Access to land resources in the Chao Phraya Delta: land tenure issues revisited[1]

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Abstract: *Land systems undergo constant processes of redistribution through inheritance, sale or rentals. Imbalances may appear and create economic non-viability (fragmentation) or ownership concentration. The Chao Phraya delta is often considered as an example of subsistence peasant economy and culture destabilised, or disintegrated, by the opening to markets and capitalism. This papers examines historical trends in farm size, land distribution and tenure, and concludes that there is no evidence of drastic imbalances in the land system. It shows that crises were experienced in some points of space and time, in particular around 1970, but that they do not adequately describe longer historical transformations.*

1 Introduction

Access to land is a critical aspect of agrarian systems. Farm land endowments vary with the course of time as population grows and land is transmitted from one generation to the following one. Possible land fragmentation is a strong concern of 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 skewedness. An egalitarian distribution will be challenged by several processes that tend to create disparities constantly: heterogeneity in the family structure (number of children, health status, etc), in human resources (skill, will, risk-management, etc) or in the socio-cultural structure (differentiated access to productive resources according to social and political stratification; patterns of land transmission by inheritance); heterogeneity in the land itself (lowland/upland, fertility, varied climatic risk, etc) and, therefore, on the economic return of the products it yields. Subsequently, in a dynamic process, these imbalances will tend to strengthen some farms while others will be weakened. Traditionally, subsistence economies in Southeast Asia and elsewhere have developed social means to control such disparities that may destroy the cohesion of the group. Distribution of land according to family size, needs for mutual help, labour sharing at critical times of the agricultural calendar and food redistribution in case of shortage – regardless of whether they are seen as a normative moral ideal or as a mere subsistence prerequisite - were salient features of such economies.

[1] Most of the quantitative analysis presented in this paper is drawn from Molle and Srijantr (1999) to which the reader interested by further details is referred.

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In general terms, the structure of the *land system* (*the characteristics of the access to and of the use of the land resources within a given agrarian system*) appears to be extremely complex when one considers the different factors that govern its dynamic over time. The number of possible combinations between the set of farms (holdings) of a given region and the set of cultivated plots – in numeric and tenurial terms, and also regarding the social arrangements attached to transactions - are extremely high and their re-combination over time is governed by varied agro-ecological, physical and socio-economic factors that are also subject to change.

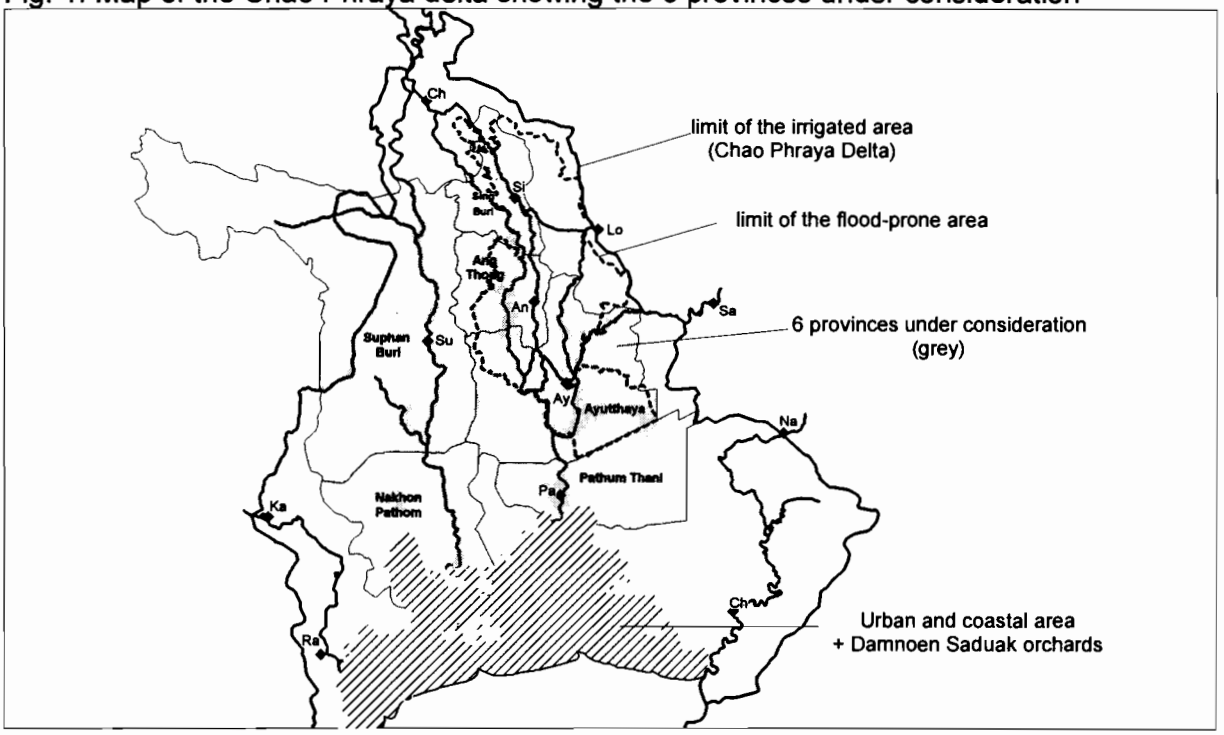
The case of Thailand, most specifically its Central Region and the 1850-1930 period, has aroused considerable scholarly interest and work[4]. Although it escaped the rule of colonial powers, Thailand is often believed to provide an example of subsistence economy disintegrated by the irruption of market and capitalist forces (Douglass, 1984; Chiengkul, 1983a, Nartsupha, 1999). Skewed ownership is often traced back to the early times of land reclamation, where the nobility and the officialdom acquired most of the land located in Bangkok's vicinity, notably on the lower Chao Phraya East Bank, including the Rangsit Project. Indebtedness, landlessness or landlords abuses are noted all along the history of the rural delta, in particular in times of crisis such as 1930 or the late 1960s-early 1970s (hereafter the "*1970 crisis*"). Along with the dismantling of traditional subsistence economies and the sharpening of social differentiation, increasing differences in holdings appear and capital excess or deficit (debts) are believed to translate into the accumulation of more land in fewer hands, following a classical *Marxian scenario* of polarisation.

The *1970 crisis* sparked off an abundant literature on different aspects of an agrarian deadlock: several reports warned that "population pressure and inheritance practices are constituting the primary pressures upon farmers to engage in tenancy; (...) the percentage of owner-tenants and tenants among all farmers will increase tremendously in the future" (Wagstaff, 1970). This concern was echoed by Ramsson (1977) who stated that "as the remaining frontiers in farm land begin to close, it can be expected that farm land tenancy will become more widespread". Piker (1975) opportunely raised concern about land speculation on the part of the urban strata and sees the "ownership of rice lands passing increasingly and irreversibly out of the local rural community". Tomosugi (1969) noted that "nearly 50% of paddy fields are now tenant cultivated" and that the "trend is still continuing at present". Resanond (1979) admitted that "if this trend [3% population growth] continues, and it is very likely to do so, (...) how to keep all of them [farmers] in agriculture is *another big problem*"... Chiengkul (1983a) and Douglass (1984) see this period as the outcome of a deleterious process of capitalist penetration in the Central Plain.

The present paper is devoted to assessing why, how and to what extent the ensuing decades have conformed or not 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 the common wisdom on such issues.

[4] The circumstances of its historical transformations have been analysed by several classical studies to which the reader may refer (see, in particular, Ingram, 1971; Manarangsan, 1989; Feeny, 1982; Johnston, 1975; Ishi, 1975).

Fig. 1: Map of the Chao Phraya delta showing the 6 provinces under consideration



From north to south: **Ch**: Chai Nat; **Sl**: 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 Sakorn; **S.S**: Samut Songkram.

