive consumer items. They see these stories of misfortune as salutary lessons from which to learn more durable strategies of using their land resources. They see a major source of future income for their children in the construction of rental accommodation for the increasing population in the locality. Hence, there is a generally shared view that family landholdings must be preserved wisely for the twin purposes of future sale for capital accumulation and sustainable income generation for children in the future.

12.6 The future of the village and its functions

12.6.1 Defining "the village"

In the context of current changes towards the so-called "mega-urban region" configuration, we need to ask: how viable are villages as settlement forms, and

how meaningful are they as cultural spaces for their inhabitants? As numerous anthropologists have argued, the use of the term "village" is problematic in relation to studying agrarian societies in both the past and present. In Thailand, administrative boundaries of officially designated *muban* have borne little correspondence to significant socio-economic networks and cultural practices of peasants (Kemp, 1982: 102–3; Sharp and Hanks, 1978: 140–41). In Phimonrat and Bang Khanun, as elsewhere in Thailand, administrative designations do not confine the relations sustained by households, economically or socially. Within any one *muban*, for example, fields and gardens have long been owned and worked by households in other *muban*, and kin networks extend well beyond such artificial geographical limits. Among the settlements of Phimonrat, relationships extend across administrative boundaries and natural features which are used as boundary markers for bureaucrats. For example, although Ban Rongsuat (*muban* No. 5, *tambon* Phimonrat) was divided physically into two sections by the widening of the Phra Phimonrat Canal shortly after WWI, the two halves of the original village were integrated by religious and kin connections. Five years ago the canal became a *tambon* boundary when *tambon* Phimonrat was created. Such namings and boundary inscriptions are therefore meaningless if we continue to conceptualise "the village" as a social network.

Having acknowledged this point about the limitations of administrative and territorial definitions of the village, and the fact that households and individuals have always maintained various relationships and networks outside the bounds of these local settlements, the villages may nevertheless be defined as relatively distinctive clusters of households who once engaged in common agricultural pursuits, but which now derive their principal identity from intersecting kinship relationships. In this they share characteristics in common with rural settlements far more distant from the metropolis (Kemp, 1982: 111–12). The traditional rural village gained its character because of the mutual reinforcement of social organisation, territorial organisation, and economic organisation. Clearly in both of the areas under study here, the economic factors binding households to village settlements are extremely weak, in the sense that common work orientations in the "life paths" of family members are declining. If defined in the sense of an integrated socio-economic subsystem, the villages in Phimonrat and Bang Khanun have already ceased to function in the traditional sense, as have most villages in Thailand. Such changes have resulted from transformations at both the societal and the household decision-making level, as local people have attempted to maximise income generating and status generating activities (e.g., Sharp and

Hanks, 1978; Tomosugi, 1995). Villages no longer signify a space shared by households bound principally by a common livelihood devoted to agriculture. The diversity of sources of income, particularly in the money economy, the scale of geographical movement among household members, their consumption patterns and expectations, have so diverged from the traditional patterns that equated the village with models of the rural community and economy that the very terminology used to describe and analyse villages in the contemporary period are being seriously questioned (Rigg, 1994). How then can we define the villages of Bang Khanun and Phimonrat in relation to these changes? Are they merely blandly functional dormitory settlements, a representation suggested by some regional geographers? I suggest that when these local settlements are viewed as sites of social and cultural process, a number of important changes and continuities can be observed.

12.6.2 Kinship and the idiom of reciprocity

The villages of Bang Khanun and Phimonrat can still be characterised as locality-based communities whose members share close affective bonds among families through length of residence. This factor remains significant in determining the identity of these settlements, regardless of the occupational fragmentation of many households. In both Phimonrat and Bang Khanun, local people live with neighbours who are either direct relatives, or fictive kin (*phi nong nap thu kan*, brothers and sisters who respect each other). Despite the decline of mutual assistance in farming (*long khaek*, or *ao raeng kan*), the idiom of kinship tends to define relations between neighbours; “*rak kan muan yat*” (love each other like family) is an expression often used by residents for their neighbours. A common heritage in farming or gardening and its work culture is a key foundation for this sensibility, and such bonds are most strongly felt among the older generation. Nonetheless there is also a pattern of mutuality in social practice which still reinforces and actualises this model of local society. This is most clearly seen in the ways that kinship ties link families of different economic status. In this face-to-face society, the poor and landless relate to more fortunate neighbours through idioms of reciprocity and obligation which blunt the otherwise sharp edges of inequality between groups. Thus Pa (Auntie) Jin, a landless widow in Bang Khanun, lives on the orchard land of an elderly teacher who in turn lives in another district with her married son. Pa Jin has an arrangement with this owner whereby she can live on the land and work the orchard, in exchange for giving the owner half of the produce of the orchard. During the floods that ravaged the district, the district

headman (*kamnan*) paid local labourers above the average rate (300 baht instead of the usual 200 baht), because, he explained, he knew all of them and felt sorry (*songsan*) for them.

However, it is often the case that assistance to less fortunate neighbours is also assistance to kin, since the Thai definition of *yat* (family) is extremely wide. It encompasses not only blood relations, (however distant) but also close family friends. Such linkages give to patterns of daily social interaction the appearance of familiarity and intimacy, even though individuals are always conscious of the economic status of their neighbours.

12.7 Religion, locality, and cultural capital

Among the communities of Bang Khanun and Phimonrat, it is possible to treat religious life and practices as akin to a prism through which to view the ways that new social expectations are worked out in symbolic ways. We have already seen something of the ways that households have responded to economic change and environmental transformations in the long and the short term. We can view these as expressions of identity and status which affect the configuration of the local landscape in the context of wider social and economic changes in Thai society. Religious life in the close-knit local societies of Bang Khanun and Phimonrat has also contributed to transformations in the environment, for while in the ritual context it continues to affirm locality-based identities and networks, it also draws on wider influences and symbols which promote new distinctions between people and communities.

Social relations as well as existential commitments to locality are still important features of local life in Bang Khanun and Phimonrat. They have an integrative and “place-making” function and are reinforced strongly by religious activity. We can see such a process at work in the way that the Thai Buddhists of Bang Khanun related to their *wat*. In general, the connection of the individual to any particular temple is determined by relationships between the temple and his or her family. A *wat* occupies a special place in the life of a family if it is associated with the cremation of parents and grandparents. The place of cremation establishes a significant existential space for the individual and family, even if they leave that locality in later life. On the anniversary of the deaths of parents, it is customary for the children to make merit at the *wat* where their parents were cremated. It is easy to see that in the case of well-established and continuous village settlements, this association of ancestors with descendants is reinforced in each generation. A

common answer to questions about why people attended Wat Ban Khanun to make merit was “*pho mae koet yu thini, tai yu thini*” (my mother and father were born and died here), or “*banphoburut koet yu thini*” (my ancestors-forebears were born here). So, the reinforcement of family association establishes the *wat* as a significant space. In the case of men and women aged in their late 50s and older, these associations are critical to their identity with the area as a place. Most will confess to not feeling comfortable (*mai sabai chai*) making merit at other *wat*, unless that activity is part of a merit-making pilgrimage (*thot phapa*). For males the association is reinforced by their customary ordination at the village *wat*. Thus, at Wat Bang Khanun, the men who led the chanting every *wan phra* (Moon Day) had all been ordained at the temple as young men for the customary rains retreat period of three months (*phansa*). This form of attachment is independent of the abbot or the monks currently attached to the *wat*. In *tambon* Ban Khanun and the surrounding *tambon*, each *wan phra* will see elderly villagers spending the day in the *sala* following the eight precepts to make merit. The *wat* is thus a site for the reproduction of key traditions associated with place and also life cycle. At the beginning of the morning of the *wan phra* ceremony, elderly women, their daughters, and granddaughters sit at the rear of the *sala* preparing food for the monks; the men will set up the mats for the monks, sweep the floor, check microphones, and arrange for the collections of donations after the feeding of the monks. The senior men and young men in the congregation will take the plates of food to the monks after the initial chanting and lead the congregation in the collective chants which follow. After departure of the abbot and monks from the *sala*, the men will distribute the food to the congregation who remain. The food at Wat Ban Khanun is prepared in traditional manner served in dishes made from banana leaves (*bai tong*). Of this the women are very proud, and claim that very few *wat* will prepare food in this manner.

A key relationship between village and *wat* is thus merit making focused on family members, but such a relationship not only connects individuals to the *wat*, but also establishes important horizontal links binding the community together. For key ceremonies, such as ordination, merit is generally made publicly. Additionally the *wat* is the site for the key rite of cremation, and cremation is a public event where social obligations are displayed and thus where the respect relation is reinforced. In addition, cremations and the social activities preceding and concluding the activities demand a great deal of preparation. It is here where neighbours and friends honour obligations and assist in activities ranging from food preparation to organising music and the entertainment. During the time of

this study Grandma Phap, an old lady of 82 years, died and was cremated at Wat Ban Khanun. Both she and her husband had been born in the district. They had eleven children and their kinship network encompassed many *tambon* in Nonthaburi. Her husband Yai Pherm, informed me that they could count at least ten families in the village as direct kin, and this encompassed probably half of the regular attendees of the *wat*. Thus this ceremony, which occupied five days, activated the relationships binding *wat*, kin, and locality. Each day the food alone cost 10,000 baht, but if volunteer labour was not available this would have been much more expensive. It is at such *ngan* that villagers express the difference between their society and urban or city society. Here they make their own food, they do not hire caterers. Relatives and neighbours are mobilised to assist in activities which express key loyalties and collective values. The ceremonies attract a wide range of social groups from the local villages and there is little in the way of social exclusivity, except for the provision of a separate seating area for visitors from outside the locality.

But the major *wat* ceremonies also involve a display of hierarchy and status as well as communality. In large ceremonies such that of Grandmother Phap, a large number of well-to-do friends and relatives attended from outside the community. Many of them were friends and associates of her children, including businessmen, military officers and local officials. But the most significant aspect of hierarchy was the expense of the ceremony and the local knowledge that Grandmother Phap had been a prominent donor of money to the temple. During her life she had paid for the bell tower and the reception building constructed for temple rituals. Her worldly resources have been translated into social capital which was publicly recognised as symbolising her ability to gain merit and advance into the next life with advantage.

It has long been recognised that the hierarchy of Buddhist merit accumulation in Thai society mirrors hierarchy in the mundane world. As Hanks pointed out: "the effectiveness of thousand baht outweighs the widow's battered coin" (Hanks, 1962: 1248). Although conspicuous merit making by the rich has always been a feature of Thai society, its impact on the cultural geography of localities has never been so dramatic as in contemporary Thailand. A new iconography of wealth and modernity has been translated into the religious landscape of temples, and it is marked by a concern to display modernity and affluence in architecture and decoration. No more do the *wat* of Nonthaburi contain the simple and unassuming structures which served the gardeners' forebears. New buildings constructed with the donations of newly enriched and old established families alike gleam with

iridescent blues, greens, and reds on their gables. Old and decrepit preaching and ordination halls often stand juxtaposed with the freshly built products of merit making. Families now donate newly fashionable images, such as the Chinese Bodhisatva Kuan Yin, to the old temples of the district. More conspicuously, there is a concern to make the *wat* into landmarks in their areas by constructing large new buildings and images, a process notable in many parts of Bangkok and Thailand generally. While the specific projects may originally be the ideas of abbots, they channel the willing energies of residents in their merit making. Some structures owe their origins to individual merit makers, such as the spectacular new two-story preaching hall at Wat Kaeo Fa (of the village of Ban Phra That, *tambon* Bang Khanun), built from the money gained from a gardener's recent land sale. Other efforts at merit making may be more collective in nature, such as the project of the abbot of Wat Chalor to construct a new ordination hall in the form of a giant *Suwannahong*, a royal barge with a mythic swan image at the prow. The original ordination hall which holds the *wat*'s old Buddha images dates from the mid-Ayutthaya period (17th century). It has been left to decay in the *wat* grounds and presents a stark contrast to the glistening spectacle of the new landmark.

The landscape of Bang Kruai, as exemplified in its temples, is developing an orientation towards futurism, a phenomenon which is consonant with the economic changes within the district: that is, the abandonment of agriculture, the onset of consumerism among local and new residents, and a demand for conspicuous spectacle which is a rural version of urban sophistication. Prosperity and merit making have reinforced each other to build a new religious landscape. However, the foundations of this process are rooted in villagers' traditions of enhancing merit. The use of wealth and cash from land sales and other sources of non-farm income are channelled by traditional impulses. While poorer gardeners may still live a simple life without many of the luxuries enjoyed by wealthier neighbours, they nevertheless participate in the creation of this new geography of consumption by sharing a collective vision of *khwaam charoen* (progress, advancement) in their aspiration towards improving their temples.

In the Muslim communities of Phimonrat, the twin characteristics of religious life—its tendency to reinforce communality and place identity as well as to reinforce socio-economic distinctions—are also noticeable, although they express themselves in somewhat different ways compared to the Buddhists of Bang Khanun. The *surao* (mosque) expresses the religious brotherhood which distinguishes these communities from those of the Buddhists in other villages. The obligatory Friday rituals of prayer are followed by virtually all households, and

reinforce the bonds of place identity, despite the increasing diversity of livelihoods and lifestyles. Support for the maintenance of the *surao* has long been held as an index of religious worth and social esteem among community members. From the earliest history of the Muslim villages in Phimonrat, wealthier farmers donated land for religious use. At least 30 *rai* of the land around the *surao* in Ban Rongkrachom was in fact donated by landowners and is now used to accommodate landless households at nominal rentals. These features of the local society and its intimate relation to central Islamic values encourage a sense of fellowship and communality apparently overriding distinctions in wealth.

Yet at the same time new trends serve to emphasise distinctions in the community on the basis of religious practice. There has always been an emphasis on channelling family resources towards the religious education of males in households, and one of the sources of a family's greatest pride has been to have a son who has studied in religious schools in Pattani (southern Thailand) or Malaysia, and returned to teach religion in the community. Increasingly, however, the tendency has been for families with enough means to send children, including daughters, to study overseas in the Islamic heartland of the Middle East. This is one (although not the only) source of change in religious practice, whereby wealthier families are turning towards stricter forms of Islamic practice. Many villagers now make a distinction between those households which follow strict Islamic precepts (*nap thu sasana Islam khreng khrat*) and the majority who still follow a more relaxed style, formerly common to Thai Muslims. Invariably, followers of the new fundamentalism are those who have been influenced by their own children, some of who have returned to teach at the local religious school. These families are well-to-do by local standards. Parents' economic resources have thus been channelled into religious education which, in turn, accesses prevailing trends in the Islamic world, acting to differentiate the lifestyles of these wealthier households from those of their neighbours.

12.8 Conclusion

While state policy and market forces have played a critical structural role in transforming the functions and physical landscape of Bangkok's expanding mega-urban region, the process of change and its particular local and sub-regional configurations have also been strongly influenced by household strategies on the part of gardeners and rice farmers. The smallholding economy of Nonthaburi's agriculturalists, particularly the gardeners, has always been intimately tied to the

economy of the metropolis, and their production strategies have developed in response to changing market conditions. For the last half-century, rice-farming households in Phimonrat have shared with their counterparts in other central provinces the experience of major problems associated with rising costs of production, fluctuating rice prices, reduced landholdings through inheritance patterns, and debt. Well before the urban frontier of housing estates and factories encroached into formerly rural landscapes, these households had become occupationally diversified, incorporating work patterns and networks tied into the metropolitan economy.

Land is the crucial resource in the task of household reproduction, and access to new opportunities for status and livelihood have been historically tied to the accumulation, preservation and transmission of land. Increasing land prices and new settlements in these districts have been appropriated towards these ends. The capacity to strategically deploy land in the quest for income and status underlies the ways that families in these districts negotiate with, and participate in, the ecological and social transformations around them. The diverse mix of economic activities and household enterprises in these areas highlight these interacting patterns of change. Commitment to agriculture is restricted to an older generation who may look back nostalgically on a simpler past, but urge their children to pursue alternative employment.

Studying farming and gardening families from a dynamic historical perspective through a succession of generations, we also find that these livelihood strategies have been tied not only to the exigencies of survival, but also to the quest for status among neighbours and wider fields of cultural capital shared in Thai society and the metropolis. Today, in the context of an increasing commodification of symbols and conspicuous consumption characteristic of the wider society, these traditional status concerns have made a significant impact on local areas in the ways that space and traditional institutions such as temples are utilised and displayed. These local societies still exhibit features commonly associated with classically "rural" society, in particular strong and dense webs of kinship and place-specific reciprocity. Notably, however, the households in these villages have never been insulated from the wider society; the assumption that they are victims of external agents of change, exemplified in the metaphor of the threatening urban frontier, is a mistaken one. They have actively participated in the social and economic transformations of their society, and shaped their material and symbolic environment in the process.

12.9 Notes

¹ According to local government guidelines prevailing until the restructuring of local administration under the 1997 constitution, sanitary districts could be formed when a place contained a population of no less than 1,500 people or 100 dwelling units within a 5 square kilometre area. Municipalities (aside from cities) required settlements of over 10,000 with a population density of at least 3,000 people per square kilometre. There are cases of sanitary districts which are extremely large and municipalities which are quite small in terms of total population. Thus the sanitary district of Pak Kret contains a population of over 116,000, representing 75% of the *amphoe's* population, and covering 48% of its total area (42 square kilometres). By contrast, the municipality of Bang Bua Thong comprises a population of just over 10,000, representing only 15% of its *amphoe* population. In the absence of any official statistical measure denoting urban areas in Thailand, demographers and urban researchers generally consider that both of these administrative units should be counted as "urban."

Using these criteria the urban populations of the component districts of Nonthaburi range from a high in the east of the province of 89% (Amphoe Muang) to lower levels in the west (e.g., Bang Kruai: 41%; Bang Bua Thong 15%) (Leman Group, 1994: 11–13).

² This assumption of invasion and encroachment as a principal cause of agricultural decline is clear in the following judgement by Anuchat and Ross (1992: 7): "It is apparent that urban expansion in Bangkok will result in the loss of most of the fertile agricultural lands, as farmers are forced to give up their farms and sell their lands to more profitable urban projects." A more balanced interpretation of the processes underlying land conversion on the rural-urban fringe in the BMR is offered by Banasopit *et al.* (1990: 40–66). They note that while the destruction of agricultural land through negative urban environmental impacts is the most visible cause of land conversion, the fundamental cause lies in the fact that prices to be gained from selling land are far in excess of the returns farmers can expect from farming, particularly rice-growing. Low agricultural incomes are thus a key factor.

³ Anthropological studies of people on the urban fringe tend to perpetuate the image of a passive and vulnerable rural world, transformed by external forces. Thiravet's study of farming families in the Pak Kret district of eastern Nonthaburi in the late 1970s succeeded in showing something of the ways that people exploited

the possibilities of urban expansion through diversifying occupations and selling of the topsoil of their rice fields to building contractors. Yet even so, it is notable that their strategies are portrayed as essentially defensive tactics, and their practices are described as an “adaptation” to new conditions, as if the process of urbanisation was externally driven, and not tied into broader patterns of social change (Thiravet, 1979). The recent rise of concern for endangered communities and traditional culture in Thailand has also contributed towards the conceptual bifurcation of urban and rural cultures, adding nostalgia to the persistent sociological myth of the integrated, spatially-bounded village (Yani, 1995).

⁴ Traditionally, the well-to-do would construct temples for conspicuous merit making, and several *wat* of Bang Kruai are known to have been established according to this practice. However the majority of these temples are small, and were the product of collective effort among ordinary villagers. Even today, the Bang Kruai district (although the smallest in area in the province) boasts the second-largest number of *wat* (46) in Nonthaburi. To the number of functioning *wat* we also need to consider the large number of deserted *wat* (*wat rang*) in the tambon of Bang Kruai district, including Bang Khanun, as indicators of previous population settlement and economic activity.

⁵ In *tambon* Phimonrat one wealthy family of Ban Khaisam (*muban* 4) gained its wealth through lending money and repossessing land when the loans were unpaid by neighbours. Another source of credit was the local rice miller. In *tambon* Phimonrat the local rice milling family (surname Bunbrakob) has extensive landholdings based on the same process of progressive accumulation of pawned land. Such has been the level of indebtedness of rice farmers in *muban* 8 that actually none of the land is owned by the families who live there. All 400 *rai* of the village rice land are owned by the Bunbrakob family. The families who were once owners now rent the rice fields.

⁶ These figures do not match data compiled by the National Rural Development Committee village surveys (Ministry of the Interior), which suggests that different definitions of agricultural household have been used. This is significant, because the “farm operator” category used by the Ministry of the Interior seems to count as active agriculturalists those who are simply resident proprietors. In the case of Bang Khanun, this gives rise to an over-estimate of active gardening families (over 80% of all households) and probably counts retired gardeners as well. It certainly gives a misleading impression that these families are solely devoted to agriculture as a livelihood. To evaluate the comparative accuracy of the Ministry of Agriculture and Ministry of the Interior estimates, I compiled an inventory of

house plots and orchard holdings (used, disused, and transferred through sale or inheritance) in three villages of *tambon* Bang Khanun. The results showed that the Ministry of Agriculture figures corresponded most closely to the situation on the ground. For example, in *muban* 1 (Ban Bang Khanun), 43 orchards were worked by resident households, while a further 28 were owned and cultivated by households in neighbouring *muban*. The Ministry of Agriculture figure for local households engaged in agriculture in this *muban* (42) was thus virtually the same. In addition there were 55 house plots occupied by village residents with no orchards, and only three of the households owning these house plots operated orchards in other *muban*. The Ministry of Agriculture figure of 95 non-agricultural households is reasonable, even though it is nearly double the figure of non-orchard house plots, because many homes include more than one household.

