Chapter 4

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

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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 work[1]. Although it escaped the rule of colonial powers, Thailand is often believed to provide an example of a

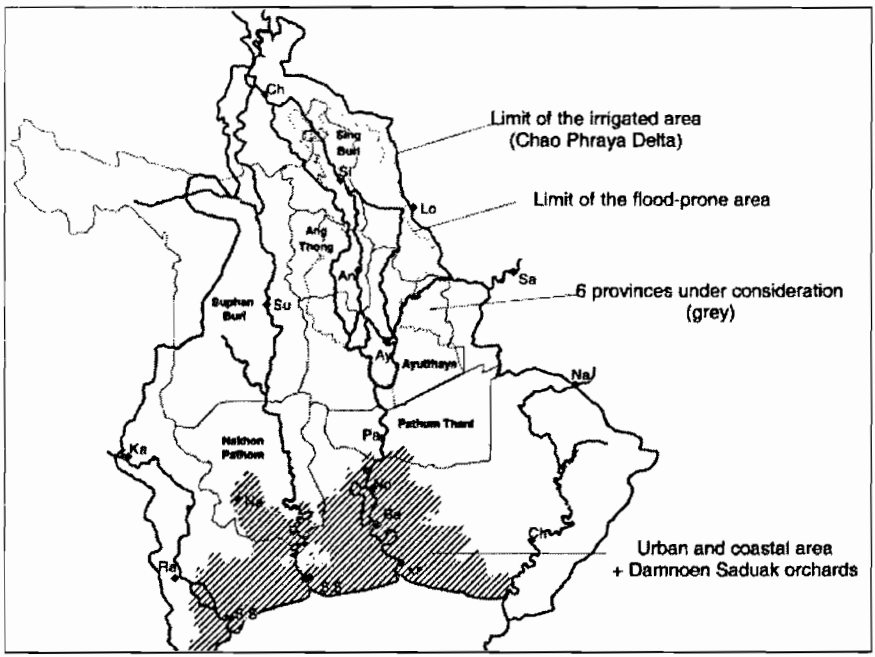
subsistence economy disintegrated by the irruption of market and capitalist forces (Witayakorn, 1983a; Douglass, 1984; Chatthip, 1999). Skewed ownership is often traced back to the early times of land reclamation, when the nobility and high-ranking officials acquired most of the land located in the vicinity 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 data[2], 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; **No**: Nonthaburi; **Ka**: Kanchanaburi; **Na**: 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 1993[4]. 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 (*rai*)	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 (*rai*)	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 1978–93[5]. 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)