In an attempt to avoid the pitfall of aggregated data[5], we will consider only six provinces entirely included in the delta; an exception has been made for Suphan Buri Province, which has almost half of its land outside the irrigated delta and will serve as a point of comparison for the other provinces, namely Sing Buri, Ang Thong, Ayutthaya, Pathum Thani and Nakhon Pathom (Fig. 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 crop intensity (this "*flood-prone area*", as it will be called hereafter, is indicated on the map by a dotted lines). In these areas, off-farm activities are common and the agricultural population is ageing markedly. 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 (aquaculture, orchards).

[5] Many studies on rural Thailand are based on aggregated data at the regional level. However, the high heterogeneity of agro-ecological and development conditions does not allow interpretation at that level. Even at the provincial level, it is often dangerous to draw conclusions: in the Central Region, provinces such as Lop Buri, Saraburi or Ratchaburi encompass a wide variety of agricultural conditions, ranging from forests, upland cultivation, to irrigated and lowland flood-prone conditions. The density of population, the rental and land markets, the level of land titling, and integration into the market are other important factors with significant spatial heterogeneity. Provinces with recent expansion into the uplands produce statistics that are an average of very different situations (rice-based long-settled core areas; expanding field crops in uplands, etc) and offer little support to disentangle such an intricate process. In this light, many analyses done on the Central Plain appear to be marred by the inconsistency of the spatial units used and/or by the undue generalisation of site-specific observations.

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 surveys and investigations) and subsequently interprets them within a wider framework of social, economic and demographic change.

2 Change in farm land and patterns of land tenure

2.1 Number of farms and distribution by size classes

Table 1 shows that an increase in farm land of 14% is still recorded between 1950 and 1963 (residual land brought under cultivation, part of which is attributable to the implementation of the Chao Phraya Irrigation Scheme). Agricultural land in the delta probably started to decline in the1970s. This *regression of the land frontier* is now very significant, most especially around Bangkok and, with regard to the provinces included in our sample, Pathum Thani and Nakhon Pathom: these last two provinces lost around 1.4% of their agricultural land every year in the 1963 -1993 period. While Ang Thong and Sing Buri have limited their losses to 15 and 18% of the total land farmed in 1963, Ayutthaya has lost 24%. Suphan Buri stands out as an exception, with an increase of 9% due to the opening of new uplands to the west of the province.

This reduction is due principally to urban and industrial growth and to the transformation of agricultural land into real estate, sand pits, golf courses, sunday-gardens, roads, etc. Speculation is also responsible for some fallow land, especially along the main roads and near urban centres. Not considering Suphan Buri, the remaining provinces undergo an overall loss of 27% of their agricultural land in a 30 year span.

TABLE 1: TOTAL FARM AREA (RAI), BY PROVINCE AND BY CENSUS.

	1950	1963	1978	1993	1993/1963	(±)% year
Ayutthaya	1,100,311	1,382,460	1,269,611	1,045,584	0.76	-0.93
Ang Thong	444,214	494,659	503,808	420,251	0.85	-0.54
Pathum Thani	796,295	830,040	750,931	554,135	0.67	-1.34
Sing Buri	389,754	440,187	371,604	358,908	0.82	-0.68
Suphan Buri	915,553	1,852,298	1,946,310	2,012,113	1,09	0,28
Nakhon Pathom	926,596	1,035,579	812,181	672,996	0.65	-1.43
Total	4,572,723	6,035,223	5,654,445	5,063,987	0.84	-0.58
Total – Suphan	**3,657,170**	**4,182,925**	**3,708,135**	**3,051,874**	**0.73**	**-1,05**

Note; 6.25 rai = 1 ha

The total number of farms also rose during the 1950-63 interval (with a rate of 100% for Suphan Buri (upland frontier) and an average rate of 20% for the other provinces), then later levelled off and only slightly decreased (the overall growth for the subsequent 30 years is only 7%, but if Suphan Buri, with its expansion towards uplands, is disregarded, we obtain on the contrary a *reduction of 5% of the total number of farms)*. Table 2 shows that, in fact,

this average trend varies according to the province: Ang Thong and Sing Buri experienced an increase in the number of farms (+5% and +3% respectively), while the three more urbanised provinces (Pathum Thani, Nakhon Pathom and Ayutthaya) underwent a net decrease, especially the latter (- 13%).

TABLE 2: EVOLUTION OF THE TOTAL NUMBER OF FARMS, BY PROVINCE

Province	1950	1963	1978	1993	1993/50	93/63	% year
Ayutthaya	36,875	44,037	42,258	38,462	1.04	0.87	-0.45
Ang Thong	20,329	25,039	25,640	26,208	1.29	1.05	0.15
Pathum Thani	17,388	19,695	19,625	17,711	1.02	0.90	-0.35
Sing Buri	15,671	18,841	20,049	19,500	1.24	1.03	0.11
Suphan Buri	31,452	63,895	73,931	85,495	2.72	1.34	0.98
Nakhon Pathom	35,972	44,078	41,056	42,274	1.18	0.96	-0.14
Total	**157,687**	**215,585**	**222,559**	**229,650**	**1.46**	**1,07**	**0.21**
Total – Suphan Buri	**126,235**	**151,690**	**148,628**	**144,155**	**1.14**	**0.95**	**-0.17**

Source: Agricultural censuses (respective issues)

Data on average farm size prior to the middle of the current century are scant. Prince Dilok reports that at the turn of the century farms in the central valley were commonly in the 80-100 rai bracket. Zimmerman's survey in 1930 is too fragmentary to derive a clear picture of that question but points out to much smaller areas. It is believed that the average farm size may have been attuned to the family labour force until the 1920s, when saturation became sensible in some parts of the delta and the average farm size started to decline. Table 3 reveals the gradual trend which has affected all provinces since 1950, giving an overall decrease from *30.1 to 22.1 rai between 1950 and 1993*[6].

Regarding the 1963-93 period, the slight decrease of the number of farms in the 5 core provinces (-5%) combined with the overall decrease of the total farm land (-26%), translates into varied evolutions of the average farm size by province, but all trends are downwards (Table 3). This shows that even Provinces with a clear decrease in the number of farms also underwent an even more drastic decline of farm land. Pathum Thani, although presenting a decrease of 26%, is still noticeable for its higher average farm size which is due to its specific historical pattern of land reclamation. Ang Thong and Sing Buri are the most alarming provinces, with a decline of approximately 20%. Nakhon Pathom scores even lower but this rate is concomitant to a significant trend towards diversified production farmed on smaller land. Although it has upland reserve, Suphan Buri does not succeed in compensating the strong fragmentation observed in the irrigated part.

[6] It is worth noting, too, that if a similar calculation is carried out for the *rural delta* (i.e the set of amphoe best matching the current irrigated area, BMA set aside), the decrease in farm size appears of lesser magnitude, *from 28 to 24 rai between 1963 and 1993, showing that land division is more advanced in the core delta* (our 6 provinces).

TABLE 3: EVOLUTION OF THE AVERAGE FARM AREA, BY PROVINCE (IN RAI)

Province	1937	1950	1963	1978	1993	93/63	% year
Ayutthaya	30.5	29.8	31.4	30.0	27.2	0.87	-0.48
Ang Thong	21.3	21.8	19.8	19.7	16.0	0.81	-0.71
Pathum Thani	47.7	45.9	42.1	38.3	31.3	0.74	-0.98
Sing Buri	25.7	24.8	23.4	18.5	18.4	0.79	-0.79
Suphan Buri	26.4	29.1	29.0	26.3	23.5	0.81	-0.70
Nakhon Pathom	25.4	25.7	23.5	19.8	15.9	0.68	-1.29
Total	**29.5**	**30.1**	**28.0**	**25.4**	**22.1**	**0.79**	**-0.79**

Source: Population and agricultural censuses (respective issues)

Similar data relative to farms growing only rice show that, Pathum Thani aside, the reduction in average farm size is less severe than for other farms: from 28 to 24 rai/farm between 1978 and 1993. Sing Buri even registers an increase, due to the consolidation of some very large farms in this province (see later section).