Chapter 13

Social structure and local organisations in the Chao Phraya Delta

Shin'ichi Shigetomi

13.1 Introduction

The first community study in Thailand was conducted after WW II at the Bang Chan community, then located 35 kilometres from Bangkok (Sharp *et al.*, 1953; Kamol, 1955; Hanks, 1972). This anthropological investigation tended to support the seductive idea of a “loosely structured society” originally put forward by Embree (1951). After this pioneering study of Bang Chan, several researchers carried out intensive community studies in the central region until the 1970s (Kaufman, 1960; Ingersoll, 1963; Piker, 1964; Phillips, 1965; Amyot, 1976; Tomosugi, 1980; for a complete inventory of local studies in the delta, see Molle, Chapter 2). However, their analysis most often concentrated on “their village,” where they had intensively surveyed. There has been no attempt to synthesise the findings obtained from the various villages surveyed and to describe the general structure of village society. There was a “loose vs. tight society” argument in the 1960s, but it centred on how to understand the entire Thai social structure rather than on the actual rural society in the delta region (Evers, 1969). Later, Potter (1976) endeavoured to establish a general framework of analysis of the Thai rural structure but his attempt was criticised as being a generalisation. Kemp (1987b) hinted at regional differences and was inclined to interpret them as different responses to ecological and historical settings but he did not provide an overall synthesis.

The democratic movements of the 1970s led to a greater focus on rural development, with more emphasis on poverty alleviation and social/economic equity than on the earlier infrastructure development and crop development

orientation. Local people in some villages responded to the rural development projects by organising themselves. NGO leaders and scholars raised the concept of *chumchon* (community), and placed emphasis on local wisdom and empowerment of village communities. They asserted that *chumchon* was the key factor in people cooperating. This idea reflects an interpretation of village society and might have stimulated empirical studies on *chumchon*. However, most surveys were limited to introducing “successful cases” of people’s cooperation or to advocating the importance of *chumchon* culture. Moreover, the proponents of the *chumchon* culture did not pay much attention to the central region, since there are few cases of success compared with other regions and because of the pervasive feeling that the delta society is less cohesive than other parts of Thailand¹. Kemp strongly criticised the idea of *chumchon* as unrealistic, which stimulated Seri, an advocate of *chumchon*-based development, to argue against his views (Kemp, 1987b; Seri, 1989). Since this debate did not consider regional contexts, it offered only a general interpretation of the reality of the village community. The actual nature of village social structure in the delta remains a “black box.” This chapter attempts to draw a picture of the rural social structure in the Chao Phraya Delta region, based on a synthesis of the knowledge about rural organisations and structural relationships in Thailand. I will highlight the most salient features of rural organisations in this region by drawing parallels with those of northern and northeastern Thailand.

13.2 Framework of analysis

The word “organisation” in this paper follows the definition of Barnard (1956) who called it “a system of consciously coordinated activities of two or more persons.” This definition is adopted because it encompasses a wide range of organisations including organisational actions that do not necessarily have clear membership. According to Blau and Scott (1962), organisations can be categorised into two types: social organisations and formal organisations. The latter are organisations “that have been deliberately established for a certain purpose” (ibid.: 5), while the former emerge when “human conduct becomes socially organized” (ibid.: 2) around “shared beliefs and orientations that unite the members of the collectivity and guide their conduct.” We can take village communities and kin groups as examples of social organisations. Among the formal organisations deliberately established, we can distinguish between local administrative organisations, such as administrative villages, and formal organisations that people form for their own benefit. Historically, social organisations existed first and local

formal organisations were introduced later, overlapping with the indigenous ones. However, in the long historical process, these two types of organisation have influenced each other and their characteristics have been altered accordingly. In rural society, formal organisations established for the members' own sake are composed of people who also belong to these social organisations and local administrative organisations and whose behaviour is shaped by the rules commonly recognised by the two latter organisations. In this paper, I will deal with development organisations as an example of the formal type of organisations established for enhancing the living standard of local people.

In the following discussion, I first describe the features of social organisations in the Chao Phraya Delta region, and then show how local administrative organisations have been superimposed upon these indigenous organisations. The cumulative overlapping pattern of these two types dictates the features of development organisations and the patterns for organising local people into such organisations. By using this three-layer structure of rural organisations, I will characterise the rural social structure in the Chao Phraya Delta region, relying on data from villages studied intensively by the author², along with data obtained from surveys in 18 other locations³ as well as from the literature.

13.3 Indigenous social organisations

13.3.1 Kinship

The family is the most fundamental social organisation for rural people. Many researchers found a pattern of family cycle in rural Thailand. Traditionally, a rural family in the delta region, when its children grow old enough to have their own spouses, produce new nuclear families and split as an independent household without forming an extended family. In Bang Chan, such an immediate independence of new families was considered a traditional and ideal pattern (Sharp *et al.*, 1953: 78; Kamol, 1955: 82–85). Piker (1983: 111) found that in Ban Noi such “neolocal” families appeared before 1928 when there was still unoccupied land around the village. However, when people started to face scarcity of land, this pattern was altered. The newly married couple tended to stay with one of their parents for a while. This was because they could not find unoccupied land near their community and the parents did not immediately divide their land to the couple. As a result, the extended family appeared as a stage of the family cycle. If the parents' house was too small to allow two families to reside together, the young

couple moved out but continued working on the parents' land. In some cases, especially in the northeastern region, the parents do not divide the land, not even its usufruct, so that the children have to work jointly with their parents (joint farming). In other cases, the children are given only usufruct and operate the land by themselves (lease without charge). In northern Thailand, although the parents often receive some rent from children, the rate is lower than when leasing land to non-relatives (Moerman, 1968: 112; Shigetomi, 1996a: 91). These patterns show that the parents' household and the children's households are linked by farm land ownership. Mizuno regarded this group of extended households as a principle of social organisation in rural northeast Thailand (Mizuno, 1981). This linkage dissolved when the parents became very old or died, and when land ownership was transferred to their children.

This family cycle is a general pattern observed in rural Thailand. The pattern of the delta region differs from the general pattern on the following points. Firstly, the joint farming stage seldom occurs in this region. According to my village surveys⁴, there was no case of joint farming in the villages in Ang Thong, while 29% and 15% of all households in the villages in Khon Kaen and Chiang Mai respectively operated under joint farming (Shigetomi, 1996a: 69). Secondly, land leases from parents to their children without rent is scarce in this region compared with the two other regions. Only 12% of households had a "lease without charge" relationship among close kin households in the Ang Thong villages, while 59% and 31% of the Khon Kaen and the Chiang Mai village respectively resorted to this arrangement. Thirdly, the share of households that leased land between close kin households with some rent was higher in the Ang Thong villages than in the Khon Kaen and the Chiang Mai villages. Moreover, the rent in the Ang Thong villages was nearly identical to the rate charged to non-relatives⁵. This means that the agreement of land lease between close relatives did not differ from a market transaction, except for the fact that the land may be inherited by the tenant in the future.

The link between parents and children in this region does not rely much on the relationship in land holding as in the northern and northeastern regions. In other words, kinship in the central plain has a weaker economic basis in tying close kin households as a group. The link between kinship is based on dyadic relations across bilateral kindred systems rather than a collective one (Hanks, 1972: 86). The stability of the relations is assured by "love and respect" (i.e., cordial human relationships) (Hanks, 1962: 1257). As Kemp (1987b: 17-18) asserted, even a family is not a group but just a composition of dyadic relations.

13.3.2 Local organisations

The form of local organisations is influenced by the geographical pattern of human settlements. Until the early 1960s, the settlement pattern in the delta region was described as follows (Sternstein, 1965:30–32): many settlements expanded along rivers and canals, while there were also a considerable number of villages of the scattered type. Clustered villages were sometimes formed when people could not find enough land for settlement along waterways and settled on relatively high land to prevent inundation and for security. For example, Manu (1977: 38–39) found that 57% of settlements in the Bang Kapi area in 1969 were linear type villages, while 23% and 21% were scattered and clustered type villages respectively. The settlements of ethnic Lao people especially tended to be of the clustered type (Utong, 1993: 56, 67). Even in the case of settlements along the rivers, we can find small clusters of houses on the maps. Figure 13.1 shows how the areas surveyed in 1994 in Wiset Chaichan district of Ang Thong province appeared in the 1920s. Most settlements were situated along the rivers and canals and some of them formed small clusters. These small clusters corresponded originally to a group of close relatives and were called *ban*, *klum ban*, or *ko* (island). Each cluster had its own name commonly recognised by local people. *Ban* was an indigenous local unit, not like *muban*, the administrative village. For example, in *tambon* Op Thom in Ang Thong province, there were six *muban* and 20 *ban* and some *ban* were divided into different *muban* in 1989. A *ban* in most cases had around 30 households in the 1990s.

Examples of collective actions undertaken by residents are scarce, although these *ban* are indigenous grouping of people. Johnston (1976) found from his historical study on the lower delta area in the early 20th century that local people did not usually organise collective defence actions, even though bandit problems were endemic in the lower delta. The author found that most of the night watch activities were organised by the administrative village rather than by the indigenous village. It is very difficult to find any rules collectively agreed to by the villagers in the delta region (see Molle, Chapter 10, for rare examples of arrangements for water management). On the contrary, I found many villages in northeast Thailand where the residents established rules to regulate or coordinate their conduct (Shigetomi, 1998a).

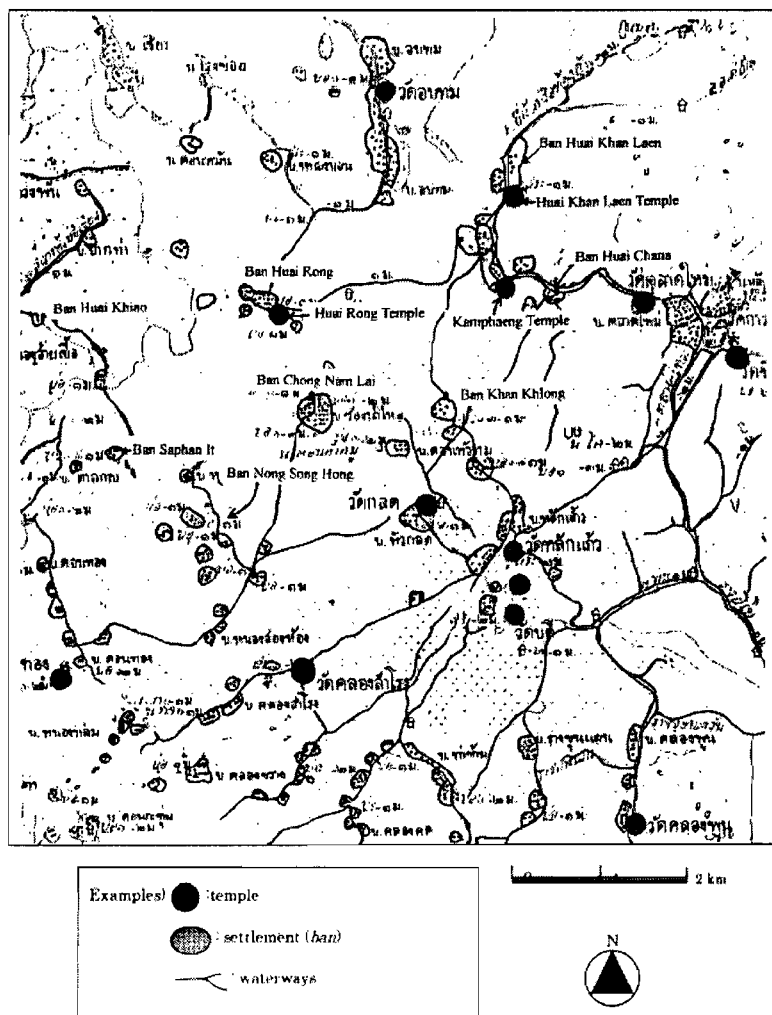
Communal resources are also scarce in the delta region compared with the northern and northeastern regions. I found 82% of the 38 villages surveyed in northeast Thailand to have one or more swamps as communal land⁶, while only 35% of 46 villages in the lower central region had communal swamps (Shigetomi,

1998a: 86). As for forests, wastelands, lowland, and virgin land, 50% and 29% of the surveyed villages in the northeastern and northern regions respectively had such types of land compared with only 9% in the lower central region. Local people occupy almost all the forest land that was once extensive in this region, partly because of the physical features of the area and partly because the boom of the rice economy stimulated people to turn it into farm land. Another reason might be the lack of a local entity to supervise public land in this region. Many settlements were not clustered, or big enough even if clustered. In this geographical setting, it was difficult for local people to identify any one particular community that could be regarded as supervisor of the land. Without any communal control, public land was considered free-access land.

It is also not common in the villages of the delta to observe local people collectively worshipping a village shrine. People in this region have a fear of supernatural beings that may bring unhappy events similar to those in the other regions. However, they tend to protect themselves from such evil spirits by erecting a shrine (*san phra phum*) at each house plot, rather than a communal village shrine as in northern and northeastern Thailand (Kaufman, 1960: 198). I surveyed 19 sub-districts in the lower delta region, but found only one place where villagers regarded the shrine as their village shrine (excluding villages formed by ethnic Lao people)⁷. Many villages in the delta region have a ritual called *tham bun ban* (namely, village merit making) or *tham bun na ban lang ban* (merit making at the front and back side of village) (Chatthip and Phonphilai, 1994; Shigetomi, 1995). The villages in northern and northeastern Thailand have the same ritual too, with the same name. However, the meaning is quite different. *Tham bun ban* in the northern and northeastern regions is a ritual for blessing and purifying the village as a whole, while that in the delta has no such implication. Everyone who attends the ritual will be blessed with good fortune, regardless of whether he or she belongs to the village holding the ritual. The ritual often means blessing not for the village but for a farmland area where people from several villages may have their land. This observation suggests that people's supernatural beliefs do not create collective feelings at the village level and clearly contrasts with the northern and northeastern regions (Tambiah, 1970).

The relationship between villagers and temples in the delta is also dyadic rather than collective. The villagers tend to visit regularly the temple they feel most convenient and comfortable to visit. Usually it is the temple nearest to their home. Since many settlements are non-clustered and/or very small, the nearest temple often is not in the same village. Sharp and Hanks (1978) found that temple-

Figure 13.1 Huay Khan Laen and its vicinity
(Wiset Chaichan district, Ang Thong province in around 1920)



Source: "Map of Ayutthaya - Nakhon Chaisi" published in *Krom phaen thi* (Mapping Department) in 1925.

going was one way to try to define "community" boundaries, but it is hard to see a one-to-one relation between settlements and temples in the map of Wiset Chaichan district shown earlier. This is quite different from the situation in northern and northeastern regions where an indigenous village, if big enough, will generally have its own temple inside the village territory.

The way of managing temple affairs such as ceremonies and construction of temple facilities in the delta region is also different from that in the northern and northeastern regions. When the temple abbot needs a mass contribution for temple affairs, he calls a gathering of the temple followers. The attendance is not at all obligatory. The assembly then selects leaders to set up a steering committee for the affair. After assigning responsibilities to each committee member, he or she recruits other local people to assist in the assignment (Shigetomi, 1995: 60). In this way, people collectively mobilise resources, including human resources, through personal networks spreading from the core members. The sphere of participation is not clearly demarcated. Even the core group is formed by voluntary participation. "Network with core" is a typical pattern for local people to organise themselves in this region. By contrast, in villages in the northern and northeastern regions, temple affairs are considered the village's communal affairs. The formal village leaders together with the temple lay committee make decisions. In contrast with the delta region, membership is clear both in terms of management and participation.

13.4 Local administrative organisations

13.4.1 History of administrative villages

Toward the end of the nineteenth century a system was established in Siam to divide the entire kingdom into a number of discrete regions for easier administration. As part of this reform, the administrative village, *muban*, was established to extend state influence down to the village level. The governor of Nakhon Ratchasima Circle (*monthon*) ordered villages to elect headmen in the areas near the city of Nakhon Ratchasima in 1891 (Tej, 1977: 68). In the next year, Prince Damrong, Minister of the Interior, ordered the election of village and sub-district headmen be organised in Bang Pa-in district of Ayutthaya province. In this procedure, a village headman was elected for each 10 neighbouring households and the headman of a sub-district was chosen by the village headmen. After these pilot implementations, the ministry extended the election of village and sub-district headmen to most circles in 1896–97 (Ayut, 1965: 198).

Thus an administrative village initially had 10 or so households, as stipulated in the first local administrative act of 1897. One official manual for local administrative officers in those years instructed the officers that they did not have to define a village with exactly 10 households, but could also use canals or any other landmarks as boundaries (Phisansongkhram, 1903: 23–24). In fact, according to the land survey done in 1904 by Giblin (head of the Mapping Department) in Muang Krungkao (now Ayutthaya province), one *muban* had on average 7 landowners (Chaiya, 1985: 92). These data suggest that the number of households was quite small in that period (even though the number of households was probably under-represented because only landed families were recorded in the survey). Other data show that one *muban* had around 120 habitants in those years (ibid.: 157). Assuming that one household had seven members on average, one *muban* had less than 20 households. In compliance with the amendment of the local administrative act in 1914, one administrative village should have more than 200 persons (or around 30 households if assuming seven persons per household). At the same time, a settlement with 5 or more households living apart from an administrative village could also become an independent administrative village. The act ordered that an administrative village should be demarcated by natural boundaries (Tej, 1977: 198).

13.4.2 Socio-geographical relations between administrative and indigenous local units

The historical development of the local administrative system shows that the government tried to set up administrative villages based on natural groupings of people, even though at the beginning it applied very artificial criteria for defining village boundaries. However, the actual situation in the delta region seems quite different from this official design.

Figure 13.2 shows the relation between the indigenous villages, temples, and local administrative units (*muban* and *tambon*) in Tambon Huai Khan Laen and its vicinity in 1994. This area coincides with the old map of the 1920s shown in Figure 13.1. Part of Ban Huai Khan Laen has been merged with two other indigenous villages to form administrative village No.3. Ban Don Khum village, which lies just next to Huai Rong indigenous village and has close social relationships with Huai Rong because they share the same temple, is demarcated as administrative village No.3 of an adjacent *tambon*. In another *tambon* (Sam Ko and Op Thom) of Ang Thong province, I found some indigenous villages (*ban*) split into two administrative villages and even allocated to two *tambon*, even though these

Table 13.1 Overlapping patterns of administrative and indigenous villages

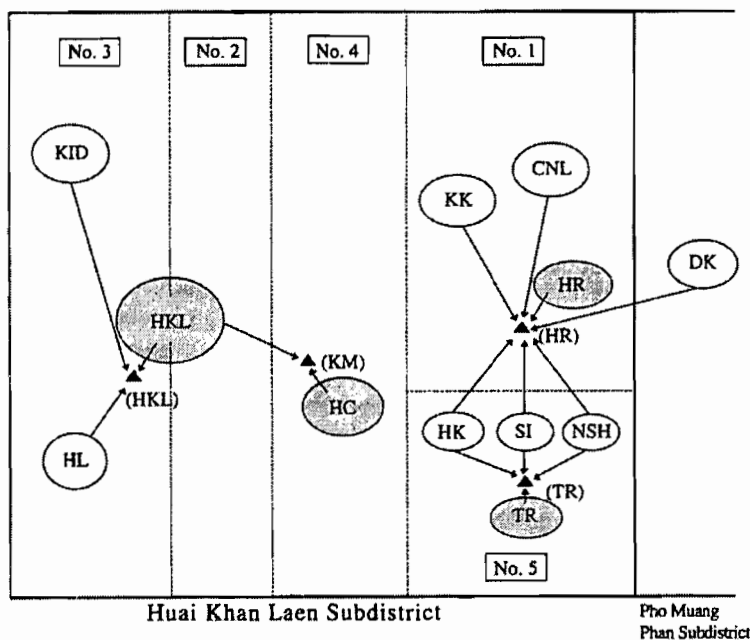
Locality units	Patterns	Region					
		Delta		North		Northeast	
		%		%		%	
1 Administrative village and indigenous village	A Exactly overlapping	16	42	29	100	23	47
	B An administrative village made of multiple indigenous villages	6	16	0	0	1	2
	C Part of indigenous village designated as an administrative village	10	26	0	0	25	51
	D Other*	6	16	0	0	0	0
	Total	38	100	29	100	49	100
2 Administrative village and temple	E An administrative village with a single temple	2	1	17	59	17	35
	F Residents from other administrative villages attend the same temple	113	77	11	38	28	57
	G Residents of an administrative village attend multiple temples	0	0	0	0	1	2
	H Other**	32	22	1	3	3	6
	Total	147	100	29	100	49	100

Source: Surveys by the author.

*A mixture of pattern B and C; i.e., an administrative village formed from multiple indigenous villages with at least one of those indigenous villages split to form part of a neighbouring administrative village.

**A mixture of E and F; residents of an administrative village attend different temples which are also attended by the residents of other villages.

Figure 13.2 Relationship of temples to settlements, administrative villages, and sub-districts in Huai Khan Laen sub-district in 1994



Source: Prepared by the author.

Remarks:

- indicates settlements with their initials given in the circles.
- ▲ indicates temples with their initials given in parentheses.
- ⊙ indicates a settlement with a temple.
- indicates administrative villages (*muban*) with the numbers denoting the official village nomenclature.
- indicates the borders delineating administrative villages (*muban*).
- indicates the borders delineating subdistricts (*tambon*).
- Arrows indicate the temple attended by the villagers.

Abbreviations:

- | | |
|---------------------|---------------------------|
| CNL: Chong Nam Lai | KK: Khan Khlong Phai Isae |
| DK: Don Khum | KM: Kamphaeng Mani |
| HC: Huai Chana | NSH: Nong Song Hong |
| HK: Huai Khiao | SI: Saphan It |
| HKL: Huai Khan Laen | TR: Thang Rua |
| HL: Huai Lat | |
| HR: Huai Rong | |
| KID: Khlong I Dut | |

indigenous villages were still small. Chumchon Sakli in Ayutthaya province, a community famous for embracing the ideology of self-sufficient economy, spans over three *tambon* since its temple, the centre of the community, is located at the intersection of three *tambon*. Bang Chan was a community consisting of seven administrative villages belonging to two *tambon* (Sharp *et al.*, 1953: 17).