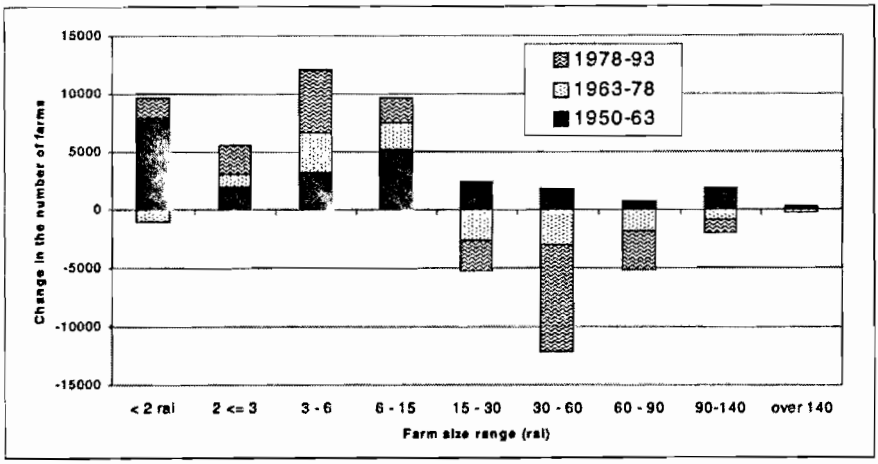
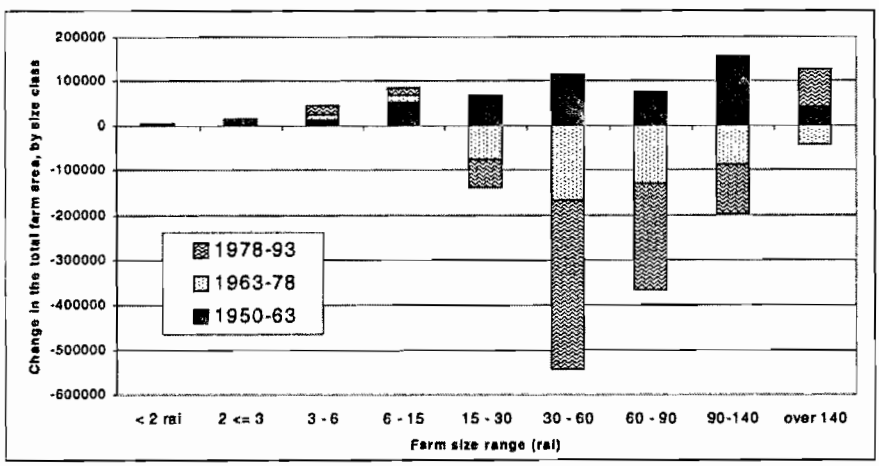
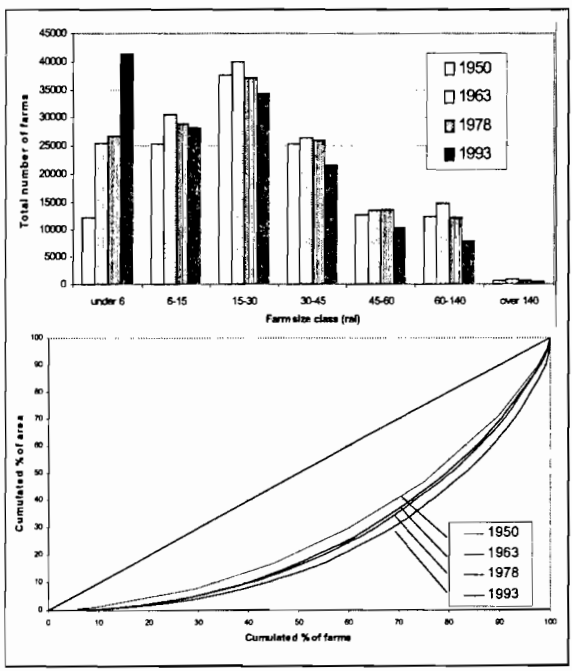


Figure 4.3 Change in the total farm area, by farm size class and 3 inter-census periods (5 provinces)



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.

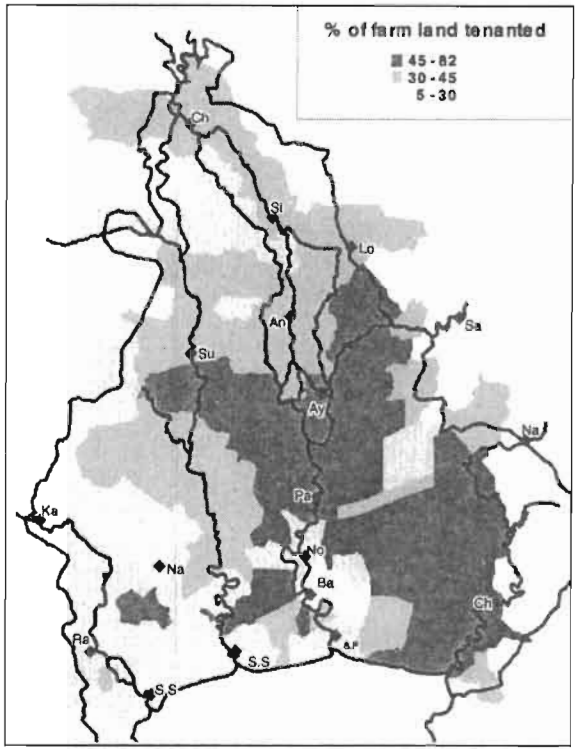
[2] From population censuses; 1937 data are estimated assuming that mixed farms have, on average, 50% rented and 50% owned.

[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 Bank[6], 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 *hacienderos* 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 controversy[7]. 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 of-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 late 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 status[8]. 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 household[9]), 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 two[10], while failed and evicted farmers may be correspondingly limited in number[11].

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 option[12]. 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, 1960[13]; 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 remittances[14]) 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 cropping[16], 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 rice[17] 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 areas[18], 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 (Niphon, 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 terms[19], 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 unexpectedly[20] 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 Rangsit[21]) 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).

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Thailand's Rice Bowl

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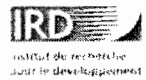

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