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. Fig. 2 is quite illuminating in revealing the change in the number of farms for each size class (5 provinces). It specifies these variations for each inter-census period, 1950-1963,1963-78 and 1978-93[7]. The 1950-63 period differs from other periods in that all size classes are numerically on the rise. On the contrary, the two following periods are marked by a surge of smal(ler) holdings, with areas lower than 15 rai, while larger holdings are depleted.

Fig. 3 proposes a complementary reading in terms of total farm area by class. It reveals how the increase in total farm land of the 1950-63 period has predominantly benefited larger farms: this does not mean that these farms have absorbed the new land brought under cultivation but that the overall redistribution process shows both a pattern of land concentration in some larger farms (> 30 rai) and a rise of small farms, possibly losing land because of inheritance division and/or forced land sale. The component of land concentration, however, appears radically reversed in the two later intervals: farms over 30 rai (and, notably, farms between 60 and 100 rai) have provided most of the land corresponding to the surge of the small holdings. To put it another way, these small holdings probably originate from the division of the larger ones (either by inheritance or by land sale). An extremely interesting phenomena also appears in the last upper range: the area farmed by holdings over 140 rai has been on the rise during the 78-93 period. A total of 90,000 rai has been transferred to this category, showing that there is an embryonic development of (very) large farms. Data by *changwat* reveal that 140,000 rai should be added to this category if Suphan Buri Province was added: the trend is much larger in the upland. All the

[7] The size classes in the three census are not exactly the same and some 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 1 rai in the 1950 census, whereas it is taken as 2 rai in the following censuses. Therefore, the growth of the farms under 2 rai between 1950 and 1963 is underrated (although it already appears quite considerable).

provinces, to a lesser or greater extent, show a positive trend on that range, especially Sing Buri and Pathum Thani.

Also of great significance 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 5 inner *changwat*). This means that the average size of these farms has boomed up, from 189 to 352 rai.

FIG. 2: CHANGE IN THE TOTAL NUMBER OF FARMS, BY FARM SIZE CLASS AND 3 INTER-CENSUS PERIODS

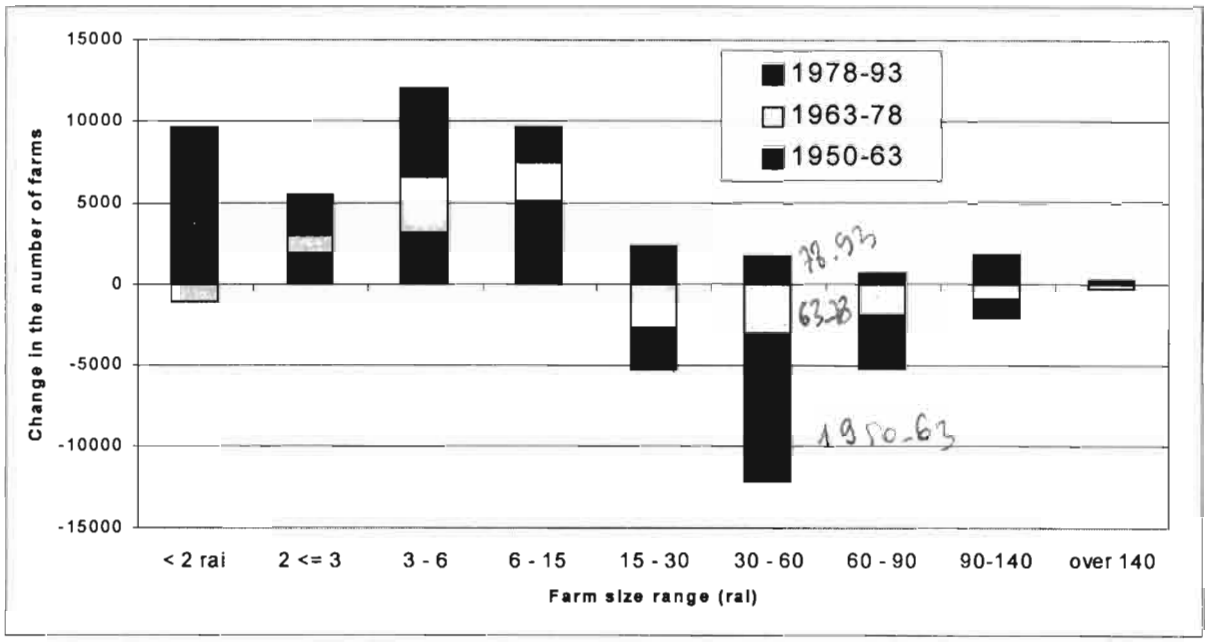
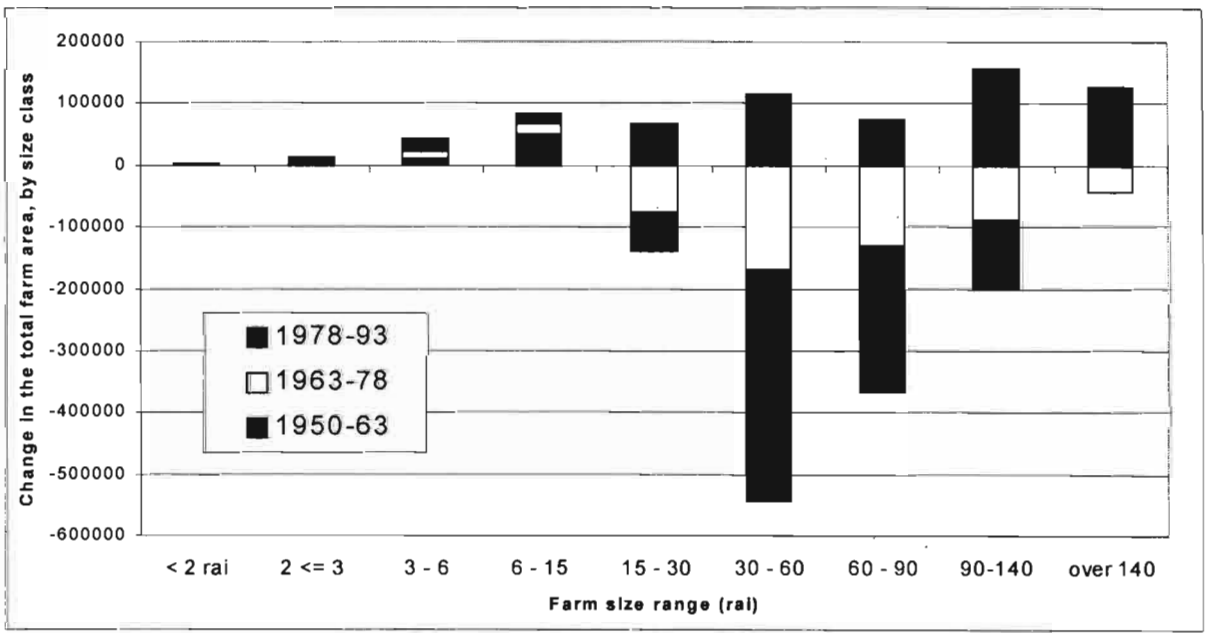