Administrative villages can be categorised by their patterns of overlapping with indigenous local units (Shigetomi, 1998a: 72). Table 13.1 shows some contrast between the regions under consideration in this chapter. There are many cases in which an administrative village does not exactly overlap with an indigenous village in the delta region (B, C, D). The northeastern region also has many cases of indigenous villages divided into multiple administrative villages (C), but originally almost every indigenous village coincided with an administrative village. In the delta, the relationship between the administrative village and the temple, representing a communal unit, is also unique. One temple tends to have followers in multiple administrative villages and the residents of an administrative village often attend different temples (F). A more complicated pattern is also frequently seen in this region (H). There are some (F) type cases in northeastern Thailand, but this is due to the division of indigenous villages into multiple villages.

These data show that many administrative villages in the delta region were not significantly based on indigenous villages or communities when they were demarcated. This is unique to the delta region compared to northern and northeastern Thailand. It is not clear why such a pattern of cumulative overlapping appeared in the delta region even though the government expected an indigenous gathering of local people to be an administrative village, at least when the local administrative system was first initiated. It can be hypothesised that it was not easy for government officials to find "natural" boundaries of villages consisting of linear or scattered settlements. As for the small clustered settlements, several clusters were included in an administrative village when the government increased the standard size of an administrative village.

In this socio-geographical setting, it will be more likely that a village headman, even though he or she is elected by local people, does not represent an indigenous community. When compared with the northern and northeastern regions, the headman in the delta region plays the role of a government agent much more than that of a community leader. The government expects the headman to maintain order and security in the locality, thus night watches are organised at the administrative village level rather than at the indigenous one. In big temple festivals, the role of headmen is usually to keep order and to cooperate with the

police or other officials rather than representing the community for the festival (Shigetomi, 1995: 57–58).

13.5 Development organisations

13.5.1 Traditional systems

In rural Thailand, people have long organised themselves to share and secure resources for productive activities. One good example is mutual labour exchange aimed at securing enough labour for farming and for any other important family matters like house construction and rituals. In the delta region, people used to have this kind of cooperative activity for farming, with almost every study on village communities up until the 1970s having descriptions of it (Amyot, 1976: 128; Kaufman, 1960: 65; Kamol, 1955: 257). This activity is generally called *long khaek*, but the way people locally refer to it is different from village to village. In the delta region, we can distinguish two types of labour exchange; one is to exchange equal amounts of labour (called *ao raeng* in most villages), while the other does not imply equivalent repayment (*kho raeng* or *long khaek*). Labour exchanges are always based on an agreement between two individual households, not on a collective agreement among the villagers who gather to carry out the requested work.

Besides labour force, cash capital has long been another indispensable economic resource for villagers in the delta region. Interestingly, however, there seems to be no traditional type of rotating savings and credit association (ROSCAS) in rural Thailand. No study has any record of this kind of activity, and I could not find traditional ROSCAS in my surveys either. Some villagers mentioned this type of activity as “*shae*” which is named after the English “share.” This suggests that this activity does not have a long history. This stands in stark contrast with rural society in Java where many studies mention *arisan*, a traditional ROSCAS (Geertz, 1962). A ROSCAS is a collectively organised group and has a clear membership at least during one cycle of mutual lending. In Thailand, on the contrary, villagers relied on dyadic social relations to obtain funds if they wanted to avoid moneylenders. The interest rate paid to relatives was much lower than that charged by merchants (Andrews, 1935: 307–8). In 1952 half of the informal loans were between relatives, with an average interest rate of 20% per year (OUSS, 1955: 112–15).

Therefore the traditional organisations for securing economic resources were based on dyadic social relationships among local people. Such economic functions

were embedded in the social relations existing between the participants of such arrangements, so that they can be seen as formal-cum-social organisations.

However, this kind of organisation faced a limitation in supporting villagers when the market economy gained influence in the rural areas. Graham recorded that hiring wage labourers was replacing cooperative labour exchange in the lower plains as early as the beginning of the 20th century (Carter, 1904). The custom of mutual labour exchange is now disappearing from the delta region (see Molle *et al.*, 2001b). People in the lower central region could secure only 17% of informal loans from their relatives in 1988, while they relied on merchants for 44% (OAE, 1991: 41). The interest rate with merchants was much higher than with relatives. Organised resource exchange through dyadic social relationships has been replaced by market transactions between two individuals. Such an increase of cash needs and market transactions has brought economic hardship to some villagers unable to access capital resources. This emerged as early as the beginning of the 20th century in the delta region because of the booming rice economy, prompting the government to persuade local people to organise themselves into credit cooperatives, a new form of organisation for securing funds.

13.5.2 The fate of credit cooperatives

The first credit cooperatives (*sahakon praphet ha thun*) were formed in Wat Chan of Phitsanulok province in February 1917⁸. At the beginning, all cooperatives were established in the delta and the upper central provinces (i.e., Phitsanulok, Lop Buri, and Ayutthaya), since these regions were "more commercialised" (Ministry of Agriculture, 1950) and the problem of indebtedness among farmers was most serious. Until the 1960s, credit cooperatives had the following characteristics. First of all, the membership of each cooperative was very limited. Wat Chan Credit Cooperative, for example, had only 16 members at the beginning. Throughout the history of credit cooperatives in Thailand the average number of members did not exceed 20 in most years (Shigetomi, 1998b). The members were neighbours with close relationships. Each cooperative borrowed money from the outside (the government and, later, cooperative banks) with low interest rates of 4.5 to 6.5%, then re-lent to the members with interest rates of 7 to 12%. The cooperative accumulated capital from the margin. The government expected that these cooperatives would gradually rely on their own monetary assets. At the beginning, the cooperatives did not require any collateral, but later from 1923 onward, they required land ownership as collateral (Pranee, 1986: 67).

Compared with the traditional forms of organisation for resource exchange, the credit cooperatives were organisations with clearly defined and fixed membership. The credit cooperatives had to rely on dyadic social relations to make sure that members would pay back loans, since there was no local-based social organisation binding people beyond households. The sphere of people's social relations was not so large. Therefore, the membership of each cooperative had to be small to secure repayment. At the same time, the lending funds came from an outside agency, the government bank. This discouraged the members of cooperatives from increasing the membership, because they did not have to mobilise their own monetary resources.

This system seemed to work well in the beginning. The number of credit cooperatives increased to 128 in 1930, and while the cooperatives accumulated 240 thousand baht for their internal capital, the government provided more than half of the loans to cooperative banks in 1929. However, the financial situation of credit cooperatives rapidly worsened after the government hastily promoted new cooperatives during the 1940s and 1950s⁹. Since there was no well-organised system to support accounting or train cooperative managers, many of them failed to return loans to the bank. The government realised that the size of each cooperative was too small to allow for efficient and sustainable management (Phraprakat sahakon, 1963: 43; Sawat, 1964: 285). On the occasion of the amendment of the Cooperative Code in 1968, the government started a new policy aimed at scrapping credit cooperatives and building agricultural cooperatives. The number of credit cooperatives drastically decreased from 9,000 in 1969 to 130 two years later. One agricultural cooperative covered one district. However, it was impossible to find local leaders who could manage such large cooperatives. As a result, these district level cooperatives became quasi-governmental organisations rather than people's organisations.

13.5.3 Low density of rural organisations in the delta region

With the disappearance of local level cooperatives, the central region can be regarded as an area where there are fewer organisational activities of local people than other regions. Figure 13.3 shows the comparative "density" (Cernea, 1993) of several organisations promoted by the Community Development Department (CDD) in the delta region, compared with the northern and northeastern regions. Each axis represents one type of organisation. Each region's figure is calculated by dividing the number of organisations per *muban* in each region by the corresponding

rate for the whole Kingdom¹⁰. From this figure, it appears that the density of nearly every organisation in the lower central region is not only lower than in the other two regions, but also less than one (i.e., the national average).

13.5.4 Organisational form in Yokkrabat

The specific character of the delta region lies not only in the low density of formal organisation for development but also in their organisational forms. This was clearly shown in the case of Yokkrabat sub-district of Samut Sakhon province, studied under the Mae Klong Integrated Rural Development Project that was initiated in 1974 by leading academics such as Puey Ungphakorn and Akin Rabibhadana. Akin (1983) analysed the process of organising local people of the community centred at Yokkrabat temple as follows.

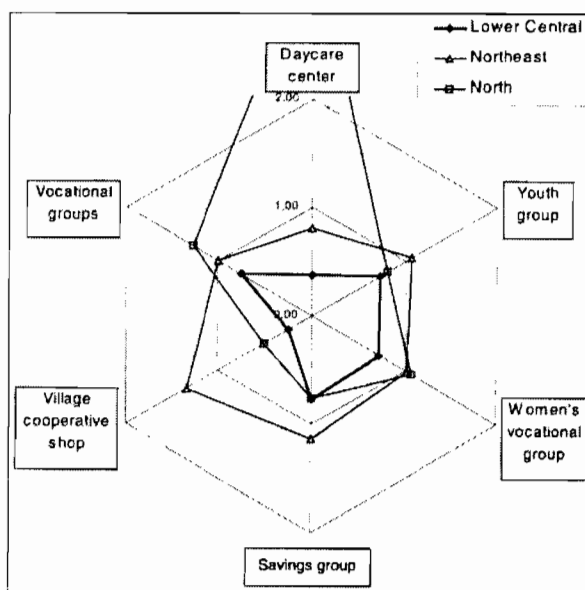
The development volunteers at first tried to find informal leaders and persuaded them to organise informal groups in 1975. The group had "core" and "peripheral" members according to Akin, but no strict membership for each group. Those who were most active in the group were considered "core." The members frequently had the opportunity to eat and talk together. Being based on such close relationships, the group acted as a guarantor for a member who needed a loan from the BAAC (Bank of Agriculture and Agricultural Cooperatives).

This was one of the few successful cases of the project (McNabb, 1978: 103–4) and its success could be ascribed to the way of organising people (Akin, 1983: 91–92). The group retained informal features, membership was not clearly defined and the organisation was just a gathering of dyadic relations among participants. The unity of members was enhanced through discussions and other face-to-face interactions. Those who were more active were regarded as "core" members. In this sense, "core" is relatively defined. These kinds of amorphous organisations can also be found for temple affairs and labour exchange. Even a kin group in the delta region has similar characteristics.

13.5.5 Community, administrative village, and development organisations

In the mid-1970s when farmers' movement against the government became a serious political issue, the policy makers felt that people's participation was an effective method for enhancing both villagers' economic welfare and political stability in rural areas¹¹. Relying on traditional mutual help among the villagers, however, was not feasible any more, especially for securing monetary resources.

Figure 13.3 Comparison of organisational density by type of organisations and regions



Note: The figures show the "density" (number of each organisation per administrative village) of each region compared with the average of Whole Kingdom (Whole Kingdom = 1).

Source: Calculated by the author from CDD (1997), NSO (1999).

After the failure of the credit cooperatives, the government started to promote new development organisations including savings groups and rice banks (Shigetomi, 1998a).

Like the credit cooperatives, these organisations have clearly defined and fixed membership. However, unlike the credit cooperatives, these organisations have to mobilise the members' private resources and manage them collectively, since there is no financial support from outside agencies. People have to recruit many members in order to secure enough funds for the purposes of the organisation, because each member can in general provide only small amounts of private resources. On the other hand, the economic benefits of these organisations are realised only when the members can collectively control the pooled resources. People now have to

make collective agreements beyond dyadic human relations and are obliged to follow them. However, even such collectively formed and contractual types of organisations reflect the salient features of social organisations and local administrative organisation in the delta region. This appears, for example, in the case of Huai Rong Savings Group in Ang Thong province¹².

This group has its origin in a women's group¹³ set up at Village No.1, Huai Khan Laen sub-district. When the village headman was instructed by the CDD to set up a group, he contacted a housewife of an indigenous village, Ban Huai Rong (part of Village No.1). She was a member of a large kin group in this *ban* and personally respected by many villagers. It was easy for her to set up a women's group by recruiting her relatives and friends. Then the village headman reported to the CDD that his village already had a women's group, even though the members were only from Ban Huai Rong. Before long, the CDD persuaded the women's group to join a savings group formed at the sub-district level. The leader of the group started to collect savings to bring them to the sub-district leader who happened to be the sub-district headman's wife. At that time, the total number of members of Huai Rong group was 37 and half of them had kinship links with the leader. They could be regarded as "core" members as in the Yokkrabat case. It was evident that kinship links with the leader was a positive factor in uniting the core members.

However, two years later, the group withdrew from the sub-district group. The members did not feel secure about the deposited money, since there was no close social relationship with the members of the other sub-groups. Then, the group became independent in 1985 with 37 members. Surprisingly, the membership increased to 70 just after the split. Most of them were still from Ban Huai Rong. Up until 1991, membership slowly increased to 109. There were 70 members from Ban Huai Rong of whom 31 had kinship links with the leader. From 1991 to 1994, it experienced a rapid increase to 225 members. During this period, the area of membership expanded beyond Ban Huai Rong. As a result, the share of kinspeople with the leader declined. However, at the time of the survey (1994), most of the members resided in the indigenous villages whose residents attended Huai Rong temple. In other words, the members were scattered in the Huai Rong Community sphere centred on the temple. It means that the sphere of membership did not coincide with the sphere of the administrative village. Indeed, many people from Ban Don Khum in the adjacent sub-district joined this savings group.

This group started to lend out its savings to the members in 1988. The membership did not increase much until 1991, because many people were waiting

to see whether the group was beneficial to its members or not. Before lending activity started, the interest rate on deposits was not very high, because the group deposited the collected money in a commercial bank. Soon after the start of the lending activity, people were not sure about the management and whether they would really be able to collect repayments. At this stage, the close social relationships among the core members were essential for stabilising the organisation. After the group showed good economic performance (i.e., a high interest on deposits compared with that of commercial banks, and a low interest for loans compared with that of moneylenders), the confidence of local people grew stronger and membership increased rapidly. During this development, the administrative village and its formal leaders did not intervene nor did they offer assistance to the group activity.

The development process of Huai Rong Savings Group can be understood as follows. In the beginning, the organisation was formed by relying on kinship and friendship relations with the leader. They formed a core group and the economic activity of the organisation proved sustainable because it could rely on these social relations. When the organisation proved that it could produce economic benefits, those who did not necessarily have close social relations with the leader were also encouraged to join the organisation. Membership started to spread to other indigenous villages. However, these were still residents within the sphere of the local community and attendees of the temple. In this way, economic development of rural organisations appears guided by local social systems. In the case of Huai Rong Savings Group, dyadic relations were the basis for organising people and membership could expand along these relations. However, the density or closeness of relationship may be different from one person to the other. People who share the same kinship may have closer relationships than with those who do not. People in the same village may have closer relationships among themselves than with those in the other villages. People who visit the same temple may have closer relationship among themselves than with those who go to other temples. These differences do not necessarily work as a fence that drastically dictates the limits of membership. Rather, they are just "bumps" in the degree of density in dyadic relations. A development organisation grows by utilising the zones of higher density of social relations, but it can expand to areas of lower density if it becomes attractive enough in terms of material benefits. In this process, the administrative units or formal leaders do not play a role except to introduce the governmental project to an informal leader.

13.6 Conclusion

The rural social structure of the Chao Phraya Delta region can be understood as a three-layered structure. The first layer is the social organisation characterised by the accumulation of dyadic relations. The geographical setting of people's settlements and the ethnic background of this region may make it difficult for local people to develop institutions based on locality. There are naturally differences in the density of dyadic relationships but these differences do not necessarily decrease from top to bottom in a gradual manner. Rather, there are some "bumps" from high-density to low-density areas. The high-density part may be called the "core." The rural social organisations can be illustrated as networks extending from the core. Even the family and kin groups are based on such a structure, as well as temple organisations.

The second layer consists of the local administrative units. They have definite boundaries of organisation and clear demarcation of membership. They set the stage for collective decision-making on village affairs. Even though the system is commonly applied to every part of the country, the uniqueness of the delta region is in the nearly universal mismatch of cumulative relationships between indigenous and local administrative units.

The third layer consists of development organisations. They are based on the first and second layers of organisations, while the characteristics of development organisations also reflect the salient features of these two layers. Traditionally, the villagers' organisational actions for sustaining economic production were formed along chains of dyadic relations. Such traditional bonds, however, appear insufficient to meet the needs brought about by the development of market relationships and by the opening of the village in general. People, for example, have to form organisations with larger membership to gather enough resources from the members (savings). The sphere of membership is then likely to extend beyond the close dyadic relationships between neighbours and kinsfolk. New organisations such as rice banks, funeral associations, or savings groups show that new patterns are emerging, with a higher degree of formalisation and "impersonalisation" (formal membership is required; resources are first pooled and written rules predetermine how they are to be managed and what are the rights of members; agreements are collective, etc.) (Shigetomi, 1998a).

However, the cohesiveness of village community in the rural delta is not strong enough to support such collectively bound development organisations from the outset. Therefore, people mobilise traditional social systems to stabilise

the newly formed development organisations. At first, they form the group core, with comparatively closer human relationships, and then expand membership from the sphere of more densely to less densely related people. The social relation among temple followers is also one important tool for stabilising collective organisations.

In this process, the local administrative organisations such as *muban* and *tambon* do not work as an institution for organising people, even though the role of administrative local units is nowadays increasingly needed in order to procure resources outside the village and to manage them. This may include institutional credit, marketing contracts, or the necessity to organise to gain access to state programmes and funds (or NGOs' activities). Not least, the on-going process of decentralisation and empowerment of Tambon Administration Organisations (TAOs), although its current impact must not be over-emphasised (see Nelson, Chapter 14), means that villagers will increasingly hold collective resources. Since the indigenous social organisations and the formal administrative units do not coincide geographically, there is a mismatch between the entity receiving outside resources and the system guiding collective actions among local people. There lies a difficulty for the development agencies to implement their programs in the delta region. Given such conditions, the local administrative units and their formal leaders should act as intermediary agents in the delivery of outside resources and, at the same time, as facilitators who may identify local people expected to form the core of an organisational process.

13.7 Notes

¹ One exception is the work of Chatthip and Phonphilai (1994) which shows some traditional beliefs related to communal behaviour of villagers.

² The sites studied by the author are Village No.1 of Huai Khan Laen sub-district, Wiset Chaichan district, and two villages in Sri Phran sub-district of Sawaeng Ha district in Ang Thong province. The detailed data on these villages appeared in Shigetomi (1995).

³ The names of surveyed places are listed in the appendix of Shigetomi (1998a).

⁴ The years of data collection are as follows: Khon Kaen in 1989, Chiang Mai in 1992, and Ang Thong in 1994.

⁵ In Huai Khan Laen, the tenants paid 146 kilograms of paddy per rai to non-relative landowners, that is only three kilograms more than to their parents and siblings. In Sri Phran, the rate for both types of landowner was quite similar.

⁶ “Communal land” here means the public domain used and maintained communally by local people. Such land is legally categorised as “common land” (Shigetomi, 1996b).

⁷ The village shrine is not common in the upper central region either, but still more frequently found than in the delta region. Kemp reported that there was no village shrine in his survey village, Hua Kok in Phitsanulok province, but that there were some in the neighbouring district, Wat Bot (Kemp, 1976: 316). I confirmed this during my field survey in Tha Ngam sub-district in 1989. Such shrines were also found in Ban Dan Lan Hoi district in Sukhothai province and Chum Saeng district of Nakhon Sawan province. Perhaps it is because the cluster type settlements are more dominant in the upper central region (Manu, 1977: 44) and this setting may make villagers feel that their village as a whole should be protected by a common guardian spirit from evil spirits of the forest. However, this speculation does not explain why people felt that guarding their village as a whole was more effective than guarding it individually by *san phra phum*. There may be some cultural elements, but I have no definite idea about them. At least, it is quite clear that some villages set up by ethnic Lao groups have such village shrines even in the delta region.

Chapter 14

Chachoengsao: democratising local government?

Michael H. Nelson

14.1 Decentralising the state

In Thailand, political decision-making has long been centralised at the seat of government, Bangkok. Policies produced in this city have been implemented throughout the country by civil servants employed by the ministries and then sent to work in the provinces outside of Bangkok. Chachoengsao, informally known as Paetru, is one of these provinces. Accordingly, the highest administrative position in the province, i.e., the post of provincial governor, has normally been held by a non-native, giving rise to questions such as, “Are the people of Chachoengsao so incapable that they cannot administer themselves?” It has also been assumed that locals are not able to speak for themselves, as expressed in the cliché, “He is also the spokesman for local citizens to the central government” (Win and Smith, 1995: 70). Of course, none of these local citizens are asked whether they would like to have the governor as their spokesman, i.e., he is not seen as a representative. Rather, this part of his role description follows from the usual paternalistic image that a governor acts as the “*pho muang*” (“father of the province;” this expression is still in use, even in more progressive Thai-language newspapers such as *Matichon*). A father, then, must both rule his children and care for them. However, the charges still remain children who must keep away from the serious business of power, politics, policy-making, and administration.

Yet, children inevitably grow up and want to have more say in their own affairs. At the provincial level, this has come to be reflected in calls for the direct

election of the governor. This issue was especially contested during the years 1992 (playing into the elections of that year) and 1993; Thanet (1993) collects a number of important contributions to that debate. However, opposition was too strong at that time. Instead, a consolation prize was offered in the form of turning sub-district councils (*sapha tambon*) into juristic entities and, more importantly, of establishing sub-district or *tambon* administrative organisations (*ongkan borihan suan tambon* or TAO). The enabling law came into effect in 1994 (*Phraratchabanyat sapha tambon*, 1994)¹. This law also effectively aborted silent attempts by the Ministry of the Interior to expand the regional or territorial administrative structure beyond the district level to include the sub-district. The ministry had started its policy back in 1981, and it reached a peak during my field research in Chachoengsao in 1991 (Nelson, 1998a: 41–54).