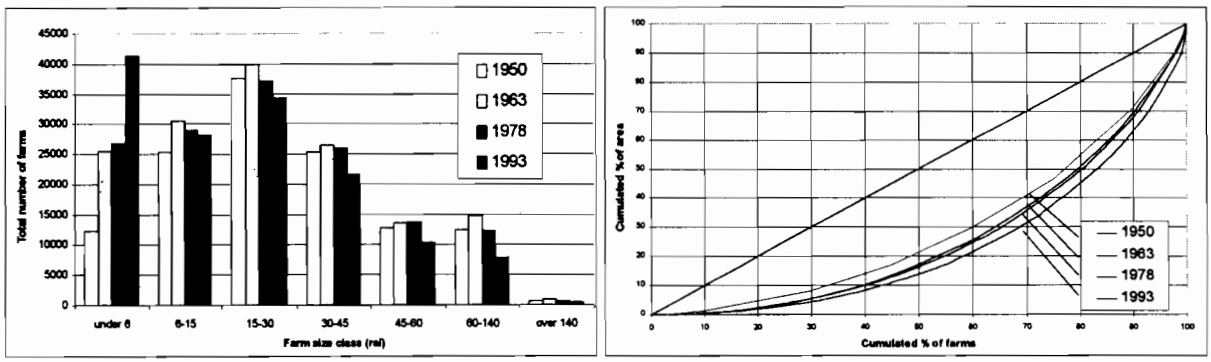
FIG. 3: CHANGE IN THE TOTAL FARM AREA, BY SIZE CLASS AND 3 INTER-CENSUS PERIODS (5 PROVINCES)



The distribution of holdings by farm size class is rather different *for each changwat*. Ayutthaya differs from other provinces in that no (or a very limited) increase of the smaller farms is registered. This obviously reflects the fact that the agro-ecological conditions do not allow more fragmentation of these holdings. Pathum Thani has lost many of its large holdings (> 60 rai). Nakhon Pathom (diversification), Ang Thong and Sing Buri show a farm distribution with a high number of small farms. Although parts of these last two provinces have notably intensified their agriculture, the trend is worrying as their population density is high. Suphan Buri still has a large share of medium farms (upland areas) but its irrigated part is also undergoing fragmentation.

In 1993, farms under 20 rai make up 60% of the total holdings but cover only 21% of the total farm area. The 10% larger farms (over 40 rai), on the other hand, correspond to 36% of the total farm land. Fig. 4 plots the cumulated percentages of both the number of farms and their corresponding areas for the three censuses, and reveals that the change in farm size distribution commented earlier resulted in an overall worsening of the distributional pattern. This can be seen from the fact that the curve gradually strays from the diagonal, especially during the 1950-63 and 1978-93 periods. The Gini indice[8], computed for the four years, yields values of 0.41, 0.46, 0.47 and 0.52 respectively. The change of the 1978-1993 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 these gradual increase of the Gini indice is not readily available. Land productivity must be taken into account and some small holdings which engaged in cash crop production in the 1978-93 interval are better off than bigger ones with rice monoculture.

FIG. 4: THE DISTRIBUTION OF THE ABSOLUTE NUMBER OF FARMS BY SIZE CLASS (5 *CHANGWAT*)



sources: agricultural census

The data presented above refer to all the farms, irrespective of their land use. Between 1978 and 1993, mono-rice growers have undergone a severe cut in all size classes, some of them shifting to the "mixed" category, which shows net gains for all categories under 30 rai. In addition data show that the increase in small farms in the 1963-93 period chiefly relates to non-rice growing farms. This is an important point as it smoothes the vision of poverty associated with very small holdings. This complements the overall picture and allows one to

[8] which measures the total area between the diagonal and the curve, the unit being the half rectangle representing the worst possible distribution.

state that both mixed farms and farms diversifying out of rice are increasing at the expense of mono-rice farms.

TABLE 4: EVOLUTION OF THE PERCENTAGE OF FARMS GROWING RICE

	All farms growing rice					Farms with only rice		Rice/mixed farms	
Province	% total 1937	% total 1947	% total 1963	% total 1978	% total 1993	% total 1978	% total 1993	% total 1978	% total 1993
Ayutthaya	98	97	95	96	91	88	79	8	12
Ang Thong	98	96	94	93	79	79	55	14	24
Pathum Thani	94	95	93	78	64	64	48	14	18
Sing Buri	97	95	95	95	84	81	65	14	19
Suphan Buri	95	91		72	67	66	47	6	20
Nakhon Pathom	96	81	79	61	46	41	31	20	15
Total	**96**	**92**	**90**	**84**	**70**	**68**	**52**	**16**	**18**

Source: Population and Agricultural Censuses (respective issues)

A last mention can be made regarding the average number of plots per farm. Contrary to expectations, it has been declining since the post-war period. Zimmerman's estimates in 1930 gives an average of 1.64 but this value sharply rises to 2.6 in 1953 (Ministry of Agriculture, 1953). It was found as low as 1.83 in 1978 and further declined, with a value of 1.64 in 1993[9], in line with the augmentation of small farms, most of which have only one parcel.

2.2 Change in land ownership and patterns of land tenure

In the above discussion, a holder may operate owned or rented land, and may also lease some. The analysis must therefore be deepened in order to assess whether and how the change in farm size is related to tenure conditions.

Tenancy in the delta dates back as soon as the late XIXth century, when urban landlords (crown, nobility, high-ranking officials) – further to the gradual emancipation of their serves and dependants -, had to rely increasingly on tenants and/or wage labourers to farm the large domains they had acquired. This became prominent from 1868 onward in the Rangsit area but also applies to other large scale areas opened by the digging of other canals, most often located on the East Bank (Tanabe, 1978). Estimates for Rangsit in the 1910's put the area owned by large absentee landowners at 81% of the total (Manopimoke, 1989), while Zimmerman (1931) found (in villages of Rangsit) a share of rented land as high as 95.5%. Out of this *landlord area* (see Fig. 1), tenancy was not an issue, as land was available and the grip of urban capitalists was negligible.

[9] Ayutthaya, Ang Thong and Singburi have values slightly higher than the average, while Pathum Thani is the least fragmented. All values for 1993 are smaller than 2.

After WWII the situation evolves quite rapidly. A first agricultural census (1950) and a survey on the total rice-farmers of the Central Plain in 1967-68 (DLD, 1969) provide details on the distribution of farms according to land tenure status: full-owner, tenant/owner, full tenant. The latter can be used for comparison with later censuses with little bias[10], thus compensating for the 1963 census data[11], because the distributions of farms according to land tenure for all farms and for rice-growers only 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. Data from DLD cited by Ramsay (1982) for the year 1975 (1974-76) and available for three of our provinces (Table 5) confirm the bias attached to these data. Table 5 presents the evolution of land tenure types in 1950, 1967, 1973, 1975, 1978 and 1993 for our 5 provinces (Suphan Buri excluded because of its specific pattern).

It appears that, much contrary to expectation, the percentage of full owners has gradually increased over the 30 years span, from around 40% to 61%. The percentages of full tenants undergo a clear decrease from one third in 1967 to less than one fourth in the last decade. Last, the significant proportion of owner/tenants in the early 70's is reduced down to 16% in 1993.

If we now look at the data at the *changwat* level, we are once again struck by the diversity of situations. It appears that, from a probable rather low value after Word War II[12], the late 60's have witnessed a maximum in the percentage of full tenants, which have been declining hitherto. The rise of full-owners is all the more spectacular in all provinces since 1973[13], except in Nakhon Pathom, where there is a 2.5% decrease between the last two censuses. This goes together with a squeeze of the owner/renter category, now reduced to less than 19% in all provinces except Ayutthaya (23%). Almost 3,000 full-tenants have disappeared from Pathum Thani, causing indirectly a spectacular reversal of the historical prevalence of tenancy in this province. This population most probably corresponds to the newly urbanised areas, which was both historically in the hands of urban families and subject to speculation,

[10] Data from a survey in five provinces of central Thailand in 1964 (Chaiyong et al. n.d.), show a distribution of holdings between "full-owner", "owner/tenant", "tenants" and "others" of 41, 29, 27 and 3% respectively (Tomosugi, 1969), which is quite consistent with the 1967 data. Unfortunately, the report only provides the data aggregated for the 5 provinces.

[11] Land tenure studies in Thailand have been marred by the inconsistency of the variables adopted, since the first surveys of Zimmerman in 1930 (Sternstein, 1967; Wagstaff, 1970). The four main censuses in consideration here unfortunately allow limited insight on tenure issues. One of the main flaws is that the 1963 census does not distinguish between (full)owners and owner-tenants. In addition, full tenants are divided between cash-renters and crop-renters (tenants paying their rent in kind) but those renting land on both systems or on a free basis come under the "other" category.

[12] Ingram has computed the share of full tenants for the years 1937, 1950, 1963 (underrated) and 1967 for the 26 provinces of the 1967 survey and obtained shares of 26.7%, 15.6%, 9.9% and 22.5% respectively, showing that the post-war period is characterised by a low level of full-tenancy. It is believed that post-war disturbances, skyrocketing prices in 1947 and, later, the expansion of the upland frontier, have reduced the proportion of full tenants.

[13] The data for 73/74 also bear (in small letters), for information, the percentage of area rented free. It must not be included when comparing with the later censuses. For the 1978 census, people using land free (usually from relatives) are in the "other" category. It is probably also the case in the 1993 census but no specific mention of this is given. The rate of "free renting" is believed to have significantly declined.

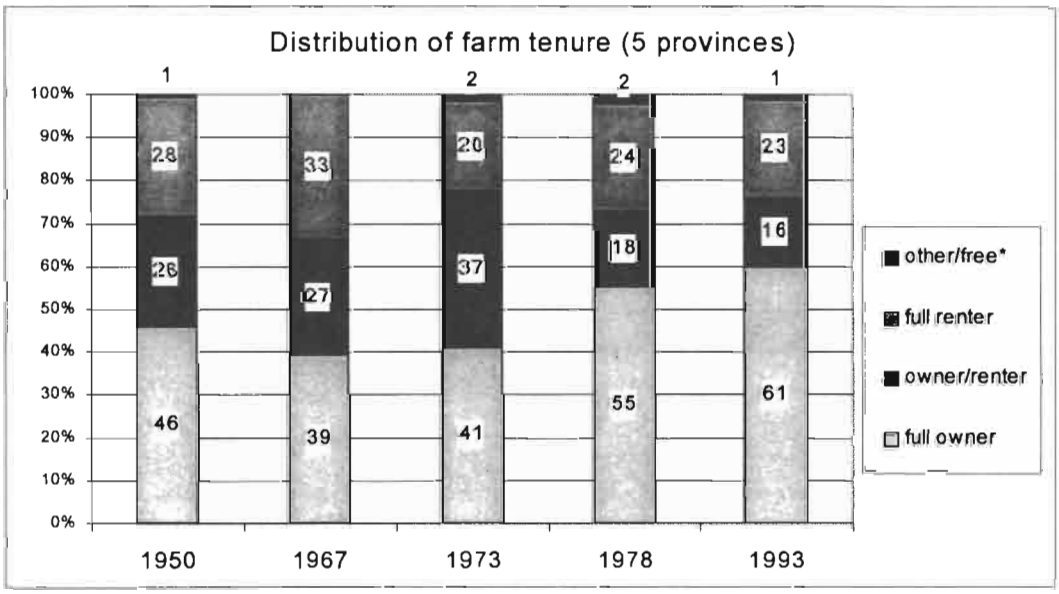
therefore tenanted, while the relative weight of the farms bought by orchard growers who moved into the area is sharpened.

TABLE 5: FULL OWNERS AND FULL TENANTS, IN TOTAL NUMBER OF HOLDINGS AND PERCENTAGES

Year	1950		1963	1967		1973		1975	1978		1993	
	Full owners	Full Tenants	Full* Tenants	Full owners	Full Tenants	Full owners	Full Tenants**	Full Tenants	Full owners	Full tenants	Full Owners	Full Tenants
Ayutthaya	38	28	*(12)*	*27*	*37*	*23*	*20+1*	*26*	*39*	*29*	*45*	*32*
Ang Thong	58	13	*(3)*	*53*	*19*	*48*	*7+2*	*14*	*62*	*15*	*66*	*14*
Pathum Thani	23	59	*(40)*	*23*	*61*	*14*	*59+2*	*60*	*31*	*57*	*51*	*39*
Sing Buri	63	11	*(2)*	*56*	*19*	*58*	*10+5*	-	*68*	*14*	*70*	*13*
Suphan Buri	68	12	*(7)*	*60*	*18*	*66*	*6+1*	-	*51*	*14*	*65*	*17*
Nakhon Pathom	51	27	*(19)*	*47*	*31*	*61*	*16+1*	-	*73*	*16*	*71*	*18*
Total	50	24	(13)	45	29	49	15+1	-	54	21	62	21
Total – Suphan	46	28	(15)	39	33	41	20+2	-	55	24	61	23

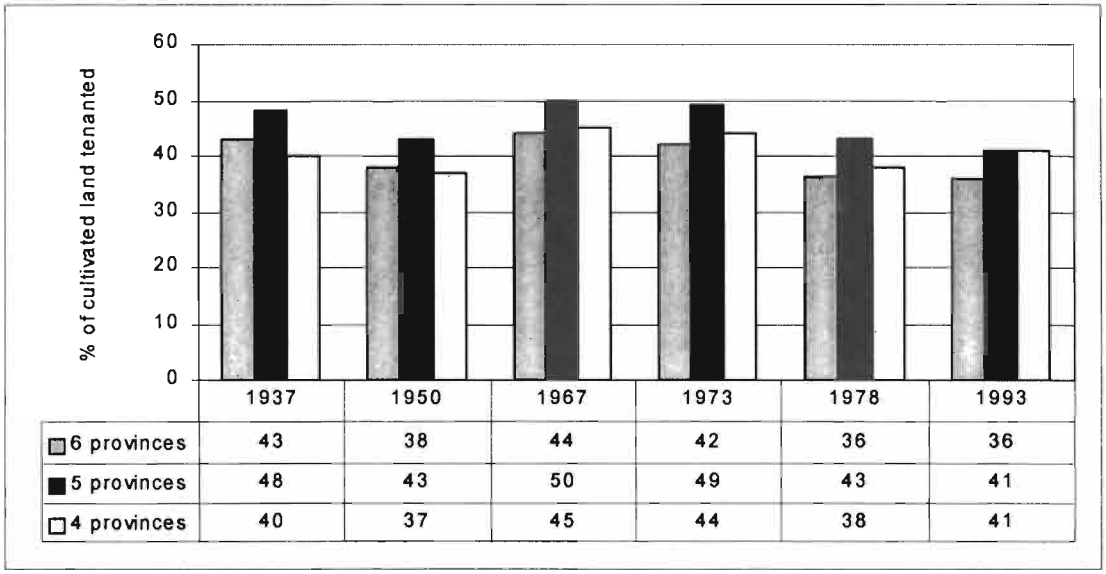
* "Full tenants" in 1963 do not include holdings with rented plots paid in both shared or fixed (cash or kind) rents; the totals are therefore underrated.** the number added on the right stands for the "free rental" category.
Sources: Population and agricultural censuses (respective issues); DLD 1967; data for 1973: OAE (1975); data for 1974-1976 (noted 1975), taken from Ramsay (1982).