New momentum for giving locals more say in their affairs was gained with the 1997 Constitution whose Chapter IX (Sections 282–290) is dedicated to “Local Government.” Importantly, local authorities are no longer allowed to have government officials serving in administrative functions. As a consequence, all previous sanitary districts (*sukhaphiban*) were turned into municipalities in February 1999. Provincial administrative organisations (PAOs) had already been separated from the provincial administration (i.e., from the provincial governor, the deputy governor, and the chief district officers) in November 1997. Moreover, the 1997 Constitution gave people living in the jurisdiction of a local government authority the right to recall councillors and administrators and to petition the chairman to have the local council consider promulgating a local law (though the hurdles in both cases are very high).

For the provincial level, Section 78 stipulates that “the State shall . . . develop into a large sized local government organisation a province ready for such purpose, having regard to the will of the people in that province” (*Constitution*, 1997). One may say that, if the people of Chachoengsao expressed their will to do so, the provincial governor could be dismissed, the PAO dissolved, and *sala klang* (the provincial hall housing the offices of the central ministries’ field officers) turned into the office of a new provincial-level local government. There would be an assembly elected by the people and an executive (*nayok*) either directly elected by the people or appointed by the assembly from among its members. Functions, personnel, and budget would be transferred from the state to this new local authority. Unfortunately, though, even the constitution drafters did not agree whether Section 78 has to do with the provincial administration or instead only concerns the local governments existing in a province. From the latter perspective,

the text merely suggests that these local governments should be integrated into one big authority (Nelson, 2000: 38). Since the constitution came into effect, nothing much has been heard about this particular section.

The 1997 Constitution also mandated the passing of a decentralisation law and the establishment of a decentralisation committee tasked with drawing up a decentralisation plan. The law came into effect in November 1999 (*Phraratchabanyat kamnot*, 1999), and the committee has been working (largely shielded from the attention of the public) on dividing powers and budget between the central government and the various forms of local authorities, as well as on establishing a time frame for decentralisation. Teachers and health personnel were up in arms against their planned transfer to local governments; the Education Reform Committee has its rival National Education Law to block the decentralisation of education, and it is difficult to say at this moment whether the Thaksin government will accord decentralisation any more attention than the Chuan government did (Nelson, 2001a; Charas, 2000; Kammeier, 2000). However, it seems clear that, by 2006, local authorities will receive 35% of the national budget—a tremendous amount of money compared to what they receive at present.

In other words, the single PAO of Chachoengsao, the province's 22 municipalities (except for two, they are previous sanitary districts that were upgraded to municipalities in 1999), and the 91 TAOs are going to have an enormously increased weight in terms of tasks, budget, personnel, decision-making, and service delivery. It is implicitly assumed that this decentralisation will benefit the people of Chachoengsao, both regarding their wish for increased participation in determining their affairs and concerning improved responsiveness of their representatives, resulting in better policies and better services. But is this a justifiable assumption? The Ministry of the Interior has long held that locals are not ready to take over their own affairs as they lack political interest and administrative capacity. Decentralisation, it is said, will only lead to more corruption. Let us look at some of the issues that are relevant in this context.

14.2 Is there a local public sphere?

Arghiros (1999), whose paper is based on his research in Ayutthaya province, adopts Crook and Manor's concept of "democratic decentralisation" to indicate that it is the people in a locality who are to be empowered by the transfer of responsibilities etc., and not bureaucrats or the local elite². Empowerment, however, refers to a number of things. It is a common element of democratic theory to

assume that formal political institutions can only work well if they are constantly observed by the people whom they are supposed to serve. There must be actively interested citizens, a public, or something that has come to be called civil society to keep office holders—both local politicians and local bureaucrats—in check. Ideas of electoral accountability are based on the existence of a public that is “well informed and attentive, and possesses the capacity to carry out continuous and rational political participation” (Rao, 2000: 2). It is in this context that Arghiros (1999: 11) implores villagers to “assert their autonomy” and to “take a keen interest” in the operation of their local governments. The plea comes with the recognition that a public outside political-administrative institutions hardly exists. As a consequence, accountability “remains extremely poor” (Arghiros, 1999: 14). There is an “absence of appropriate civic advocacy groups” (Arghiros, 1999: 17), and “popular participation in TAOs and PAOs is very low indeed” (Arghiros, 1999: 17).

Ayutthaya province and Chachoengsao seem to be rather similar in this respect. In the years that I have been there, I have seen a very strong regional bureaucracy, active local politicians, and rather weak local governments. If a vibrant public sphere, an active voluntary sector, or a highly politicised citizenry did indeed exist in Chachoengsao, I should have noticed it. About two years ago, I attended a function held at the Ratchaphat Institute to commemorate October 1976. There was a banner listing more than 10 organisations as hosts. However, only approximately 30 people attended, amongst them children and some students as well as guests from other provinces. In fact the main organisers were the same three or four people I had come across in other contexts, i.e., the local activities of the Constitution Drafting Assembly and the Provincial Election Commission (PEC). And when the PEC had to recruit non-governmental organisations (NGOs) to help with the monitoring of the Senate elections, it was very hard for them to find any such NGOs in the province (except for the lecturer-induced student association of the Ratchaphat Institute). In the end, the same organisers mentioned above were involved again. They would ask a few fellow teachers for help and recruit some of their students. In short, the active public in Chachoengsao seems to consist of a very small number of loosely connected individuals with hardly any organisational backbone.

All this does not mean that the people of Chachoengsao are “passive.” On the contrary, roles that are equivalent to the citizen and the political public in other societal areas are well taken care of. Thus, the people of Chachoengsao are active family members (family), customers (economy), believers (religion), plaintiffs

(legal system), pupils (basic education), students (higher education), patients (medical system), and watchers of TV (mass media). Moreover, they react to actions of the political system. Recent protests in Chachoengsao included vendors who were to be relocated from their traditional places around Wat Sothorn to a newly-constructed market located where hardly any tourists paying respect at the *wat* would bother visiting³; people who were affected by the dam blocking the flow of the Bang Pakong River; farmers who were afraid that the construction of bridges for the double-track Bangkok-Chachoengsao railway would block their *khlong*; and farmers who were angry about low produce prices and therefore held a one-day speech-making protest in front of the provincial hall.

In addition to protests, there is a variety of other means people in Chachoengsao (and elsewhere) may employ to influence the actions of civil servants and politicians. First, a rather common means is corruption that is used to “solve” a personal problem or to further a person’s private business. For example, if a Chinese-Thai family at Chachoengsao’s Bang Nam Prieow market (previously a *sukhaphiban*, now a *thesaban tambon*) wants their son to work in their business and not serve in the military, this problem can easily be solved by bribing the district conscription officer (one should prepare statistics about how many provincial councillors, members of parliament, high-ranking civil servants, and members of the business class country-wide have served in the military; this figure must be very low). The same means can be employed by local transportation companies to make the police turn a blind eye to their ridiculously overloaded rice trucks⁴, or by the politically connected local dealers in speed pills (*ya ba*) to induce the police to overlook their criminal activities.

Second, individuals and groups can always go and lobby individual local politicians, including their MPs. If a person wants to become head teacher in a primary school or director of a secondary school, it can help if he or she has a good relationship with a local MP who happens to belong to the government party and has some connections to the education minister. Some years ago, when a friend of mine had better connections in the ministry than a rival head teacher and, as a result, was transferred to a position that this teacher wanted, Anand Chaisaeng (see below) got angry with her because he happened to be the patron of that colleague⁵. The science minister, without much fuss, ordered that the flood gates of the Bang Pakong dam in Chachoengsao be opened because water quality behind the dam had deteriorated substantially. To understand this, it helps if one knows that this minister was none other than Dr. Arthit Urairat, the former Chachoengsao MP⁶. He has not lost contact with his previous *phuak* after he found running in elections in

Chachoengsao too expensive and moved to Bangkok. One of his houses is located in Ban Pho district on the banks of the Bang Pakong River.

Third, for a long time, influential individuals and organised interest groups have enjoyed special access to district and provincial authorities. For more than a decade, the Public-Private Sector Consultative Committee (*Ko Ro Oo*) has held meetings in *sala klang* (for the national context see Anek, 1992). In fact, it was on state initiative that the Chachoengsao Chamber of Commerce was founded. However, such corporatist arrangements are easy targets for criticism: "Periodic consultation restricted to government officials and a small but influential set of organised business interests is a very modest expression of enhanced political participation" (Robinson, 1998: 167).

However, all these means of influencing political decision-making are dependent on the existence of specific problems or problem areas of individual or collective actors. They hardly reach beyond their immediate purpose and probably contribute little to increasing the prospect of creating a regular politics-observing public sphere. Protests, bribery, lobbying, and exclusive corporatist arrangements may have learning effects, but I am not sure whether participants will learn that a public is necessary to gain more attention for their concerns. Maybe, their experience will be that individual and group access to politicians and bureaucrats is sufficient and that a broadly based structure to achieve responsiveness and accountability is not really needed. Unfortunately, people without money and influence, i.e., the majority, will remain excluded from the aforementioned mechanisms.

14.3 Problems of political communication

Above, I quoted Rao as saying that, for electoral accountability to work, citizens must be "well informed." This may be combined with Luhmann's (1996: 9) observation, "what we know about our society, indeed, about the world we are living in, we know through the mass media," and with Zaller's (1992: 40) interest in the problem of "how citizens learn about matters that are for the most part beyond their immediate experience"⁷. The question arising from these three sources is what do the people of Chachoengsao actually know about what happens politically in their province and what mass media sources exist to inform them. Certainly, there is a cable TV channel. Yet, no more than the most general and brief news on Chachoengsao can be gained from it. Most of the newspapers sold are Bangkok's mass circulation papers such as *Thai Rath*, *Daily News*, and *Khao Sot*; little news on Chachoengsao can be found in them. Moreover, outside the areas of municipalities

and market towns, the habit of reading newspapers does not seem to be all that well developed.

A few local newspapers exist: *Riu Thai* was closed down a number of years ago when its owner died; *Dao Paetriu* claims to be the “voice of the people”; *Prachamati*, the “newspaper for the people of the East,” comes out very irregularly and carries news about Chon Buri as well; *Kao Na*, which claims to give a “voice” to the people and to “expose the truth,” is also not confined to Chachoengsao. These newspapers are one-person shows attached to small printing businesses. They appear every two weeks, synchronised with the lottery results. Their print runs are about 5,000 copies each. In other words, they are done as sidelines in a non-professional way, though some of the “journalists” have gone through some sort of short-term training. The owner of *Dao Paetriu* is a municipal councillor with a wide circle of friends. That there is hardly any political news in his paper may be due to advice from his political friends that critical coverage of political issues would only harm him. After all, newspaper people of this kind are part of the local political fabric and often part of, connected to, or dependent on local politicians and cliques, be it for news or for financial support (e.g., for advertisements).

Under these circumstances, it is difficult to envisage the existence of an independent local press aimed at providing the population with accurate news about what happens in their local governments. The municipal councillor mentioned above, for example, certainly knows about rumours of corruption in a municipal project to beautify the intersection at the new bus station with trees and plants, but one cannot expect this to be dealt with in his newspaper. As Thongbai Thongpao pointed out in a recent column headlined “Local press have valuable job to do” (*Bangkok Post*, 1 April 2001): “Among the major problems faced by these provincial journalists is the question of personal safety. If they uncover something too hot concerning influential people, their lives may be endangered. The editor of *Phrae Khao* was shot three years ago after implicating influential people in his area. A Chiang Mai newspaper editor was also gunned down for a similar reason.”

If local democracy is indeed dependent on the existence of a local public, and if this public, in turn, cannot exist without a communication infrastructure (Jarren, 1999: 277), then we cannot help but be rather sceptical as far as Chachoengsao is concerned. Furthermore, if it is correct to say that “The substance and form of political messages circulating in a polity . . . determine the thrust and quality of political life” (Graber, 1993: 305), then the situation in Chachoengsao gives rise to grave concern.

Obviously, one cannot say that there is no political communication at all. Let us look at the following examples. A shopkeeper told me that he and some business friends had planned to compete in the elections to the municipal council against the dominant clique of the Chaisaeng family but refrained from doing so because they were afraid of financial and physical risks; a municipal councillor complained that there are very few meetings of the council and that her fellow representatives limit their role to raising their hands to everything the mayor suggests instead of discussing local problems; the owner of a print shop criticised the municipality for not keeping the market area clean and orderly. All these statements are political communications. After all, these people do not keep their opinions to themselves but instead relate them to others. Yet, these communications remain essentially private or limited to a close circle of friends. They seldom become messages that start to circulate in a wider political area⁸.

Even people who are much involved in politics may have rather limited knowledge of what happens politically in Chachoengsao. I asked the same municipal councillor mentioned in the preceding paragraph about a well-established political clique that is active in a district adjacent to *amphoe muang*. Normally, if I ask her about politics in the municipal area and its main clique, her answer will be full of detail and historical depth. But this time her response was, "Sorry, I can't say much about them because we haven't been close to that group." This is a telling illustration of the communicative hurdles that come with relationship-based political structures. If one does not know people, or if one does not have contact with people, information cannot flow. As a consequence, people in Chachoengsao seem to have a generally low level of knowledge of what happens in their own province. To gain knowledge, they are largely dependent on what reaches their networks of very localised communicative interactions. Events that do not reach these networks do not exist for the people in them and cannot enter into the individuals' or the informal groups' decision-making process. The provincial election commission, to mention an example, had to accept that villagers are much different from bureaucrats or academics in that they do not normally access information by printed means but let information come to them via verbal communication (and radio and television), even if they are supplied with (poorly designed) printed information material. Since situations of verbal interaction could not be established before the elections to the House of Representatives, a lot of villagers' decisions concerning where to mark the ballot paper for constituency candidates were wrong, resulting in 12.9 percent of ballots being invalid.

In sum, from this perspective the question is how the various local polities in Chachoengsao can be brought to produce good policies, efficient services, and clean behaviour when there is hardly any controlling public nor a publicised political discourse impacting on the definition of problems to be solved and on the agenda to be implemented. Politics must remain a largely exclusive insider business⁹.

14.4 Exclusive local politics¹⁰

At this point, I would like to briefly introduce a point of comparative reference to clarify the options of political structure that Thai localities—unwittingly—have. The north German city of Stade has many features that are similar to those of the Thai town of Paetriu. Both are comparatively small, having no more than 30,000–50,000 inhabitants, and are surrounded by agricultural land. Both are approximately the same distance away from a big city (in the case of Stade, this is Hamburg) to which they are connected by a railway. Both are, or until recently used to be, the seat of a provincial administration. Finally, both are administered by municipal authorities and are the seat of the district administrations that are mainly responsible for the surrounding areas.

However, there are interesting political differences. First, unlike in Paetriu, there is a lively public and voluntary sector in Stade; there is also a well-developed local press¹¹. Second, if a person in Stade does not want to limit herself to issue-specific activities outside the formal political-administrative structures but rather engage herself in politics more regularly, then she would probably just go to the local office of the political party of her choice and ask for a membership form. Afterwards, she would receive information material from the party and would be invited to the monthly (or whatever the interval is) meetings of its municipal branch. She may stand for elections to the municipal or district council, etc.

This situation, as normal as it may appear now, was preceded by a process of political development that lasted far more than one hundred years; it came to its present form only in the 1960s. Schematically, this process can be divided into four steps (Rokkan, 1970: 227)¹²:

1. the formal incorporation of previously excluded citizens into the political system, i.e., formal democratisation or what Steinbach (1989: 138) called the “crossing of the first threshold of participation;”
2. the mobilisation of the enfranchised citizens in elections;
3. the activation of these citizens to participate in public and political life¹³;

4. "the breakdown of the traditional system of local rule through the entry of nationally organised parties into municipal elections, what we call the process of *politicisation*."

The first step has long since been achieved in Thailand with the introduction of the second constitution of 1932. Steps number two and three have for equally as long been matters of concern, and the 1997 Constitution tries to push up turnout by making voting compulsory. Regarding the fourth point, one may ask whether a politically interested citizen in Chachoengsao can do the same thing as his counterpart in Stade, described above. The answer is no, because there simply are no branch offices of political parties there¹⁴. In other words, there is no regular political discourse organised in political parties aimed at developing policy suggestions to be made official by the relevant local council and its executive, implemented by its administration, observed and commented on by the citizenry in the public and in the publicised discourse and, finally, judged in elections. Moreover, political parties do not play any role in filling seats in municipalities, the PAO, or the TAOs¹⁵. Instead, we are still confronted with the "traditional system of local rule," however it may have been adapted to modern times, especially the fact of regular elections at the national level.

Consequently, the question is what these "(modernised) traditional structures" are and whether they can be accessed by ordinary citizens in order to allow participation in local government. When one reads authors such as Arghiros (1999), King/LoGerfo (1996), McVey (2000), Ockey (1996), or Robertson (1996) one gets the impression that the politics of provincial Thailand is dominated by influential individuals such as godfathers (*chao pho*) or tough guys (*nakleng*) and perhaps their binary patron-client relationships, although these are sometimes elevated to "networks" or seen as "followings"¹⁶. There do not really seem to be any collective structures at work in Thai provinces such as Chachoengsao or, for that matter, Ayutthaya. On the other hand, it was pointed out by Sombat Chantornvong many years ago, in his 1987 and 1993 publications, that in provincial Thailand there are informal, politically relevant groups called *phuak*¹⁷. He adds that national elections, and by implication local elections, were occasions where these local *phuak* competed with each other for electoral offices.

These *phuak*, or cliques, may be based on a variety of relationships, for example family, friendship, business interests, or patron-client ties. It is worth noting that shared political ideas (the basis of western political parties) or specific issue orientations (the basis of protests or social movements), i.e., abstract means of social integration and identity building, are absent from this list. In order to

create some initial understanding of when the expression *phuak* may be used, I would like to give four illustrations from my work in Chachoengsao over the years¹⁸.

I first came across this phenomenon when I arrived at the *sapha kafe* (a coffee shop where men sit together and ponder politics and other issues) near *Kuakun* market in Paetriu municipality. I was waiting to be picked up by Anand Chaisaeng to accompany him on the campaign trail preceding the elections of March 1992. One of the people sitting in the shop was Suthin, a provincial councillor whom I had accompanied earlier (on 17 October 1990) for one day in his attempt to recruit *hua khanaen* (vote canvassers) preceding his election to the provincial council (Nelson 1998a: 187ff.; also see plates 16 and 22). He greeted me by saying with a loud voice: "Hey, I did not know you belonged to our *phuak*!" Of course, this also nicely demonstrated the connection of local and national politics in Chachoengsao.

During the same election campaign mentioned in the previous example, I heard of a planned meeting to be held in the house (located on the banks of the Bang Pakong River in Ban Pho district) of the major competitor of Anand Chaisaeng, Dr. Arthit Urairat. A friend accompanied me to his house, the parking lot of which was already full of cars. When Dr. Arthit heard of our arrival, he came to welcome us warmly, after which we were led to tables full of food and told to help ourselves. On our way to these tables we passed a big smoky meeting room with men seated around a big table. We were not invited in because, I guess, we were seen as outsiders. The insiders, then, may be seen as part of a *phuak*. In other words, I assume that the men in the room discussed the upcoming elections and the campaign and that they participated in this meeting because they shared a sense of belonging to that group. They would certainly not have thought of attending a similar meeting in the house of Anand Chaisaeng, neither would he have allowed them in because they would have been identifiable as outsiders.

In 2000 I turned up at the meeting of the PAO's provincial council just in time to witness a group of councillors leaving the meeting room in protest. The meeting was about allocating positions, and these councillors had threatened that they would leave the room if their group was left out because the other group wanted to dominate all available positions. As it happened, the majority did not give in to the group's demands, and so they left, led by one councillor. Both the act of denying positions to certain people and the act of leaving the room were not merely aggregated individual actions in the context of a numerical majority confronting a numerical minority. Rather, what I observed was collective action by two groups in opposition to each other. Again, one may say that two *phuak* (or the provincial

council members of two provincial cliques, perhaps including council-level coalitions of different provincial cliques) acted out a “political” conflict.

In footnote 16 *Kamnan Poh* is quoted as saying that *phuak* is not necessarily about *phak* (political party affiliations). I was told something very similar when, in January 1998, I sat at a lunch table opposite a provincial councillor after their meeting had ended. This councillor was about 35 years old at that time; he has an MBA degree in marketing from a university in the US. He told me that he has a construction business and is an advisor to Suthep Thueksuban (at that time minister of communications in the Chuan government) and to Arthit Urairat (minister of science), both members of the Democrat Party. Thus, I thought it would be a good question to ask him whether he also was a member of the Democrat Party. He hesitated for a moment and then slowly said that, in fact, he is not a member of this party. By way of an explanation he added that what he has been doing for Suthep and Arthit was not about party but about *phuak*. He was working (politically) with members of the *phuak* he belonged to, irrespective of their party membership.

As mentioned above, cliques are integrated by personal ties, not by abstract political models, ideas, or issues¹⁹. People without some sort of personal ties to important members of the *phuak* are excluded from its processes. Obviously, cliques do not have branch offices or regular meetings to discuss politics, and one would certainly not find newsletters advertising the *phuak*'s political ideas and achievements. Neither would they embark on a publicity campaign to recruit new members. Citizens who want to participate in local or provincial politics cannot ask for a form to apply for membership. In short, *phuak* are socially and politically exclusive.

Cliques (also called factions) cannot and do not want to serve as structures that aggregate people's political interests and provide the most important means for local citizens to access political positions in local government. This task could be performed by political parties. Yet, parties have largely stuck to their self-definition as necessary instruments at the national level of Thai politics. Accordingly, they act to aggregate local *phuak* into the more organised form required by national political structures such as parliament and government. They do not normally aim at replacing local groups based on personal ties with political party structures based on abstract political ideas and policy offerings. According to Rokkan, political parties with this aim played a vital role in the creation of nationwide democratic polities in Europe, i.e., (I repeat the quote from above) “the breakdown of the traditional system of local rule through the entry of nationally organised parties into municipal elections, what we call the process of *politicisation*.”