FIG. 5: EVOLUTION OF THE DISTRIBUTION OF FARM TENURE TYPES



Another way to measure the incidence of tenancy is to look at the share of the total farm land which is operated by their owners or by tenants. Fig. 6 shows the overall evolution for the 1937 – 1993 period. It appears that for our sets of 6 or 5 provinces the share of tenanted land is slightly declining since the late sixties. The current share of tenanted land (not considering Suphan Buri) is around 40%.

FIG. 6: EVOLUTION OF THE PERCENTAGE OF THE FARMLAND TENANTED (% OF TOTAL FARM LAND)



	1937	1950	1967	1973	1978	1993
6 provinces	43	38	44	42	36	36
5 provinces	48	43	50	49	43	41
4 provinces	40	37	45	44	38	41

Values for 1937 have been estimated[14]; the 1947 Population census, which shows very low levels of tenancy. Data for this census are not shown here because it bears obvious inconsistencies.

We may also consider these evolutions at the *changwat* level (Table 6). 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 HYV) which made many farmers get their land back to operate it by themselves. With the perspective of attractive profits, land tends to be farmed by owners and tenancy decreases.

Table 6 also reveals that the impact of the drastic decrease of the tenanted land in Pathum Thani over the 1978-1993 period *offsets the rise of approximately 3-4% in the other changwats*. In fact, the apparent levelling off of the tenanted land over the last two censuses *conceals a growth* of approximately 3-4% in all provinces but Pathum Thani. This is why we also plotted the evolution of the set of the 4 provinces obtained after removing Pathum Thani. This slight growth can be ascribed to a growing supply of land for rent (see interpretation in the next section).

The most striking point of the table, however, is that by and large the rates of tenanted land observed in the 1930's[15] did not vary that much during the remaining part of the century !

[14] Data on the area of the mixed (owner/tenant) farms do not specify the respective shares of owned and rented land. Based on later data, which show that these two parts are of the same order of magnitude, half of the total area has been attributed to each of the two categories.

[15] This gives the opportunity to comment the data derived from Zimmerman's survey in 1930, in particular the well known "36%" rate of tenanted land in the Central Region widely cited in the literature. "In this study all classes of people were included because in an undifferentiated society it is possible to tell who is a farmer and who is not. Except in the Central Plains, where the differentiation has proceeded a little more than in other districts, it may be said that everyone farms a little and everyone does a little of something else. Even this applies largely to Central Siam". Consequently the 50 families sampled in each village include landless families which "were merchants, shopkeepers and laborers, some were well-to-do and some were poor".

TABLE 6: PERCENTAGE OF TOTAL FARMED AREA OPERATED BY TENANTS (BY *CHANGWAT*)

Province	1930*	1937**	1947**	1950	1957#	1967	1973	1978	1993
Ayutthaya	(42)	50	*[15 ?]*	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 ?]*	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-Suphan		48		43		50	49	43	41

(*): from Zimmerman (1931), on a limited sample; (**) from Population Censuses; 1937 data are estimated assuming that mixed farms have, on average, 50% rented and 50% owned: see footpage note 14. (#) from Uthit Naksawat (1961: in Tomosugi, 1969), the only set of data derived from a limited sample; other data from Agricultural Censuses.

To get a clearer spatial vision of the situation in recent times, Fig. 7 shows the share of tenanted land in 1993. Not surprisingly, the East Bank is almost totally[16] over 45%, together with the banks of the Pasak river and the south 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 river. If we consider the tenanted area for the *rural delta*[17] shown on the map, we obtain an overall value of 37%, 41% for Bangkok's Vicinity and 65% for the remaining agricultural areas of Bangkok (86,000 ha). Corresponding estimates[18] for the three zones are 34%, 59% and 53% for 1978; 41%, 61% and 61% for 1967. In summary, *the rural delta had 41% of his land tenanted in 1967 but this share declined during the seventies to reach 34% in 1978; it later took an upward trend, with a value of 37% in 1993.*

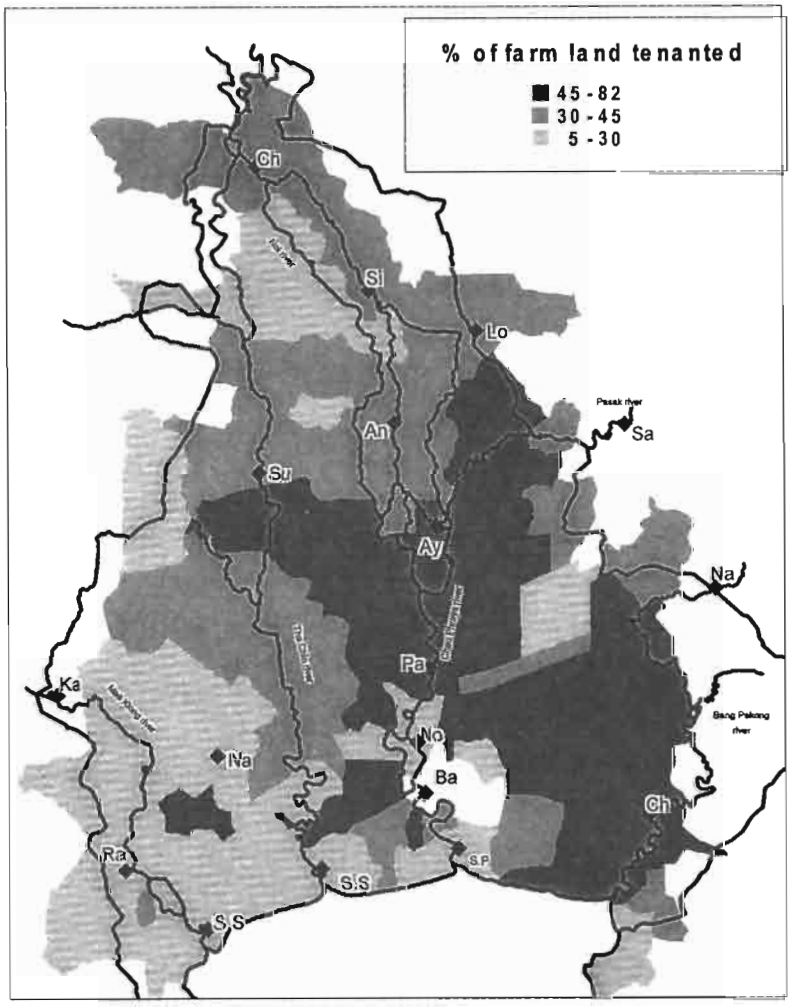
In addition, the total cultivated average area is calculated for the whole village land, and reported to the whole population, including landless (and non-farmers); this tends to show that effective average cultivated areas by family were higher than the values provided in the table. The "number of people renting some land" of the table "Land rented by family" is not clearly defined and regardless of whether it is understood as an absolute number (on a sample of 50 families) or as a percentage it is incompatible with the table giving the average land by tenure an by family.

[16] With the exception of the area growing orange trees which is predominantly owner-operated (see chapter 2).

[17] In what follows, the "rural delta" will designate a set of amphoes excluding Bangkok and its vicinity and best matching the actual irrigated delta.

[18] For 1967 only the percentage by province are given. These values have been weighted by areas of agricultural land as in 1963. For 1978, data by amphoe do not specify the shares of owned and tenanted land of mixed owners. These shares have been derived from data at the provincial level (45% of owned land, 55% of tenanted land for our 5 provinces).

FIG. 7: TENANTED LAND IN THE DELTA (1993)

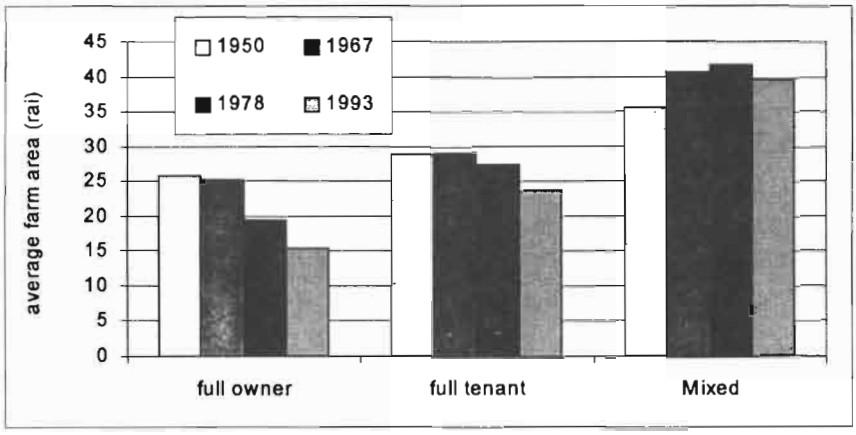


2.3 Land tenure and farm size

Translated in terms of average size of holding, the opposite trends in the number of full-owners and the area they farm entail a significant decrease of the average farm size of this category (from 19.4 to 15.4 rai). Since 1963, full tenants undergo a similar process (but they farm a larger area), while both the owned and rented areas farmed by owner-tenants are rather stable (Fig. 8). If we examine the corresponding data from the 67-68 survey on rice farms, we find values of 25.2, 29.2, 20 and 20.8 rai for the 4 categories. The value for full owners' farms (25.2 rai) is much higher than the value in 1978 (19 rai) but the latter also includes non-rice growing farms which are in general much smaller than rice-growing ones. Therefore the comparison is not fully relevant.

Full owners undergo the highest cut of (average) area but it may well have been offset by the intensification which occurred during the same period. Full renters farm larger areas and it can be hypothesised that the difference with full owners is linked to the necessity to farm larger areas to achieve sustainability (as the payment of rents decreases the per rai income). It is also pushed upward by the larger full-tenant farms of Pathum Thani and Ayutthaya.

FIG. 8: CHANGE IN THE AREAS FARMED UNDER DIFFERENT TENURES (5 PROVINCES)



Details by *changwat* bring about some interesting complements. Table 7 shows that the full-tenants farm area does not decrease, with the exception of Pathum Thani (encroachment of urban growth) and Nakhon Pathom (viability of smaller farms because of diversification). Full owners are more affected, the least in Ayutthaya, where agro-ecological conditions do not permit drastic cuts in an already very low value around 20 rai. Ang Thong, which also has a large share of deep-water rice area, appears as the most worrying *changwat*, with a decrease from 17.8 to 12.3 rai. Many of these full owners are probably ageing farmers with other sources of revenue.

Owner/tenant farmers fare higher, with an overall average of 40 rai, and correspond to farmers which are in a position to make rice-farming profitable. Noteworthy is the exception of Nakhon Pathom: the total average area of these farmers, very high in 1978, has been divided by three. This is, at least in part, a direct consequence of the disappearing of deep-water cultivation in the southern part of the province and of the rise of many small farms engaged in diversification.

TABLE 7: EVOLUTION OF AVERAGE FARM SIZE, BY LAND TENURE TYPE

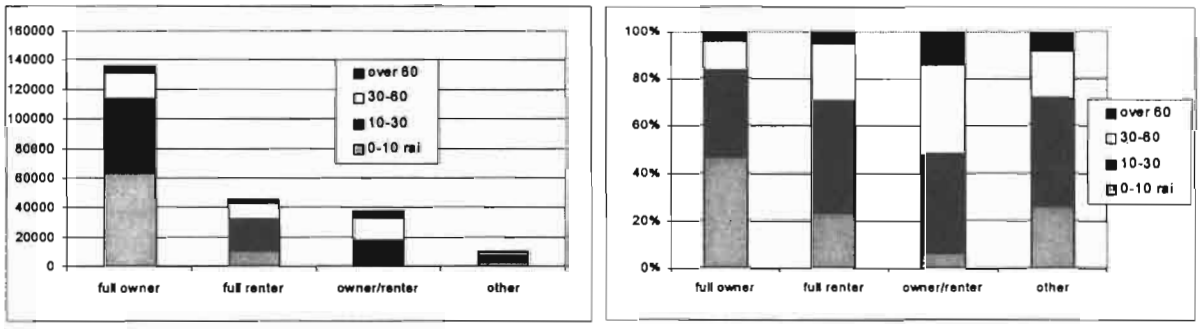
	Full owner				full renter				Owner/renter (mixed)					
									owned part			rented part		
	1950	*1967**	1978	1993	1950	*1967**	1978	1993	*1967**	1978	1993	*1967**	1978	1993
Ayutthaya	25,9	*28*	21.7	18.5	27,3	*27*	27.5	27.6	*21*	18.8	17.8	*23*	24,0	25.8
Ang Thong	21,1	*19*	17.8	12.3	15,2	*15*	16.1	16.5	*14*	12.6	12.7	*14*	14.9	16.2
Pathum Thani	45,2	*45*	34.3	24.9	43,5	*44*	37,0	28.7	*31*	25.4	49,0	*31*	30.8	26.6
Sing Buri	24,2	*23*	16.3	13.9	19,5	*21*	18.7	20,0	*17*	12.9	17.7	*16*	15.4	19.2
Suphan Buri	30,2	*28*	34,0	19.4	19,0	*22*	20.2	20.5	*21*	20.6	19.6	*19*	19.3	20.8
Nak. Pathom	25,2	*23*	17.2	13.3	20,4	*23*	21.5	17.4	*22*	43.3	15.1	*20*	49.2	17.7
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– Suphan	**25,7**	**25**	**19**	**15**	**28,9**	**29**	**27**	**24**	**20**	**19**	**19**	**21**	**23**	**21**

Source: Population and agricultural censuses (respective issues)
* Data for 1967 relate to rice-growing farms only and, therefore, cannot be compared directly to those of 1978 and 1998

With such disparities of average farm area among tenure types, it is obvious that – reciprocally - land tenure types are not uniformly distributed within the different farm size classes. In 1978, farms smaller than 10 rai are mostly fully owned, while for the 10-30 rai range full owners are only slightly dominant; for larger farms the proportion is reversed, as expected, given that most farmers willing to cultivate more land have interest to rent it rather than to buy it. Fifteen years later, proportions are quite similar, *except for the 0-10 range*: the increase of small farms in this range 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 is not favourable to land renting, smaller farms being less able to afford paying rents than larger ones.

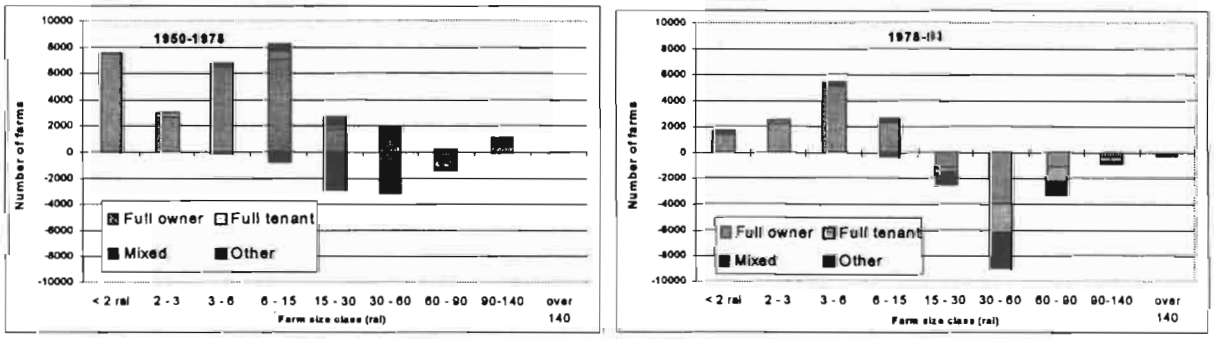
Viewed another way, the dominant class of full owners is found chiefly in the 0-10 rai and the 10-30 rai classes (Fig. 9). Full tenants prevail in the two medium strata, while owner/tenants are rather found in the medium and upper strata. This, of course, directly translates into varied average farm sizes, as evidenced earlier.