Political parties in Thailand have so far shown very little inclination to politicise local politics. In the provinces, municipalities, districts, *tambon*, and villages, parties remain basically non-existent. This overall situation—no political parties, dominance of *phuak*, exclusionary politics, lack of access to local government positions—is necessarily reflected in political socialisation. As a result, adult citizens in Chachoengsao (unlike their counterparts in the German city of Stade) largely lack a world view in which political participation and a political career (be it in local, provincial, or national politics) are routinely expected options that one may freely realise according to one's own interests.

This does not mean that interest in local politics is completely absent. After all, local governments have been around for some time. Before elections, there are posters everywhere. In other words, politics inevitably enters into citizens' routine perceptions. But how is this situation dealt with? During the last TAO elections, the director of a secondary school in Chon Buri called to tell me that students came to her and her teachers because they wondered what TAOs were all about. This kind of interest must be nurtured. Unfortunately, schools do not normally take up elections as subjects in their classes; instead, they prefer conducting useless "walk rallies" around markets to "arouse peoples' interest in elections."

Moreover, too much interest may be met with resistance from those who reap the benefits from exclusionary politics. For example, *The Nation* (16 April 2001: A2) reported the case of an Ubon Ratchathani secondary school student who "found out that the roads being built did not meet standards. 'Every year repairs need to be made,' he said. Nueng [the student] said that the TAO was embezzling money from the budget which could have gone to make better roads. He promptly asked his TAO why the roads were paved so poorly. The authorities reacted by sending over policemen to threaten him. 'After that, I didn't know what to do. My parents told me not to argue with them, because it might spark violence,' Nueng said." Examples like this serve to remind citizens that politics is not for ordinary people outside of the *phuak*. Also, the many local politicians shot dead every year serve as testimony to the fact that local politics in Thailand is not without violence.

14.5 The Chaisaeng *phuak* in Chachoengsao

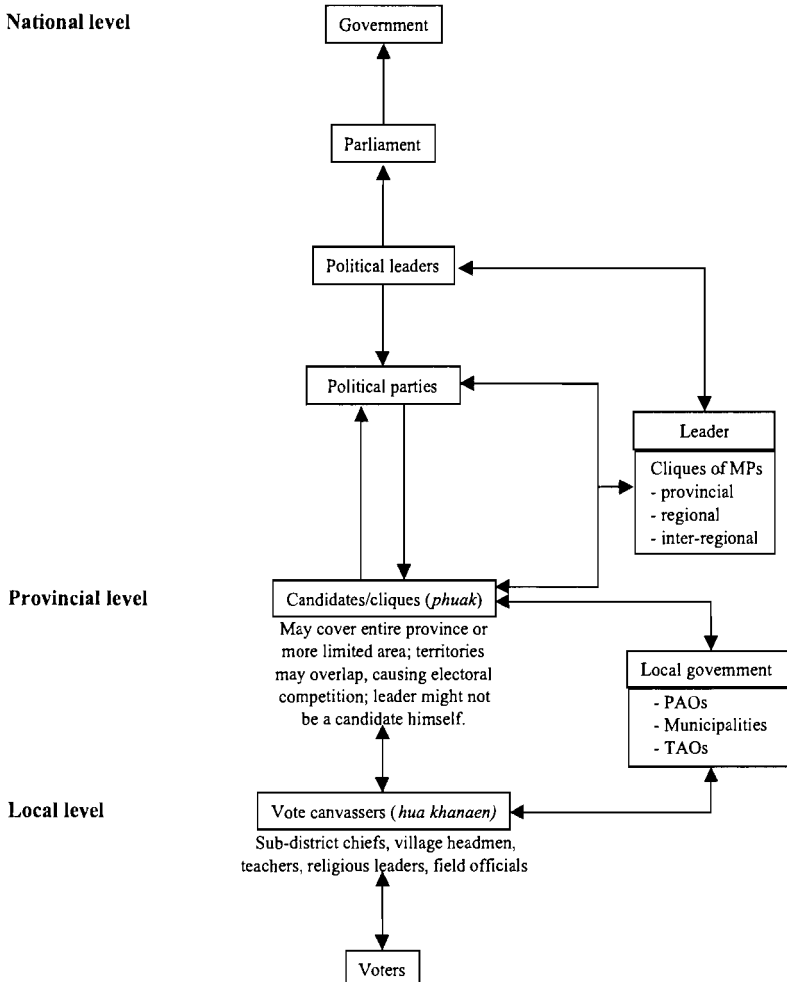
As has been touched upon already, national-level politics, local cliques, and local governments are closely intertwined (see Figure 14.1²⁰). In Chachoengsao, for example, the *phuak* of which Anand Chaisaeng is a member (or leader) dominates constituency one comprising Muang district and four *tambon* of Bang Khla

district. Anand is a *nakleng*-type politician, 73 years old, who has built up his power base in this area for decades. From 1958 to 1967 he held the position of *thesamontri* in the municipality located in *amphoe muang* Paetriu where one of his sons, Konyaluth, is now the mayor, elected by a municipal council that, in its entirety, belongs to this clique (except probably for one woman who, however, ran on the same ticket). Anand is an MP for the Thai Rak Thai Party (TRT) as are his sons Wuthipong (who the *phuak* managed to get selected as the provincial member of the Constitution Drafting Assembly in 1996) and Chaturon Chaisaeng. Chaturon is a new-blood politician who spent some years in the jungle after October 1976; he used to be deputy finance minister in the Chavalit government, was elected MP on the TRT's party list, and is now minister in the Prime Minister's Office. In this capacity, one of his many tasks (probably one of lesser importance) is that of advisor to the decentralisation committee and chairman of the sub-committees on the decentralisation plan and on finance and personnel (Chaturon has long been in favour of decentralisation).

A calendar for the year 2000 shows pictures of all the councillors of the Muang municipality of Paetriu with Chaturon and Wuthipong at the top. In the provincial council elections, seven candidates for the seats of Muang district ran expressly as a team under Chaturon's leadership. On their introductory *bat lek*, Chaturon's picture was printed at the top and larger than theirs. They won all the seats available for Muang district on the PAO's provincial council. The team's leader, a former village headman, became deputy chairman of the PAO; two relatives of his are still headmen of their villages, and his wife is president of the teachers college's alumni association. Another group member was elected deputy president of the provincial council (its president, although from a different district, Bang Pakong, also belongs to this *phuak*). The brother of one of the group's provincial councillors is an elected municipal executive; the father of another member is a *kamnan* (*tambon* headman)²¹. Occasionally, success eludes this group. Anand fielded a former provincial councillor, though not an attractive one, in the Senate elections and was beaten by the candidate fielded by a competing *phuak*. However, this same clique lost its major candidate in the 2001 elections in constituency 4 when he was disqualified because he had faked his BA certificate. This paved the way to an easy victory for Wuthipong Chaisaeng.

Other *phuak* dominate other constituencies in Chachoengsao and also demonstrate the connection between national-level electoral politics and membership in local governments. For example, Chart Pattana MP Itthi Sirilattayakorn, a wealthy Thai-Chinese businessman and graduate of Chulalongkorn

**Figure 14.1 *Phuak* and local governments
in the national electoral structure**



University's Faculty of Political Science, used to be a member of the provincial council and its president (at that time, the provincial governor was still head of the PAO's executive branch). He moved on to be a newcomer-MP, then a secretary to the communications minister, and finally became deputy communications minister in the Chuan government. Thus, he may be seen as a good example of local government providing a training ground for higher-level political success. Itthi never lost his contact to his constituents and to his friends on the provincial council. The chairman of the PAO is his supporter, and a deputy chairman serves as his secretary in Bang Nam Prieow district. To reiterate the theme of violence in local politics, on 5 June 1999, an important vote canvasser of Itthi's *phuak* was killed with assault weapons. That *hua khanaen* was a village headman, and with him died an assistant headman and the driver of the car. This does not necessarily mean the killings were politically motivated. The police thought that business conflicts (the headman was a building contractor) or an insult may have led to the deaths (*Matichon*, 7 June 1999). Yet, since politics and business are closely related in provincial and local Thailand, it is not always easy to distinguish between these two areas of activity.

While this article was being written the president of the Khlong Na TAO in Chachoengsao's Muang district was shot dead on his way to the exit of the Grand Royal Plaza Hotel where he and his friends enjoyed themselves after taking part in the opening of the office of another TAO. A bodyguard who tried to shoot back was hit in his left leg. This TAO president was only 27 years old. He owed his position to his father who is the *kamnan* of this sub-district and used his social prestige (*barami*) to expand his family's sphere of influence. This *kamnan* is reported to have close ties to a national-level politician who belongs to a governing coalition party. In other words, he is said to belong to the *phuak* of the Chaisaeng family. An "influential person" (*phu mi itthiphon*) in the sub-district tried to block the young man, whom he deemed unsuitable as TAO president, from receiving the position and was extremely angered when the *kamnan* got his way. However, this does not seem to have been the only reason that the victim surrounded himself with bodyguards. A partnership in a shrimp-farming business went sour and resulted in the exchange of gunfire. Moreover, in a court trial he was acquitted of having masterminded the murder of a major dealer in speed pills (*ya ba*)²².

As one can see from this example, local politics, business, and crime can be closely intertwined, and they can become quite violent. It is difficult to make reliable statements about how many TAOs have experienced (violent) conflicts. Regarding Chachoengsao, I would like to add a positive note by mentioning that

another TAO in the same district, the TAO of Bang Phra, won an award for being an exemplary local government body and a model case for the success of decentralisation²³.

The village and sub-district headmen mentioned in the previous paragraphs are of particular importance to the success of a *phuak* because they are closest to the villagers, i.e., to the reservoir of voters that must be tapped effectively if political positions are to be attained. Elections, as they materialise at the local level, are not about policy ideas but about politically unspecific social networks and relationships. Family members and friends (and their networks!) may provide the core of these networks; patron-client or employer-employee or creditor-borrower relationships may add to them. Such networks are very much localised, i.e., they are spatially limited to the important members' main areas of daily life. This is nicely illustrated in elections to positions of sub-district headmen (*kamnan*) as they have been described by Arghiros (1992), Bowie (1996), Ryo (1999), and Nelson (1998: 191ff.). The winners are those candidates who have very strong relationship and influence bases in their own villages (supported by committed *hua khanaen* and vote buying), who have established coalitions with headmen (*phu yai ban*) in other villages of the *tambon*, who are able to block access of competitors to their areas of influence (by the power of influence over voters or by resorting to illegal means, perhaps in collusion with district officials), and who are able to spend the large amount of money needed during the campaign. Provincial councillors and MPs as well as local politicians who aspire to occupy some position in the future are well advised to help in headmen elections because they will be dependent on the reciprocal services of these headmen when the time for their election arrives.

Previously, *kamnan* and *phu yai ban* and their assistants were perhaps the most important local vote canvassers in elections at higher levels. However, since the TAOs have gained power over the years and are going to be even more important in the future (as a result of decentralisation), at the same time that headmen will probably lose a lot of their duties and clout, the TAO members in general and TAO executives in particular will certainly enjoy a greater degree of attention.

14.6 Theoretical note on social change in the Chao Phraya Delta

Are there really "two democracies" in Thailand, as Anek (1996) seems to assume? From our brief description of the role of *phuak*, one would rather conclude that there does not seem to be one single alternative model of democracy that has been developed by Thailand's rural population in order to compete with the centrally

imposed model of democracy which is expressed in elections, the existence of the regional bureaucracy, and in the institutions of local government. Rather, we find a myriad of separately localised reactions to the various elements of the central model. The process of *politicisation* mentioned above entails the gradual replacement of these localised reactions or “(modernised) traditional structures” by a behaviour that follows the centrally prescribed patterns.

It is not only national-level democratisation that has been observable during the past decades of political development in Thailand. We have also been confronted with the increasing penetration of the political system’s central bureaucracy into the countryside in terms of personnel sent to work in the provinces, money spent and projects conducted. In other words, the traditional hierarchical relationship between bureaucrats and citizens in the provinces has been deepened²⁴. Therefore, the expansion of the democratic model of political action from the centre (Bangkok) to the periphery (countryside)—through strengthening the local public sphere, by increasing the citizens’ political interest, by political parties assuming an important role at the local level, and by decentralisation—does not only mean that the importance of localised socio-political models, as expressed in the prevalence of exclusive *phuak* and the importance of localised networks of personal influence, will be reduced substantially. It also means that the bureaucracy’s preponderance will be driven back to a large extent.

The gradual replacement of localised structures by those devised at the centre has been called “standardisation” (Simmel, 1958: 377) or “homogenisation” (Frevert, 1987: 55). Obviously, this does not mean that an implantation of structures takes place. Rather, structures are actively adapted to existing ones. In the words of Boesch (1980: 13), what occurs is a “process of inducing continuous and complex assimilation, implying distortion, transformation and building of new structures. It is this *active transformation* which makes the spread and the effect of innovation difficult to predict” (my italics). However, “distortions” may lose their importance over time as the new model gains predominance and becomes natural to new generations. This process of the society-wide replacement of localised social structures by centrally devised models has by no means been limited to politics. Previously, all areas we now consider function systems of society were very much localised: the economy (subsistence economy and limited market exchange), medicine (local herbalists and supernatural healers), education (family and monks in monasteries), and law (customary law as practised in villages). Even the Buddhist religion had to carefully recognise local animist traditions and practices in order to gain access to the people, resulting in syncretism.

None of these local ways of dealing with problems of everyday life aimed at becoming a model for the entire society (not the least since the very idea of a unified society did not exist). Only the modern centralised models of social organisation (whose relationship is non-hierarchical, i.e., the various function systems do not have any centre that would integrate them) make this claim. The increasing implementation of this claim in politics, the economy, medicine, law, and education has fundamentally changed social life in all Thai provinces, including Chachoengsao. The more this expansion proceeds, the less applicable are traditional concepts such as “village society” or “rural society.” Social-structural homogenisation, i.e., the inclusion of the rural population into centrally devised models of social life, makes such references unrealistic. Inasmuch as the origin of these processes cannot be found in Thailand but in Europe²⁵, we will have to abandon the concept of “Thai society” and recontextualise what this term is supposed to refer to as constituting a part of “world society” (Nelson, 1998b). This is what “globalisation” is all about²⁶.

From this very brief description of fundamental social change in the Thai countryside (including Chachoengsao) it should be clear that decentralisation does not mean that localities regain their previous autonomy. Rather, local governments are part of the centralised political system. It is only in the context of this system that “autonomy” or “decentralisation” can be conceptualised. Local authorities are decentralised structures of the national polity’s executive branch. Similarly, “democratisation” means that locals get access to the processes of making collectively binding decisions at the national and at the local level as prescribed by the democratic but, in sociological terms, centralised political system. Sooner or later, “democratic decentralisation” may be successful in eliminating the influence of the *phuak*. In modern society there is no way to escape from the dominance of centralised political structures²⁷, and it is only these structures that hold the promise of replacing the politics of *phuak* with democratic politics. In fact, *phuak* only exist in the form described here as a reaction to the political system’s uneven expansion (referring to its component politics/political parties, administration, and audience/public) from the centre to the periphery. *Phuak* may be seen as an example of what Boesch called “active transformation” and “distortion” of the original model. As time goes by, as locals make more use of the possibilities inherent in democracy, and as the centre exerts more pressure for compliance with its prescriptions, these “distortions” may well recede and, finally, fade away. How long this will take, though, cannot be predicted.

For my conclusion, I will return to a more concrete level of consideration.

14.7 Conclusion

National-level political positions, local government positions, and elected positions at the two lowest levels of the regional administration (village and *tambon* headmen) display a high degree of informal integration. Ordinary citizens can hardly participate in this “hidden” socio-political structure that makes use of formal political-administrative bodies to yield personal benefits, to produce collectively binding decisions citizens have to follow and that impact more or less seriously on their lives, to deliver services, and to spend budget funds on local projects. Ordinary citizens, however, are mainly restricted in their democratic practice to casting their votes. Even this act of voting, though, is not usually based on genuine political considerations but mostly generated by local vote canvassers (*hua khanaen*) who operate on the basis of politically unspecific social networks and relationships, aided by acts of patronage by the candidates and modest monetary incentives for the voter (so-called “vote-buying”). Ordinary citizens, even if they are politically interested and want to work for the common local good by getting elected to, say, the municipal council, will find it very hard to gain access to such a body when they are not members of informal political networks or *phuak*²⁸.

Of course, they can try and assemble a group of friends and then put up a team to compete in the municipal elections. Still, they will have to fight an uphill battle and risk being left out of municipal contracts or being attacked physically by people belonging to the power-holding camp. Furthermore, their attempt would be of an ad hoc nature (i.e., it would not be based on an inclusive political structure citizens can routinely expect to exist) and, for this reason, would not be a normal part of developing their interests.

Thus, for the most part, provincial and local politics remain largely exclusive and therefore undemocratic. At the central level of the polity, “political space” has certainly been broadened immensely, and decentralisation may be aimed at opening up more possibilities for participation by locals in determining what is being done politically in their localities. Yet, under the given condition of *phuak* dominated exclusionary politics in Chachoengsao (and most provinces in Thailand) one may have to agree with what Robinson (1998: 162) stated for a different context: “In the absence of conscious efforts to promote greater equality of access and influence, attempts to increase political participation can reinforce inequality as the relatively more advantaged sections of the population find it easier to get their views heard. Increased participation can protect autonomous spheres of action for well-entrenched and well-organised groups with particularistic interests.”

Unfortunately, it is not only the existence of exclusive cliques (instead of accessible political parties that could provide a bridge to local political office) that makes attempts at “democratic decentralisation” appear to have little prospect of immediate success. As briefly described above, a local public sphere and effective political communication do not seem to be in place in Chachoengsao. I am not sure what form “conscious efforts” to address all these quite serious and substantial structural deficiencies and inequalities could assume. Certainly, the time dimension must not be forgotten in this context, although people with a more impatient temperament may want to see something more advanced develop in the short term. I tend to agree with Arghiros (1999: 17) who admits that his paper on local government in Ayutthaya province may make “rather dismal reading.” Still, he manages to be in favour of decentralisation by seeing it as a “necessary first step.” He writes: “While today elected councils may be controlled by ‘local powers’, in five or fifteen years they may be more representative. Democratic decentralisation at least gives local people opportunities to capture some decision-making power. Without decentralisation policies this potential would never be allowed to develop. But the outcome of reform is largely indeterminate.”

This last remark even applies to something we have all along implicitly assumed to result more or less automatically from decentralisation—that is, better policies. We tend to assume that more decision-making power and its constructive use to better the lot of local people accompany each other under the condition that decentralisation, democratisation, and capacity-building occur at the same time. Otherwise, obviously, *phuak* will further their “particularistic interests.” Yet, Thai politicians at all levels seem to be much less policy (problem) oriented than their counterparts in western democracies. One may find an outlook that sees the availability of a budget as resulting in the need to come up with projects to spend the budget on, rather than a perspective that starts with political ideas, transforms them into problem perceptions and policy suggestions, and then looks for a budget to implement them.

In municipalities throughout Chachoengsao one can easily find footpaths being blocked by socially irresponsible shopkeepers (this writer is a life-long committed pedestrian) or black waste water running into rivers and *khlong*. Hardly anyone (certainly not the executives of the respective local government authorities) seems to see such things as problems, although some people may grumble that they can no longer use the *khlong* to take a bath. Furthermore, the Thai version of individual freedom does not easily permit interference in others’ “private” lives, even if their behaviour impacts on what westerners would define as “public”

space. More attention ought to be paid to the process of societal problem definition that precedes agenda setting, policy making, implementation, etc. Municipalities, PAOs and TAOs certainly lack powers from the perspective of efforts at decentralisation. However, one must not forget to ask how the existing powers and responsibilities have been used. Why have PAOs been so inactive over the years, and why do municipal councils seem to meet only a few times a year without being overly interested in debating how to tackle a town's or city's problems?

It has been argued that this situation is the result of four major factors, namely the long-standing dominance of the central bureaucracy in practical political decision-making²⁹, the emphasis politicians put on electoral success in order to reap benefits for themselves and for their *phuak*, the absence of ideology or policy based political parties in elections and government, and the lack of the citizens' inclusion in politics. From the preceding paragraph, we may provisionally add "political culture" to this list. If this collection of causal factors is correct, and if we include the factors "public" (nowadays often referred to as "civil society") and "political communication," then the theme of "democratising local government" is broader and more difficult to tackle than we may have originally thought. Hopefully, Arghiros' 15 years of development will be sufficient to see substantial progress. Perhaps, the transfer of powers, responsibilities, budget, and personnel from central government agencies to local government authorities—and the concomitant boost for capacity building and incentives for political parties to expand their interest to include active local politics—will be what locals need to start taking their own political affairs more seriously and to prevent special interests from taking the opportunity to enrich themselves even further. The people of Chachoengsao deserve better local authorities and better services. Yet, this does not come for free; they have to put in the effort to make this happen.

Acknowledgements

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14.8 Notes

¹ For historical background of these changes see Rubin (1973), Pathan (1986), Rupbaep (1990), and Trakun (1994).

² This concept is also directed against technocratic approaches that exclude politics by thinking that decentralisation is essentially a management and capacity-building problem. Compared to this perspective, “the political school sees in decentralisation a vehicle for political reform, or more precisely, a means to democratise a state apparatus which is considered the principle roadblock on the way to full democracy” (Schönwälder, 1997: 759).

³ While writing this article, the *Bangkok Post* (8 May 2001: 3) carried the following note: “Vendors at a temple in Muang district have agreed to be relocated, ending a long-standing protest with the temple. The vendors had at first rallied in protest against moving to a selected site, saying the venue was too far from Wat Sothararam Voraviharn and attracted too few tourists. To accommodate the vendors, a new location was then chosen, next to a school adjacent to the temple. The 3.5-million-baht construction of the new venue will be funded by the temple.” This amount of money will not bother the *wat* much since it was able to spend an extravagant 2 billion baht on the construction of its new *viharn* which led to the relocation of the vendors.

⁴ Arghiros (2000: 132) mentions a similar example from Ayutthaya province. In one district, the Brick Manufacturers Association “pays the police a monthly sum to exempt the [overloaded] trucks of members.”

⁵ After Kasem Wannachai had resigned as education minister on 9 June 2001 he lamented that the one thing that put the most pressure on him was the constant stream of politicians who urged him to do favours to teachers under their patronage, i.e., transfer them to better positions.

⁶ Similarly, Molle (in Chapter 10) shows how water supply problems are dealt with through activating personal political networks up to the ministry level rather than by trying to employ formal-legal procedures.

⁷ However, this cannot be the end of our questions because we must not overlook the second part of Zaller’s sentence, namely “and how they convert the information they acquire into opinions.” A further question is how an opinion is used to produce an action. It would be extremely welcomed if a well-qualified Ph.D. student ventured into a substantial study, with long-term field research as the main means of data gathering, on political communication in a province of Thailand.

⁸ One may ask how much will provincial people need to be included in the national mass media system before local political consequences become obvious.

⁹ This is not to say that politics can or ought to be a place where everyone can ad hoc participate or withdraw his/her participation. Structures and organisations

have the effect of hurdles for the purpose of stabilisation. However, it must be possible to access the system by overcoming these hurdles with a little effort. A widespread complaint in Western democracies is that their institutions, primarily political parties and parliaments, have become too professionalised, i.e., too demanding in terms of gaining access. Calls for more direct forms of democracy or for rethinking representation (Rao, 2000) are reflections of this situation, as are considerations whether political parties have, so to speak, conquered the state thereby turning a democracy based on political parties into a state occupied by parties (Beyme, 1993; Stöss, 1997). However, the situation in Thailand and Chachoengsao largely remains at a pre-party stage of development.

¹⁰ Conventionally, statements on political exclusion or inclusion reflect the Thai polity's high degree of centralisation. When we read that "The remarkable events of 1992 are symbolic of the re-emergence of political space in contemporary Thailand," little more is meant than that Bangkok's middle class, NGOs, trade unions, etc. have gained politically vis-à-vis the military and the bureaucracy. Provincial/local politics lacks political space, as usual, although for different factors than are at play at the centre, but this fact does not normally enter into the picture (the quote is from Hewison, 1996: 80; see also Hewison, 1999).

¹¹ In many local areas throughout Germany, however, press monopolies have developed with an assumed negative impact on the quality of the local public and, with it, on local democracy.

¹² I draw on Nelson (1998: 194–206).

¹³ Just as in contemporary Thailand, the main complaint made by officials and members of the advanced public regarding points two and three was that the people at large, primarily the farmers, lacked political awareness. Enfranchised citizens were said to display "political indifference" (Steinbach, 1989: 97; Romeyk, 1969: 62) or showed "indifference for public affairs" (Hattenkofer, 1979: 27).

¹⁴ All that observers can find in Chachoengsao are offices set up by MP candidates to serve as election coordination centres. They may be closed down after the elections or kept as points of contact for canvassers and for people who want to ask MPs for help. Political parties are now legally required to open branch offices and inform the Provincial Election Commission of this. Officials would then go and check whether these offices in fact exist. First, very few offices have been established in Chachoengsao province as yet. Second, checks by PEC staff showed that most of these offices were private residences; some of the supposed chairmen of the branch office committees hardly seem to know anything about their party and their branch. The government-dominating Thai Rak Thai Party (TRT) of Thaksin

Shinawatra has not yet opened any office although it boasts having tens of thousands of members in Chachoengsao. One wonders what the members' role is if there is no party infrastructure whatsoever to keep them busy as members. The TRT office near Wat Sothorn is merely the election coordination centre of the Chaisaeng family's canvassing network.

¹⁵ Many Thais would probably argue that political parties should keep out of local politics anyway. Political parties are seen as creating unnecessary conflicts in localities thereby hampering development; in any case, local level authorities were service rather than politics oriented. This view is very close to the more conservative opinions regarding the role of political parties in local politics that existed in Germany until some time after WW II.

¹⁶ There has been a fascination among some Thai and western academics with a few well-known provincial *chao pho*. This emphasis seems to have made concrete empirical analysis of provincial socio-political structures redundant. Certainly, it does not serve to better understanding of provincial politics in the great majority of Thai provinces that cannot boast a powerful and all-dominating *chao pho*. How can a researcher analyse politics in Chachoengsao by using the *chao pho* model when there does not seem to be any such *chao pho* in this province? When McVey (2000: 14–21) fills page after page with tales and assumptions about *chao pho* and their role in the provincial economy and politics without even attempting to relate this to an analysis of provincial political structures, it provides a very distorted picture of what provincial politics in Thailand is about.

¹⁷ In a recent English-language article, Sombat (2000) unfortunately focuses on the fashionable *chao pho* (godfather) issue instead of exploring more systematically the structural significance of *phuak* in provincial politics. However, the expression *phuak* slips into the article via a quote from the famous *chao pho* Kamnan Poh of Chonburi province. He is quoted as having said in 1986, "We are all for our *phuak* [crowd of friends] and not for any *phak* [party]. In rural areas this is how it has to be. . . . I support people, not parties" (Sombat 2000: 64). It would be very welcome indeed if a researcher who is not afraid of the problems informal and exclusionary phenomena pose for empirical data collection could chose *phuak* as her or his unit of analysis. It should be very instructive to see how provincial-level politics looks if described by using cliques and their connections to local governments as one's guiding perspective.

¹⁸ *Phuak* or cliques are not confined to provincial areas. Rather, they are a very general element of Thai societal structure. In bureaucratic, military, academic and business circles, cliques provide privileged access to information, channel resources,

and are instrumental in producing benefits for the individual members of the group or “network.” When we talk of the importance of military classes or refer to the *sing dam* “mafia” at the Ministry of the Interior, we are talking of *phuak*. The Thai-language expression is *len phuak* (which Tianchai Iamwormate’s *A New Thai English Dictionary* translates as “form a faction; favour one’s friends”). To many, this is a perfectly normal fact of Thai life or Thai culture. When attending a reunion of his military class, Prime Minister Thaksin Shinawatra remarked that he would like to “help” his classmates, but that his efforts were hampered by the lack of “teamwork” of the class members (*Bangkok Post*, 13 May 2001: 1). To others, *len phuak* is a major form of administrative and management corruption obstructing efforts to improve the performance of public organisations and private enterprises (the latter are also bogged down by the prevalence of family ties in many companies). It is seen as having had an important role in Thailand’s financial crash of 1997. To many people who are critical of the negative effects of personal ties (besides other systemic deficiencies), “good governance” becomes the rallying point. Interestingly, in the same edition of *Bangkok Post*, prominent economist Narongchai Akrasanee warns that “the practice of good governance by both the state and corporate sectors” is vital for recovery, and that business practices must change “from avoidance of rules and regulations (particularly tax) to compliance with rules and regulations” (*Bangkok Post*, 13 May 2001, p. 4 of Perspective section). All this is not to say that in the modern societies of the western world there are no cliques or that they are unimportant. However, they are subdued by the existence of well-developed functionally differentiated sub-systems of society and the prevalence of formal organisations.

¹⁹ For the following, I partly draw on Nelson (2001b).

²⁰ First printed in Nelson (2001b: 15).

²¹ Similar to this description from Chachoengsao, Sombat (2000: 64) quotes a *chao pho* from Ang Thong province as proudly saying, “All 24 members of the Provincial Assembly are from our team. We have our people in the administrations of Pa Mok, Wisetchaichan, and Muang Municipalities.”

²² See the articles in *Matichon* and *Thai Rath* newspapers of 28 May 2001 (p. 24 and 19, respectively). The incident also made it to the English-language press without, however, giving any of the important details (*Bangkok Post*, 28 May 2001: 2).

²³ *Krungthep Thurakit*, 29 May 2001.

²⁴ For summaries of the officials’ prevailing paternalistic and hierarchical view of the people see Cornish (1997: 15–19) and Nelson (1998: 25–31). Arghiros (2000:

131) mentions an interesting example from the annual New Year party of the Brick Manufacturers Association in a district of Ayutthaya province to which district officials and the police are always invited: "In contrast to all other guests, these state representatives do not make financial contributions to the hosts. Members appeared to resent but accept this situation, for, in the chairman's words, these are "people with (officially sanctioned) power" (*phu mi amnat*)."

²⁵ Yes, Europe: "However we may judge the cultural situation of contemporary world society, what is distinguishable as specifically modern has been formed by the European tradition. We might question whether and to what extent the switch from primarily stratified to primarily functional differentiation of social systems has taken place in many regions on a structural level. But the development in this direction started in Europe. On a semantic level we might variously assess the resistance of old cultures, their future, their capacity for revival and self-assertion against the imputation of being 'modern' in the European sense. But only Europe has brought forth worldwide social descriptions that reflect the experience of a radical structural transformation of society since the late Middle Ages" (Luhmann, 1998: 22).

²⁶ A well-known academic and social critic (Nidhi, 2001) puts it this way. In the pre-modern era the state's power did not reach far in society, thus decisions could be made by individuals, families, and communities. Now that the modern state and multinational companies have expropriated this decision-making power, people cannot even choose what kind of health care they would like to use or what kind of education their children should get. The previous multiplicity of such services has been reduced to just one model. First, the modern state introduced compulsory education, and today there is only one higher authority that determines how education and medicine are modelled in Thailand, i.e., global standards. Nowadays, people can hardly choose a way of life that deviates from the mainstream, except for cases of certain religious groups such as the Amish in the United States.

²⁷ Even Habermas could not say exactly how supposedly self-determined "life worlds" could exist vis-à-vis supposedly alienating "systems."

²⁸ All kinds of civil servants are even legally barred from running for local office, although they may have qualifications needed to improve local governance. For example, people who grew up in Paettri municipality and care for their locality but happen to be teachers or directors at secondary schools in Chachoengsao or lecturers at the Chachoengsao Teachers College (now called Ratchaphat Institute, the so-called "people's university"), cannot be elected to the office of municipal councillor. Accordingly, the municipal council is occupied by self-employed people, i.e., businessmen and shopkeepers.

²⁹ Chartchai (1996: 67) notes: "Members of the Municipal Executive Board, the Municipal Clerk, and senior officials possess rather traditional, state-centred attitudes and views towards the role of the city government in local economic development. To them, the municipality is an administrative unit, rather than a local political and socio-economic unit, established basically to perform local activities assigned by the central government."

Chapter 15

Agrarian versus mercantile deltas: the Chao Phraya Delta in the context of the great deltas of monsoon Asia

Yoshihiro Kaida

15.1 Characteristics of Asian deltas

15.1.1 Large alluvial plains in tropical Asia

Rice cultivation sustains the dense human populations of tropical monsoon Asia. While rice is the prevailing crop in almost all agro-ecologic zones of this region, the alluvial plains are particularly productive. Soils of the alluvial plains are generally fertile and hydrological conditions are suitable for lowland rice cultivation. The alluvial plains, including fans, river-terraces, and deltas, account for about one sixth of all the land area in tropical Asia, while worldwide they occupy only one twentieth of the land area. Farmland in tropical Asia is one-third alluvial plains, a much greater proportion than elsewhere, as alluvial plains are only one-tenth of the world's farm land. Despite being only 7% of the world's land surface, a third of the world's total alluvial plains are in tropical Asia (Fukui, 1987). The development of the alluvial plains of tropical Asia is reflected in its geological history. Orogenesis was particularly vigorous in Asia, making the mountains high and valleys deep. Consequently, torrential monsoon rains eroded mountain slopes and washed vast amounts of sediment into the valleys, making fans, river plains, and river terraces, and large deltas in the river mouths (Takaya, 1985). The formation of deltas is typical among alluvial plains. For example, in Thailand the Chao Phraya Delta, which makes up only 7% of the rice cultivation area of the country, produces as much as 30% of total rice production, demonstrating superior

fertility and the relative stability and suitability of water conditions for rice cultivation.

15.1.2 The notion of “forest and sea” Southeast Asia vs. “peasantry” Southeast Asia

Southeast Asia (SEA) can be subdivided into two major zones: continental and insular SEA. Continental SEA has a monsoon climate characterised by contrasting wet and dry seasons. The alluvial plains are normally submerged under water during the wet season, and they are completely desiccated during several months in the dry season. Rice is the only crop fully adaptable to the “amphibious” nature of the alluvial plains. Over generations, small groups of peasants have reclaimed the alluvial plains for rice-based farming, and developed tightly knit village communities.

On the other hand, insular SEA has a humid tropical climate and is characterised by tropical rain forests populated by a highly diverse collection of evergreen tree species. Early settlers exploited non-timber forest products from the dense forest and sea products such as fish and other seafood in the fertile Sunda Sea. These inhabitants did not practice sedentary farming except for limited swidden cultivation of upland rain-fed rice and their land use was never permanent. Regarding cultural and social characteristics of insular Southeast Asia, anthropologists point out that society is based on binomial or dyadic human relations. Despite a country’s political frontiers, there are no explicit socio-cultural boundaries for the region. Rather, there is a gradation of power from the centre to the periphery. “No permanence” may be the most important concept here (Furukawa, 1994). This part of Southeast Asia has occupied an important position in east-west maritime trade in the classical, medieval, modern, and contemporary world, because of its crucial location. This area has always been a part of the worldwide societal network.

15.1.3 Agrarian vs. mercantile deltas

Most great deltas of Southeast Asia are naturally located in the continental regions of Southeast Asia. Their societies and economies are, however, typical of the insular type; specifically, their economic systems are based on transactions with the external world—in other words, the “commercial sphere.” Their economic growth has been obtained by harmonising the delta economies with those of maritime and commercial activities. The rice lands in the deltas have undergone

continuous improvements to sustain intensified rice-based cropping systems. However, it is not certain that the present rice-based land use will continue unchanged in the future. Rice growers in the deltas are likely to convert their land to another use when they judge that rice farming is less productive and profitable. Delta farmers are opportunistic. The deltas of continental Southeast Asia can therefore be seen as a part of maritime Southeast Asia that penetrates deep into the continent.

It is also true that the six great deltas in the monsoon tropics—namely, the Zhujiang in Guangzhou (Pearl River), the Song Koi (Red River), the Mekong, the Chao Phraya, the Ayeyarwady, and the Bengal—each have their respective features and characteristics. The six deltas may be classified into two subgroups. The first are urban and commerce-oriented deltas including the Zhujiang, the Mekong, and the Chao Phraya. The second group are the rural and peasantry deltas including the Song Koi, the Ayeyarwady, and the Bengal. This distinction may reflect differences in their reclamation process, which in turn is determined by their geomorphologic features. This assumption will be tested in the following sections by considering two contrasting deltas—the Zhujiang and the Bengal. The path that the Chao Phraya Delta is likely to follow will be examined in the light of the comparison of these two deltas.

15.2 The Zhujiang Delta

15.2.1 *Weitian* and *Shatian*

There are two types of paddy lands in the Zhujiang Delta. One is the *weitian* (literally, encircled or diked paddy land) that has been developed from ill-drained and flood-prone plains and marshes by erecting polder dikes. The other type is the *shatian* (literally, sandy paddy land) that also has been reclaimed from the shallow sea bottom by using poldering technology. The boundary between the two follows the archaic coastline of the middle to late eras of the Neolithic age, and crosses the middle part of the present Zhujiang Delta. The *shatian* occupies about 60% of the delta and the *weitian* occupies the remainder.

Three conditions facilitated the development of *shatian*. First, there are land-bound seasonal winds and off-shore currents in the estuarine zones that push into the estuaries a large amount of sediments drained from the Zhujiang River system, mainly the Xijiang River (its western branch). This makes the estuarine zones relatively shallow. Second, there are many rock-islets rising from the sea bottom

in the estuarine zones. The rock-islets supply stones to build polders and embankments. Third, there is a large city in the region, Guangzhou, and more recently Hong Kong, which provide huge markets for local farm products.

15.2.2 Process of poldering *shatian*: *yuyou-lupo-heli-caoshe*

The process of poldering the *shatian* is accurately and beautifully expressed by a simple Chinese phrase, *yuyou-lupo-heli-caoshe*, which means when the sea bottom becomes shallow enough for bottom fish to be seen swimming (*yuyou*), it is then the appropriate time for the builders to start dumping stones along the lines of the future polder embankments. The stone foundation is erected to the low tide level so that water can still come into the polder, bringing with it sediment loads and dropping the sediments in the polder when it recedes. The sediments accumulate rapidly until boat oars hit the bottom (*lupo*), then water becomes shallow enough to allow cranes to fly in, stand, and feed in the water (*heli*). Seeds of marsh grasses are broadcast to trap more sedimentation and to stabilise it (*caoshe*). When the soil surfaces above water at medium tide, the stone foundation is reshaped and soil is piled upon it to make it water-proof. The tide is allowed in and out for irrigation and drainage through sluice gates, as the salinity of the water in the estuarine zone is at a tolerable level. This is similar to Indonesian coastal tidal irrigation (*pasang surut*).

The new *shatian* may be planted first with salt-tolerant and submergence-tolerant crops such as sugarcane, and gradually turned to paddy land. A large portion of the *shatian* has been converted to raised-bed farms of commercial crops including sugarcane and banana plantation. Recently, *shatian* are being filled up with sand to yield the way to urbanisation, as will be discussed later.

I presume the developers of the old *weitian* and *shatian* were local merchants or groups of merchants who had obtained a license or concession from the local government. Their concern was how best the lands could be used under the prevailing socio-economic conditions.

15.2.3 *Sangji-yutang*

As the *shatian* extends further into the shallow sea, inland *weitian* and *shatian* become increasingly poorly drained so as not to allow ordinary land use. Farmers devised the *ji-tang* strategy to be used at this stage. Earth from about 70–80% of the area is piled onto the remaining 20–30% of the area, making a combination of

ponds (*tang*) and land (*ji*). In the ponds fish are reared, and on the elevated lands mulberry (*sang*), sugarcane (*shu*), grasses (*cao*), or miscellaneous vegetables (*za*) are grown. The mulberries, sugarcane leaves, grasses, and refuse from miscellaneous vegetables are all used to feed fishes, and the bottom mud containing fish waste used to fertilise crops. A typical land use on the basis of this nutrient recycling was the *sangji-yutang*, where mulberry leaves fed silkworms, refuse from the silkworms was dumped into the pond for fish, and the bottom mud in the pond was returned to fertilise the mulberry.

15.2.4 Urban-oriented land use

The intensification of land use, as stated above, was fostered and accelerated by the high demand for agricultural products in near-by cities, especially Guangzhou, and later, Hong Kong. The rock-islets that supplied stones for building polder embankments gradually became "land-locked" islets. The small towns at the foot of the rock-islets had easy access to the cities via canal and road networks, and they were increasingly involved in regional commercial transactions. Commercialisation made the *ji-tang* even more productive in fish, silk, sugarcane, and various vegetables. The delta area, including Shundexian Tailiangzhen, became renowned as a centre of the silk industry by the mid 19th century. Today, small and medium towns are distributed all over the delta. Many of the towns also specialised in a unique marketable commodity and they are all included in a wider market, which encompasses Guangzhou and the greater economic sphere of Hong Kong. The areas that originated from *weitian* and *shatian* have accommodated suburban land use over the centuries. Today, however, the area is being transformed into an urban environment at an alarming rate.

The *sangji-yutang*, particularly in the Shunde area, once flourished and supported a famous silk industry. The region started to decline in the 1920s when the silk industry lost its competitive advantage over other silk-producing areas, including Shanghai and Japan. Today, silk production of the *sangji-yutang* has all but vanished. Three other systems, however, are still surviving: *shuji-yutang*, *caoji-yutang*, and *zaji-yutang*.

15.2.5 Contemporary urbanisation

The urbanisation of the Zhujiang Delta is progressing at an alarming rate. A large capital outlay is being made, mainly by Hong Kong capitalists and overseas

Chinese from Hong Kong, Taiwan, USA, and Singapore. Many of these investors originally came from this delta. The overseas Chinese are enthusiastically investing capital in public works and donating public facilities such as roads, bridges, schools, and homes for the elderly. To receive such external investments certain conditions must be fulfilled. They may include: (a) long and short-term ambitious development plans made by Guangdong province and Guangzhou city; (b) the presence of two near-by special economic districts designed to lead to a rapid development of market economy, Senchuan and Zhuhai; (c) enthusiastic recipients of the investment, namely local cities (*xi*) and township (*zhen*) corporations; and (d) the presence of local counterpart entrepreneurs. Among the four conditions indicated above, the last one is particularly interesting. The entrepreneurs who lived in or originated from the Zhujiang Delta must have developed, over generations, an economic sense of “making the best use of opportunities,” which is a typical attitude of maritime merchants. They must have used the *weitian* and *shatian* as paddy fields when they thought rice farming was most profitable, as *sangji-yutang* when they considered it was most suitable, and as urban land use if they thought it was time to change again. In short, the Zhujiang Delta is part of the maritime world.

15.2.6 Top-down development planning

I have some reservations about the present mode of land development, however, because (a) the planning is too straightforward, and (b) the power of planning and decision-making is vested in a small group, namely the leaders of city and township corporations.

I observed a large block of *shatian* being filled with sand gushing out from the huge pipeline of a sand pump in a matter of days or weeks. Off shore, one can see a number of dredging boats sucking sand and carrying it ashore. On shore, one can see a huge sand pump aboard a barge sucking sand from the boat and spewing it onto the *shatian*. Many of the *shatian* have been created over generations and centuries of *yuyou-lupo-heli-caoshe*. These are likely to disappear to make room for roads, bridges, factories, apartments, and shopping arcades in a matter of years. Leaders of the city (*xi*) and township (*zhen*) corporations are the direct successors of the old people's commune (*renmingcongshe*), and they are accustomed to making top-down decisions. The land is owned legally by the state, but its right of use is vested in the commune (including township and city), thereby the leaders have no reason to hesitate to take a stand. Many of the land use plans are made by

external consultants. Some of them look as if the plans had been drawn almost free-hand, without considering various local constraints on people and space. Local residents remain almost uninformed about the details of the plans but still can enjoy shared ownership of the facilities and the benefits derived from them.

I observed that in many parts of the delta, bridges spanning rivers and marshes were too high and too long; roads were too wide and isolated cars were seen running in a single lane of a three-lane motorway. Only one in three pre-fabricated factories was in operation; similarly, only one in three finished shops in the shopping plazas was open; and only one in four high-rise apartment units was inhabited. With very poor installation of air, water, sewage, and garbage treatment, what a disastrous scene we will see when these facilities are fully occupied and in full operation! This bubble economy which is being fuelled by external capital outlay, standard and uniform planning, and straightforward top-down decision-making, is all the more likely to burst in the near future. Despite all these anomalies, the general trend of development in the Zhujiang Delta will remain geared towards commerce, trade, and urbanisation in the maritime world.

15.3 The Bengal Delta

15.3.1 Floodplain delta

The Bengal Delta is the largest delta in the world and spreads over 9 million ha. Three magnificent international rivers form this delta: the Jamuna, Megna, and Ganges. The Jamuna River originates in glaciers of the Tibetan Plateau and runs through Assam, one of the zones with the heaviest rainfall in the world. The Megna River originates in the Meghalaya Plateau, which has an exceptional 20,000 mm of annual rainfall. The Ganges River drains a large mountain tract of northern India, through the extensive Hindustan Plain and eventually empties into the Bay of Bengal after travelling 4,000 km. The edge of the delta is believed to extend very far into the Bay of Bengal beyond Sri Lanka, and the depth of alluvium is a remarkable 14 km at the rivers' mouths (Rogers *et al.*, 1989). Major parts of this delta would better be termed "floodplain" because it is made through the huge power of water and sedimentation, the main ingredient of which is sand. If one uses the term delta for the Bengal Delta, one could more appropriately call it a "sandy delta."

Geomorphologically, the floodplains are the remnants of old and new river courses that have created a criss-crossed combination of natural levees and

backswamps. From anywhere in the delta, for example the Mymensingh floodplain, the view from any point in the paddy fields is one of green lines encircling the observer within a diameter of minimum 500 m and maximum 1 km. There are farm houses which appear to be almost buried in the green forest. The forest coverage in this country is said to account for only 7% of the total area but it seems that green vegetation is everywhere. This must have been one of the most attractive conditions for early rice farmers, enticing them to settle and start farming. A small group, probably close kinsmen, could find an appropriate place to settle on a natural levee and till the adjoining backswamps for rice cultivation. Fish were easy to catch in rivers and marshes. The early settlers probably tilled the land and made a living relatively autonomously (Kawai and Ando, 1990).

15.3.2 Scattered, autonomous villages

Historians presume that early settlers in the Bengal Delta must have been under the patronage and control of the *zamindar* (Akhtar, 1982; Shawkat Ali, 1986; Hussain, 1995), just as their peasant counterparts in the Chao Phraya Delta depended heavily on delta developers, i.e., large landlords (or the state) who invested huge outlays of capital for reclaiming the delta for rice plantation. In the Bengal Delta, I presume that the early settlers in the 18–19th century did not encounter any power larger than local *zamindar*, who might have tried to control the peasantry by providing protection in exchange for land rent. This is because the Mughal Empire's control over the Bengal region had been declining since the early 18th century, and the British colonial administration did not deal directly with the peasantry till the middle of the 19th century (Akhtar, 1982). Ubiquitous combinations of relatively small natural levees and backswamps might have provided convenient preconditions for the early farmers to settle, start farming, and live in the villages in a relatively autonomous environment.

LANDSAT images of the Chao Phraya Delta show a great deal of lineaments, indicating artificial objects such as canals, embankments, and roads, etc. In contrast, the images of the Bengal Delta lack such lineaments, but instead, are full of active and moribund rivers, ox-bows of old river courses, intricate combinations of levees and backswamps, and very high concentrations of arable land, indicating that almost all lands are under cultivation, either with rice or other crops.

About 70,000 villages are distributed all over the country, as if sesame seeds had been broadcast randomly on the floor. The 70,000 villages are cohesive neither with each other nor with higher administrative or political tiers and do not form a

pyramidal administrative entity. They lack structure and have been characterised as “illusive” (Bertocci, 1970). A closer look at the village social system, however, reveals that each of the villages is politically, as well as administratively, relatively autonomous, under the relatively loose leadership of a group of several leaders called *matabbor* (Kaida *et al.*, 1996). The villages tend to unite and coordinate with each other and form a loose federation focusing on pursuing their common interests such as improving market places, road repair, rural electrification, repairing village schools, security, and local law and order enforcement, etc. Unless such needs arise, a village remains illusive. Rural people live in the social web of *para* (*samaj*) which is the smallest cohesive social unit comprised mainly of blood-related families, and which, in the flood season, looks like an islet in the vast expanse of flood water.

15.3.3 Land use

Land use in the Bengal Delta is rice-based. A typical crop sequence in the deeply flooded plain area was (a) mixed *aus* and *aman* rice in the rainy season, followed by (b) a crop of beans and pulse during the dry and cool season, and (c) jute as a commercial crop in the following early rainy season, or (d) repeating the mixed *aus* and *aman* rice cropping. In the mixed broadcasting method, ripe *aus* panicles are cut in waist-deep water leaving the *aman* plant to continue to grow in the deep water for harvest later after the water recedes. In plains less prone to flooding, a typical land use succession was: (a) broadcast *aus* rice, (b) followed by *aman* rice, planted after the peak water level recedes in August, then (c) mustard seed as a cash crop in the dry and cool season from November to January, or (d) pulse, and (e) jute in the following early rainy season. The jute could then be replaced by *aus* rice if the soil was not replenished enough to sustain jute.

Jute and *aus* rice are competitive and, at the same time, substituted for each other. Jute was essential not only as a cash crop but also used as cooking fuel. Pulse crop was also essential to replenish soil fertility for the following jute cropping, and at the same time, to provide protein for the daily diet of the family and to supplement fodder for drought animals. Mustard is a typical fast growing crop squeezed to produce mustard oil and providing quick cash income.

Relatively traditional crop sequences as described above have been modified to more rice-monocultural patterns after the adoption of the “green revolution” in the early 1970s. Most productive, irrigated *boro* rice which occupies the land from late January to mid May competes with pulse, jute, and *aus* rice. Farmers have

found that the most profitable cropping pattern is to repeat the *boro-aman*-mustard (or vegetables) sequence. This cropping pattern compels the farmers to give up subsistence economies and to enter the cash economy. Many of the farmers are now aware that intensive rice-based farming with heavier doses of chemical fertiliser may not be sustainable. Some have noticed that soils are becoming harder and less productive after repeating these simple cropping patterns.

Since jute lost its importance as a commercial crop during the 1960s, the Bengal Delta has not found its substitute. Instead of finding cash earnings in crops, peasants have responded to job opportunities in off-farm sectors offering cash income and security. For example, in a village in Tangail, more than half the households earned their living through temporary, low-wage, non-farming jobs. In this village 10% of all the households received an income from hand-loom weaving, 5% from *biri* (tobacco) making, 9% from petty retail businesses, and 26% from daily wage work. In a village in Chandpur, I found that about 70% of all the households have at least one member of the family employed in the off-farm sector. This percentage reached an impressive 90% in another near-by village. The places of employment are not limited to those within commuting distance, but extend to local towns, growth centres, and to major urban centres of the country including Chittagong and the capital, Dhaka. Young males are eager to start petty businesses of their own or otherwise find non-agricultural job opportunities in neighbouring areas, while young females are often interested in doing manual labour in cottage industry (Kaida, 1993).

15.3.4 Prosperous Bangladesh in her rural amenity

Economic life in the Bengal Delta is ranked among the poorest in the world, with GDP of only US\$ 300 per capita per annum. About 80% of the country's population live in villages, pushing rural population density to staggering highs of over 1,000 persons per square km.

What path to prosperity could be available for rural Bangladesh? Can it be an urbanised society? Will Bangladesh be able to find a way out of economic stagnation through industrial development and urbanisation? My personal prediction is that Bangladesh will be able to find prosperity in the amenity of life that can be attained through building local growth centres, strengthening interactions between villages and small urban centres, tightening linkages between administration services and autonomous village communities, while maintaining the present village autonomy, traditional leadership, and social system. The prosperous future of economically

impoverished Bangladesh lies in the enjoyable life style in the villages in which the rural culture will be revitalised and life in the villages will be made more attractive.

15.4 The Chao Phraya Delta

15.4.1 Reclamation and development

The organised reclamation of Southeast Asian deltas started coincidentally in the middle of 19th century in the three major deltas of the Mekong, the Chao Phraya, and the Ayeyarwady, when the demand for rice from colonised neighbouring countries increased. These countries were then characterised by the monoculture of certain commercial and industrial crops such as cotton in the Indian subcontinent, rubber in the Malay peninsular, sugarcane in Java, rubber and coffee in Sumatra, coconut and sugarcane in the Philippine islands.

The key technology for opening the deltas, especially the young delta of the Chao Phraya River (see Map 3 in appendix), was canalisation (Hubbard, 1967; Tanabe, 1978). The canals spread water more evenly across the land. In addition, this innovation had three functions: the provision of access to the inland by boat, the provision of homestead land on the dug-out earth along the canals, and the supply of domestic water. With canals able to meet these three basic human needs, rice land expanded rapidly because soil and water conditions were basically suitable for extensive rice cultivation. Rice exports from Thailand increased sharply from a nominal 120 thousand tons before 1870 to 1.5 million tons in 1929 (Ingram, 1971). All large-scale development works and the rice trade were monopolised by the royalty, nobility, big merchants, and high-ranking government officials. Rice farming was practised by owner farmers as well as tenant peasants who moved and settled in the delta to make a quick fortune. The dominant farming system was rice monoculture under a quasi-estate farming system (Ishii, 1978), although individual farmers and peasants were not necessarily employed as wage labourers.

The Chao Phraya Delta saw a revival of irrigation development after WW II, when Thailand received financial and technical assistance from the world community to boost its rice production in order to help cope with the world-wide food shortage. A large diversion weir was installed at the apex of the delta at Chai Nat, from which five main canals conveyed water to hundreds of secondary and tertiary canals and to rice land tracts covering about 600,000 ha of the upper delta.

At the same time, the hydrologic environment of the 600,000 ha lower delta was totally changed by poldering the formerly canalised tracts and supplying water throughout the year to numerous gated canals and creeks (see details in Molle, Chapter 10).

The engineering design of the post-war development of the Chao Phraya Delta was not new. This scheme followed a grand design that had been submitted to the government by a Dutch engineer, Van der Heide, in 1902. This plan, however, was shelved, as it required a far larger budget than the government could afford. Instead, several individual smaller projects were undertaken, mainly in the lower delta, under the leadership of a British engineer, Sir Thomas Ward, who succeeded Van der Heide as the second foreigner to become director-general of the Royal Irrigation Department. To these European engineers, planning and design criteria of large-scale gravitational canal irrigation systems must have presented familiar engineering problems, because similar major irrigation projects had been undertaken elsewhere in the then colonised countries of the region. For example, British engineers had completed the Great Upper Ganga irrigation project in India during 1836–54, started the 1.5 million ha Indus valley irrigation project in the Punjab in 1849, and developed other major Indian deltas such as the Krishna, Goudavari, and Cauvery Deltas in the middle of the 19th century (Kaida, 1991).

15.4.2 Lower delta (young delta)

With controlled creek systems, the delta farmers had expanded a unique mode of land use, especially in the lower delta. Along the controlled creeks and behind their homesteads, they carried out a number of small earth works, digging deep furrows and piling the earth removed in ridges about one meter high to make alternating furrows and ridges at intervals of about 2–4 meters. On the ridges they planted bananas intercropped with slower-growing fruit trees such as mango, mangosteen, and coconut. Some furrows were planted with rice, but most were used to rear waterfowl. Small ponds could be dug near the house to keep fish, and larger ones could also be dug for commercialised caged culture of fish. The raised-bed garden area was normally protected from floods by rectangular earth bunds, about 40 meters wide along the canal and 40–80 meters from the canal. Water was taken in from the canal and drained out to the canal as necessary.

This raised-bed system was not particularly new to the delta. It was developed on a large scale by Chinese settlers along Damnoen Saduak Canal at Ratchaburi in the late 19th century. The Chinese had been employed in canal digging as wage

labourers and settled there after completion of the canal (Kaida, 1974; Cheyroux, Chapter 7).

This "homestead" land use occupied about 5% of the lower delta (as measured by LANDSAT imageries in the early 1980s), leaving the rest for rice cultivation. This pattern of land use has drastically changed the rural scene along canals from one of a monotonous, treeless, and desolate line of shacks to one of a more woody, shady, green landscape comprising rice land, fruit groves, and sheltered homesteads. I called this land use the "rice-fish-fruit and poultry complex" of the lower delta (Kaida, 1987a; 1987b; 1991). I thought this was indicative of the future landscape of Southeast Asian deltas.

The above desirable "scenario" that I had expected to materialise, however, stopped half way through its evolution. Since the mid-1970s, canal transportation was gradually replaced by road transportation, and this trend accelerated after the 1980s. A large number of dirt roads were built through and behind the homesteads along the canals. The poldered "rice-fish-fruit and poultry complex" farming that flourished in the 1970s was gradually converted to more commercialised and specialised monocultures of fish, fruit, or vegetable, or duck-raising. Since the 1980s, fruit growers gradually specialised in a single crop—banana, guava, orange—or opted for *casuarina* (*ton son*) planted all over their block. Some farmers ventured into large-scale fish culture. Many of these farms were found to be owned by absentee landowners such as retired government officials and office workers who lived in Bangkok. Through the 1990s, landowners rented out their land at relatively low rates to keep the land utilised until sold to real-estate businesses for non-agricultural uses.

Until the 1970s, industrial estates were found scattered along Phahonyothin Road, route No.1, passing near the airport. Throughout the 1980s, and notably after 1990, the industrial estate zones sprawled out into a large tract of the lower delta along the road network, and also expanded rapidly inland, especially along the South Rangsit tract, to the east and north of the airport. Sprawling Bangkok expanded and penetrated into the delta in all directions. The South Rangsit tract has become particularly urbanised since the 1980s, with dramatic results. A survey conducted in the North Rangsit zone at the end of the 1980s indicated that the areas of paddy land, poldered horticultural farms, factories or offices, and residential lots accounted for 45%, 35%, 15% and 5% of land use, respectively (Saha, 1993).

A very large volume of red soil was transported into the delta from adjoining hills to make the ground safe for factories and residential estates and protect them from being submerged by flood water. Some housing estates were built on large,

irregular mounds created by soil dredged from near-by to provide attractive landscaping of homesteads with water bodies surrounding them (Kaida, 1995).

15.4.3 Upper delta (old delta)

Following the development of a trunk canal system in the upper delta, a large investment was made in improvement of on-farm irrigation through means such as a dikes-and-ditches project and preliminary land consolidation trials. By the early 1980s, most of the sloped land suitable for gravitational canal irrigation had been equipped with irrigation and drainage facilities.

With the inception of controlled water supply systems, farmers responded to the new conditions by converting traditional broadcast deep-water rice to transplanted modern rice varieties, especially new high-yielding varieties. The single rice cultural system in the rainy season was converted to a double rice system, including irrigated dry season rice in most of the area. The government tried to boost farmers' associations and water user groups (see Molle, Chapter 10), to improve on-farm irrigation management, and to adopt new technologies in rice farming. Transplanted rice was regarded as an indicator of farming modernisation. Intensive farming was thought to be a symbol of progress. The decade of the 1970s was a decade of enthusiasm when both farmers and promoters of agriculture, including government officials, extension workers as well as researchers, were equally enthusiastic and cooperative in attempts to boost modern rice farming.

This dynamic was altered because of three main reasons. First, rice farmers in the delta became conscious that the price of rice directly reflects the price levels in the international rice market; hence, regulation of rice production was attempted. Second, water available in the delta for irrigating dry season rice was found to be short of the potential demand despite water resources development projects that had been completed in the Chao Phraya River Basin, including the Bhumibol and Sirikit Dams. This was further compounded by the growth of water use in the middle basin (see Molle, Chapter 10) and of non-agricultural uses downstream, especially Bangkok. Even the remote villages in the upper delta were gradually brought closer to towns, physically, economically, and psychologically, following the road construction implemented rapidly through the 1970s and 1980s. I would like to elaborate on the third point a little further because I think this was the main cause of the subsequent alteration of the landscapes and waterscapes of the delta.

Until the 1950s, there was only one trunk route passing through the delta in the north-south direction, which was the Phahonyothin Road from Bangkok through

the lower delta to Saraburi, and via Lop Buri to Chai Nat through hilly tracts. Secondary roads were equally limited. One road went from Wang Noi via Ayutthaya and along the right bank of the Chao Phraya River up to Chai Nat, and a second road went north from Nakhon Pathom along the right bank of the Suphan River up to Chai Nat. Roads were only secondary means of transportation whereas water transportation was dominant in the Chao Phraya River system (Tanabe, 1978).

The construction of a tertiary road network was associated with the gravity irrigation canals constructed from 1957 through the mid-1970s. One side of the trunk, secondary, and oftentimes even tertiary canals was provided with asphalt or dirt roads for the operation and maintenance of the irrigation system. Some of the roads along main canals were upgraded as part of the national road network. By the time the Asian Highway cut through the centre of the delta in the mid-1970s, a good number of *song thaeo*, small pick-up trucks furnished with two lines of benches and canvas hood, were seen travelling on the roads of the delta, carrying farm products as well as villagers to and from near-by town markets.

On the other hand, water transportation in the delta lost its efficiency by being blocked by numerous embankments, weirs, and water gates provided to facilitate irrigation, drainage, and flood protection. As of the mid-1960s, when the Greater Chao Phraya Irrigation Project was still under way, water communication through the Chao Phraya River and the canal network was still very important, carrying virtually all the bulky and heavy construction materials (sand, stone, and cement), 80% of paddy and rice, 80% of maize to be exported from Bangkok, and the bulk of charcoal and salt from southern parts of the delta (Nelson, 1967). By the end of the 1970s, however, use of the canals had been almost completely replaced by road transportation. A typical desolate scene of water communication may be witnessed at Samchuk, on the bank of the Suphan River, that once flourished as a centre of water transportation. While the old market place facing the right bank is crumbling, two new markets and business centres are now developing along new roads on both banks.

Since the early 1980s, any villager, even from the most remote village in the delta, is able to reach Bangkok within 2 hours. This has contributed to redirect the villagers' activities toward "towns," pushing and pulling the villagers toward urban regions, and thus leaving few young farmers in the villages. The management of small farms therefore made it necessary to adopt labour-saving options instead of labour-intensive and land-efficient farming (see Isvilanonda and Hossain, Chapter 5). Rice transplantation, which was once a symbol of advanced farm management, has completely vanished from the delta. Rice seeds are either sown directly on

controlled wet-beds if good irrigation is furnished, or broadcast on dry, roughly ploughed soil if poorly irrigated. Not a soul can be seen in the fields tending the farms from the period right after ploughing and sowing until the time of harvesting.

15.4.4 The delta periphery

The periphery surrounding the Chao Phraya Delta is a large expanse of upland rain-fed crops. The northeastern periphery was opened in the 1950s for maize production, which expanded rapidly in the 1960s when Thai maize became one of the most profitable export commodities. The western fringe of the delta in the middle reach of the Mae Klong River was a traditional sugarcane zone, which also expanded dramatically in the 1960s and 1970s to meet the expanding sugar market. These peripheral zones were soon criss-crossed with road networks. The delta periphery has now been engulfed in Bangkok's sphere physically, economically, and psychologically. Few living in the peripheral areas feel isolated from the centre of prosperity.

Rice lands are seen scattered in the peripheral zones, too. Rice farmers used to wait for scarce and erratic rains until they could transplant seedlings, while nowadays they plough the land, sow seeds on the rough surface, and wait for the rain. Rice is a subsistence crop for home consumption but it is, at the same time, only one of the commercial crops in their commercialised cropping patterns.

15.4.5 The Chao Phraya Delta as a mercantile land-and-waterscape

Not only the lower delta in the periphery of Bangkok, but also the upper delta as well as the delta periphery have all been engulfed in the Bangkok economic territory during the past three decades. Three main groups of actors have played their respective roles in this recent "drama of Bangkokianisation." First, Thai merchants, mainly of Chinese origin, have controlled the market of delta commodities including rice initially, and later other commodities such as fish, vegetables, fruit, chicken, pork, and other meat. Some of these merchants operated major rice mills, or managed their own large farms of vegetables, fruit, fish, poultry, and swine. The same merchants have established joint ventures for building industrial, commercial, and residential estates, and some have invested in new factories and shops. Quite a few innovative entrepreneurs have established larger manufacturing companies by attracting foreign capital and technologies. Second, the Thai government supported economic development by providing infrastructure

including roads, bridges, water supply, electrification, telecommunications, etc., in the previous three decades. The policy to boost this type of economic development has never been changed.

The third and main actors in the transformation of the delta, however, were the delta farmers themselves. They have selected different farming techniques according to the different environment conditions, changed cropping patterns as needs arose, taken different management strategies, and stepped out of farming when they thought it was the right time. The farmers in the lower delta were particularly flexible in selecting their life styles (Askew, Chapter 12). They did not commit to a particular farm plot, village, or region. They made their own decisions, and bear all the risks associated with the results. This behaviour is typical of people who have been living in the world of commerce rather than in an agrarian society.

In the lower delta, in particular, farmland is a commodity for commercial transactions and speculation. Many of the owners of "rice-fish-fruit-poultry complex" farms whom I met in the mid 1990s were Bangkok residents who were mentally prepared to quit the contract farming business at any moment they thought would be the right time. The transfer of ownership of farmland from farmers into the hands of Bangkokians must have proceeded further by now, although this often occurs more locally than reflected by the overall statistics of land tenure (Molle and Srijantr, Chapter 4). Nevertheless, I am tempted to conclude that it would not be possible to try to preserve the so-called peasant farming because, in the first place, there was no peasant or small holding owner-farmer in the Chao Phraya Delta.

15.5 The imagescape of the six great deltas in the 21st century

It would not be possible to expect a similarly flexible behaviour from the Bengal Delta peasants. The "agrarian momentum" in the Bengal Delta, including lineage-based blood relations, land-based society, traditional norms in the rural society, farming technologies, and cropping and farming systems prevailing in the society, is too large to undergo any significant change. There are only very few people in the villages who have the education and resources to change their behaviour, both in farming and life-style, according to the new environments and conditions facing them. There are also very few people in the villages who can properly appreciate and encourage those pioneers who initiate the change. I do not intend to make any simple comparison in capability and flexibility to change between the two ethnic groups, but I am interested in the continuation of lifestyle that has been moulded in

the past 100–200 years and in the specific (yet unknown) causes that made this difference between the two ethnic groups.

I am currently engaged in a rural development project in Bangladesh. A set of desirable strategies for rural development that have been extracted from this research project (Kaida *et al.*, 1996) include:

- make good use of the traditional leadership available in the village;
- cultivate and boost the feeling of closeness and solidarity of a small “unit” village community;
- formulate an independent “union” of these unit communities by loosely organising the individual communities;
- establish a systematic link between this independent “union” and the government’s local administration that delivers common rural services;
- bring the villages closer to towns and bring the towns closer to the villages to promote the diversification of economic activities and, at the same time, rural amenities.

If I had been given a chance of conducting similar studies in the Chao Phraya Delta, I would have drawn a very different scenario for development.

The six great deltas in the tropical monsoon Asia have undergone different paths to development in their respective ecological and historical settings. They are all core zones that lead their country’s economic development. Every feature of the respective countries is in a transitional phase including ecology, agricultural land use, product-mix, rural society, road and waterway transportation, trade and commerce, and functions and structures of towns and cities. The changes occur first in the delta and then propagate into other regions of the country. The delta is the showcase in which the country’s future is displayed.

I assumed in this paper that the Zhujiang and the Chao Phraya Deltas could be characterised as maritime and mercantile deltas reclaimed on the basis of organised and heavy investments made by entrepreneurs. The peasants are not tied up with land property or with rural community. They freely change not only in their land use but also their occupation, following the general trend of the time. They have opted for (a) rice monoculture, (b) rice-fish-poultry-fruit complex farming, (c) specialised, commercial production of fruit, vegetable, or fast-growing trees in suburban setting, and are now (d) yielding to urbanisation. The Chao Phraya Delta is now following the path of the Zhujiang Delta to urbanisation, and seemingly, the Mekong Delta is tracking the path to prosperity that the Chao Phraya Delta experienced a few decades ago.

On the other hand, the Bengal and the Ayeyarwady Deltas still retain an agrarian momentum of subsistence livelihood on the basis of self-driven, freelance reclamation and settlement processes. Landed property and social webs of rural community bind them. It is hard, however, to envisage a prosperous rural economy on the basis of agricultural development alone; rather, their prosperity must be sought through more active interactions between villages and local growth centres. These two deltas must seek an alternative way to prosperity.

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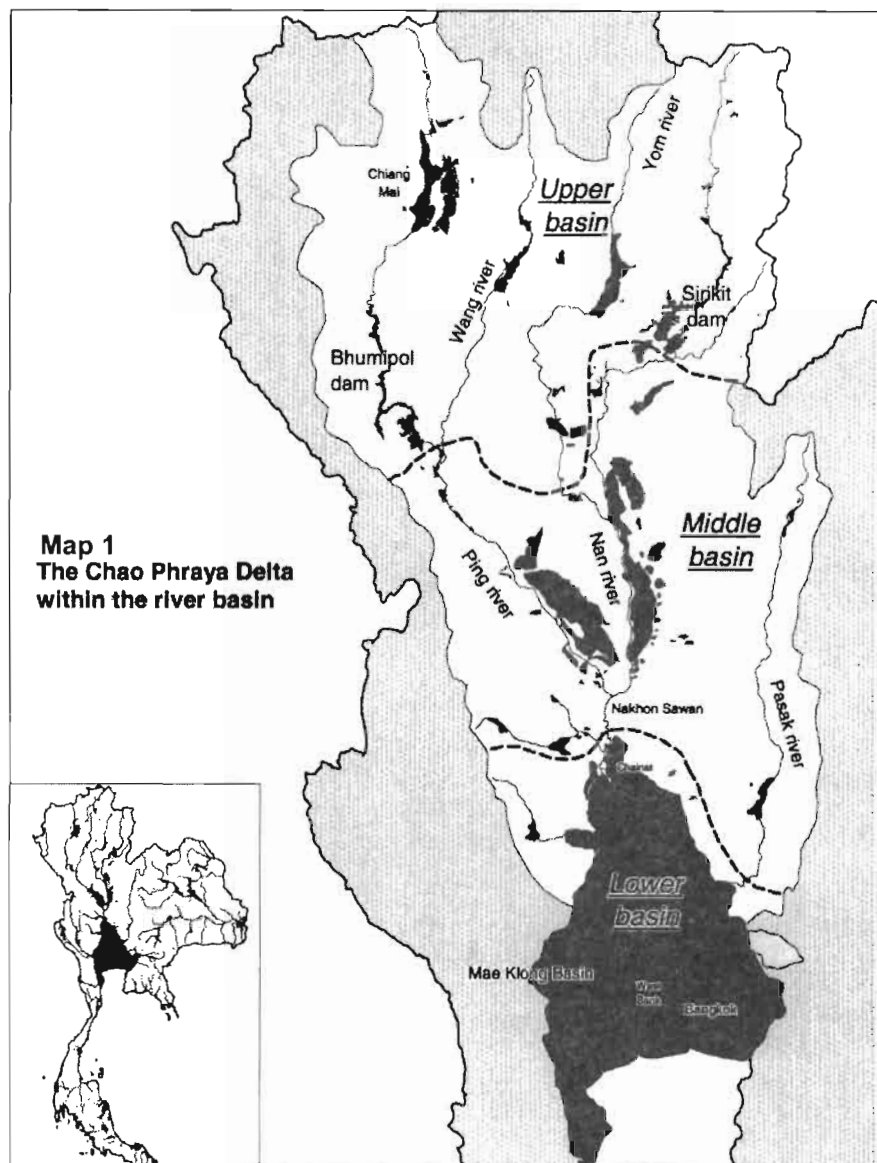
Glossary

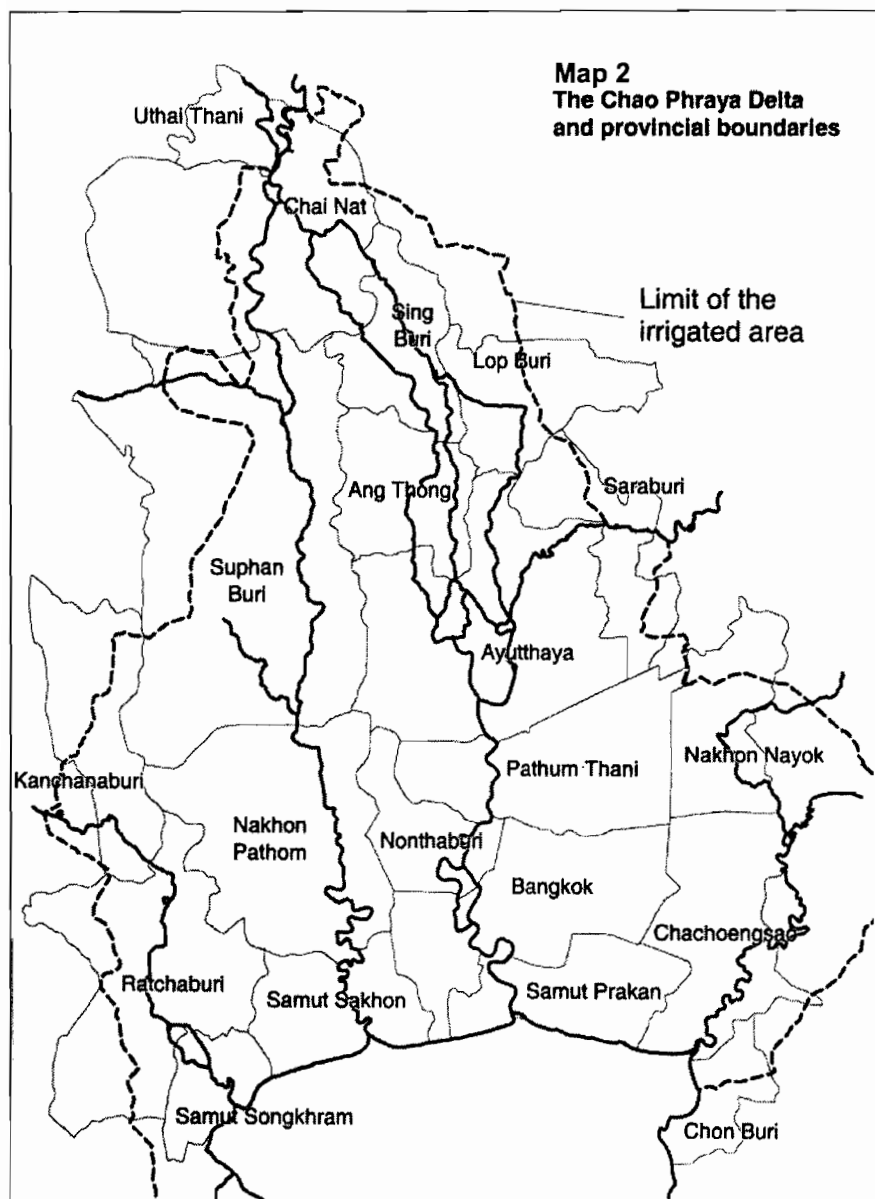
<i>amnat</i>	power
<i>amphoe</i>	district
<i>amphoe muang</i>	headquarters district of a province
<i>ao raeng</i>	traditional system of communal labour
<i>ban</i>	house, village
<i>barami</i>	charisma, innate political authority
<i>chaloai</i>	enslaved war captive
<i>changwat</i>	province
<i>chao pho</i>	godfather
<i>charoen</i>	progress, prosperity
<i>chumchon</i>	community
<i>hua khanaen</i>	canvasser, vote bank
<i>itthiphon</i>	influence
<i>kamnan</i>	headman of a tambon
<i>kariang</i>	Karen
<i>kaset</i>	agriculture
<i>khaek</i>	guest; by extension, Indian, Muslim
<i>kharatchakan</i>	bureaucrat
<i>khlong</i>	canal
<i>ko</i>	island
<i>long khaek</i>	traditional system of communal labour
<i>luk chin</i>	"Chinese son", Chinese born in Thailand
<i>monthon</i>	circle, obsolete administrative division
<i>muang fai</i>	traditional dam-and-channel irrigation in northern Thailand
<i>muang</i>	place, town, state
<i>muban</i>	group of houses, village
<i>muban chatsan</i>	housing estate
<i>nakleng</i>	tough guy
<i>phak</i>	(political) party
<i>phrai</i>	free man status in traditional social order

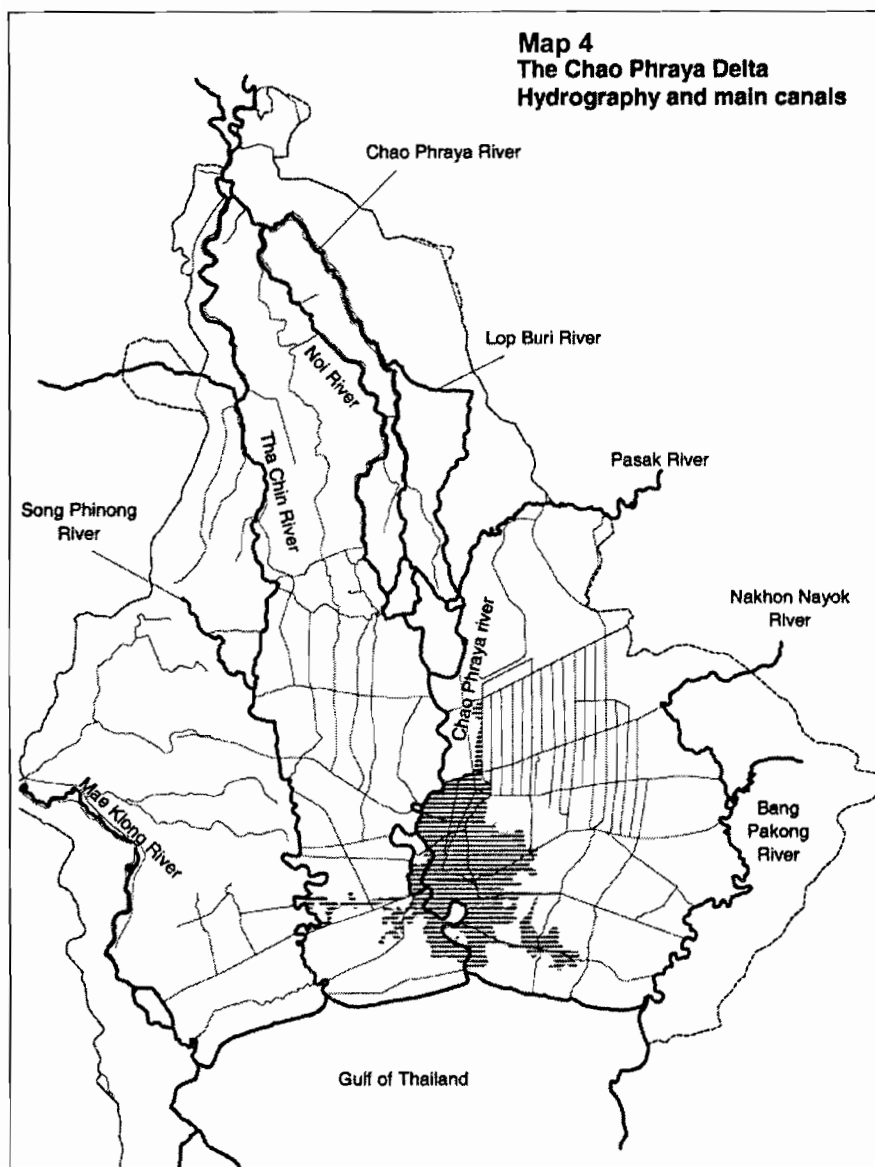
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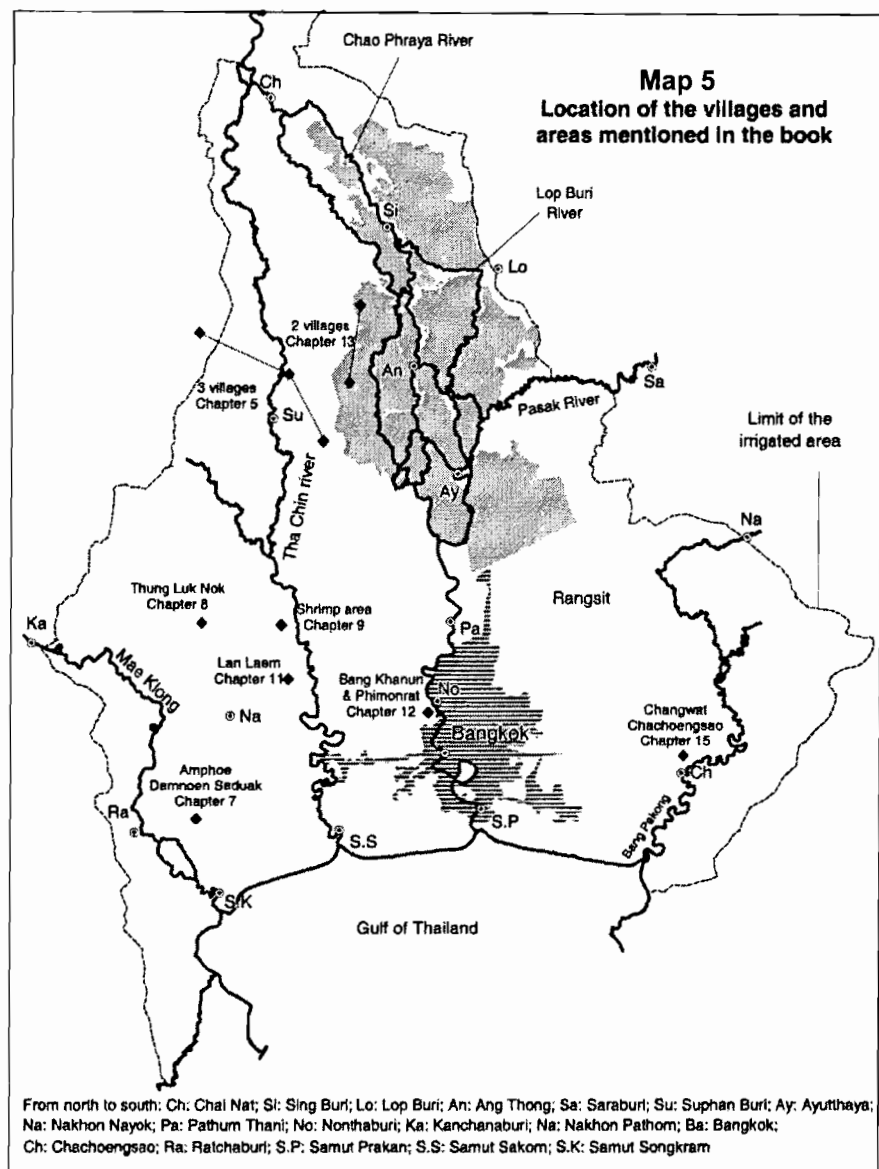
<i>phu yai ban</i>	headman of a village
<i>phuak</i>	clique, faction
<i>rai</i>	unit of area, equivalent to 0. 16 ha or 0. 4 acres
<i>sahakon</i>	cooperative
<i>san chao</i>	Chinese shrine, temple
<i>saphan</i>	bridge
<i>suan</i>	garden, orchard
<i>sukhaphiban</i>	sanitary district; semi-urban territorial unit, recently abolished
<i>surao</i>	mosque
<i>tambon</i>	sub-district
<i>tham bun</i>	make merit
<i>thesaban</i>	municipality
<i>upaphok boriphok</i>	(domestic) consumption
<i>wat</i>	Buddhist temple, monastery
<i>watthanatham</i>	culture
<i>ya ba</i>	“mad drug,” metamphetamine pills
<i>yat</i>	relative

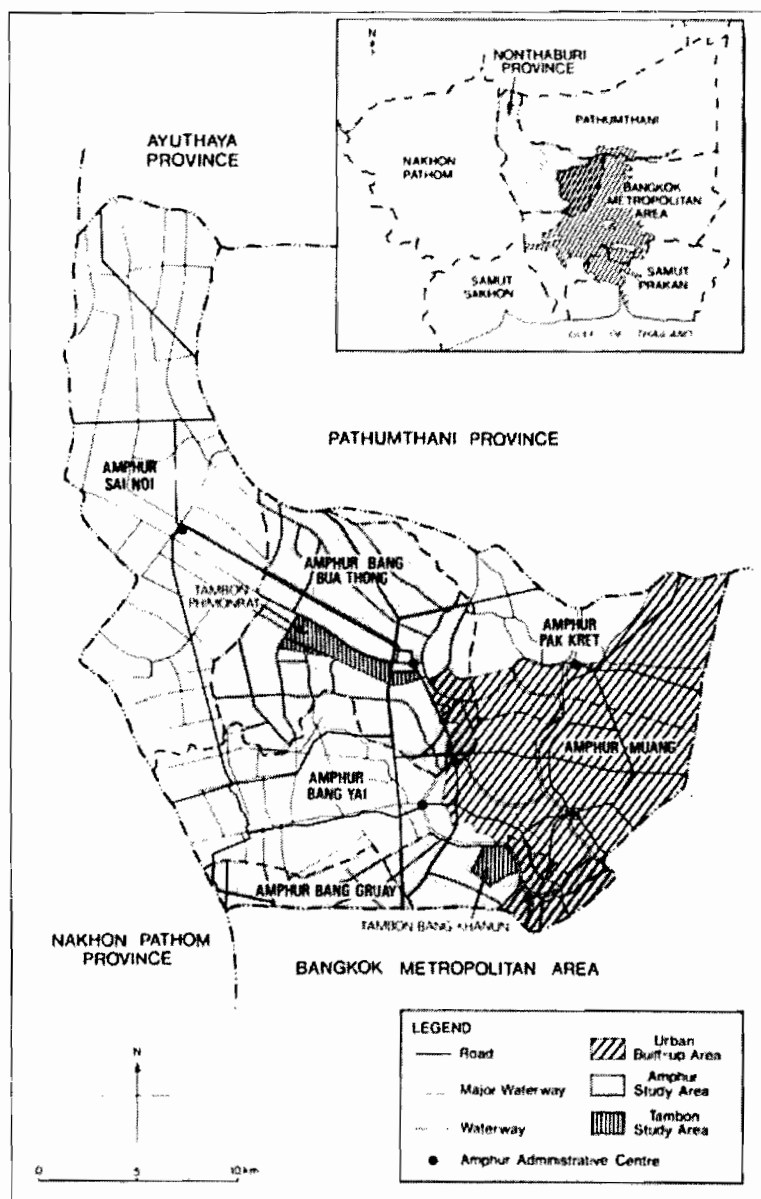
Appendix: Maps











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Thailand's Rice Bowl: Perspectives on Agricultural and Social Change in the Chao Phraya Delta brings together 14 scholars who discuss the following topics:

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An extensive bibliography and maps add to the value of the study.

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