FIG. 9: FARM SIZE DISTRIBUTION FOR EACH TENURE TYPE (NB. OF FARMS AND %, 1993, 6 PROVINCES)



All these interlinked variables of farm size and tenure and their evolutions over the 1978-93 period are best summarised in Fig. 10. We clearly see how all tenures types of farms over 25 rai have been depleted to yield an increasing number of smaller owner-operated holdings.

FIG. 10: EVOLUTION OF THE NUMBER OF FARMS BY SIZE CLASS AND TENURE TYPE (1978-1993)



3 Interpretation

We may now attempt a re-appraisal of the evolution of the land system, based on the interpretation of the above data and their linkage with the most relevant changes of the delta

agrarian system. We will in particular show that images of drastic land fragmentation or land concentration do not adequately describe the situation and emphasise some of the processes at work which have contributed to avert an agrarian crisis.

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 (Prince Dilok, 1908; Kaufman, 1960; Toru, 1968, Wagstaff, 1970). Partible inheritance implies a simple arithmetic of land division. This process is at work since the very beginning of the reclamation of the delta, as described by Hanks (1972) in his historical account of Bang Chan village, who observed that new farmers with too little land sold their share to siblings and moved to the periphery. However, the cost of such a move explains that other preferred to stay on family land (Molle and Srijantr, 2000), creating conditions described by Montri (1930) as an alarming "congestion [...] in many of the best rice producing districts". After the war, the phenomena turns more critical (Kaufman, 1960), until some respite is provided by the upland expansion in the 50's and 60's; but land saturation culminates in the *1970 crisis*.

A few years later, however, several timely factors would contribute to avert the worst perspectives of a Malthusian crisis. An extremely rapid demographic transition initiated in the early 70's, together with massive out-migration towards Bangkok and the land frontier, have first controlled the absolute population and were sufficient to level off the growth of the agricultural population and labour force.

The rural part of the Chao Phraya Delta underwent dramatic demographic changes during the second half of the present century. The Thai demographic transition has been one of the fastest observed in developing countries (Knodel et al., 1987; Siriprachai, 1996). After World War II, soaring birth rates and declining death rates sustained a 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 (Wongboonsin, 1995). These actions, together with a surge in urbanisation contributing to the adoption of an urban way of life (reduced family size, higher education, later age at marriage, etc), dramatically cut off population growth to a rate of 1.2% in 1995 (NSO, 1997a) and 1.05% at present (NSO, 2000 census). By the same token, the average woman fertility dropped from 5.6 to 2,0 children/woman.

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 and 4.38 in 1990, and is probably now under 4.00[19]. This situation is further compounded by the fact that the average age of the members of a given holding is on the rise. The overall ageing of the agricultural population in the delta is clear and is a logical consequence of: 1) the declining fertility; 2) out-migration (the great majority of migrants are under 35 years old), and 3) the increase in life expectancy[20].

[19] extrapolating from the national values in 1990 and 2000: 4.4 and 3.9

[20] Between 1975 and 1995, life expectancy increased from 58 to 70 and 64 to 75 for males and females respectively.

Farmers under 35 now make up only 13% of the total. Regions with the highest percentage of elderly people include the flood-prone area but also Nakhon Nayok Province and the south-east of Chai Nat province.

This demographic transition was paralleled by a process of out-migration. During the upland expansion in the 50's and 60's, the flow of farmers from the delta to the adjacent upland was high enough to provoke an absolute decrease of the agricultural population. All along the second half of the century, out-migration was also directed towards Bangkok, provincial centers and to foreign countries (middle-east). The still significant overall population net 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) appears on a slight decline (from 2.5 million people in 1960 to 2.2 in 1990) but its share in the total population has collapsed from 70% to 40%. It is noteworthy that this did not however translate into a reduction of the number of agricultural families which are on the rise (from 430,000 in 1960 to 510,000 in 1990) because of the decrease in the average family size. Furthermore, the Labour Force Surveys show that agricultural population data may give an overestimated view of the rural sector, as the percentage of persons employed in the agricultural sector was found to slump from 48% in 1990 to 33% in 1996[21] !

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, 30 years later, upon the number of heirs at the time of inheritance (thus on land fragmentation). This now combines with migration out of the agricultural sector and a decreasing rate of children willing to engage in agricultural activities, contributing to the relative stabilisation of the situation. Under such conditions, it may even be expected that fragmentation soon reverse towards concentration. In areas of older settlements and limited potential for agricultural diversification, this may even be something not new. Large farms consolidation has now materialised (during the 1978-93 period) in some parts of Ayutthaya and Sing Buri flood-prone areas, as seen earlier.

The alteration of customary inheritance practices has also smoothened 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 good (Kaufman, 1960; Mehl, 1981). In all cases the share of land received by children not engaging in agriculture is in general rented out (sometimes free) to those of the siblings who remain in the village.

The fertility revolution, 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.

[21] While in the same time the ratio for the whole of Thailand was reaching the symbolic value of 50% (NSO, 1997c).

3.2 Polarisation and landlordism reassessed

The confrontation of subsistence peasant economies with market forces and capitalistic logic generally triggers some degree of social differentiation which may result in a process of polarisation, with the emergence of landlords and the continuous eviction of small farmers. 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 the origin of the excess of population, eventually evicted, either by force or by will. Several factors have, nevertheless, contributed to both hampering an excessive land concentration and limiting the process of eviction of small farmers in the delta.

The first historical factor is the absence of colonisation: nowadays, only 588 farms have more than 140 rai (only 26 ha) in our 5 inner provinces and no capitalistic "plantation farms" are observed, such as is the case in some ex-colonial countries with comparable human densities. Another factor was the set of constraints imposed by the Siamese kings in order to limit the concentration of territorial wealth of their officials and nobility. They range from a formal overall land ownership to the crown, rules of land return to the crown in case of non use during three years, to the later abolition of corvée, which undermined the nobility's control upon the labour needed to cultivate their land. 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 have emerged. However, these owners had most of the time 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 in which 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 increasingly difficulties faced by landlords in mobilising labour force, as large virgin areas were offered to farmers for clearing. It follows that no rural aristocracy emerged at that time.

Focusing on the fragmentation of small land, 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 impact on deterring land concentration is seldom mentioned. Large land owners also divide their land between their children ! This, to some extent, also holds for urban landlords: these absentee owners are not local "hacienderos" trying to enlarge their property at whatever cost. They are far away from the land they bought or inherited and there is a trend towards the division and dislocation of their assets over time too. A rare example of study of family trajectories has been carried out by Stifel (1976) in Nakhon Pathom, who notes 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 refer to farm operators, not to land owners. Phiphatseritam's survey in 1969 in the Provinces of Pathum Thani, Nakhon Nayok, Ayutthaya and Chachoengsao found a total of 127 landlords with land

over 1,000 rai and owning together 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 Province 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 a continuous process of 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, and even declining since the late sixties. If we consider the current share of 40% and the evidence that at least one half of the rentals corresponds to transactions between relatives (see Molle, *forthcoming*), a remaining 20% of the land is rented out by other local farmers and outsiders. It follows that the extent of transfer of landownership to urban capitalist might be less (10-15%) than what suggested by the situation observed in some districts of Ayutthaya or Suphan Buri provinces, for example.

Although there is no evidence of polarisation, a peculiar process has been found at work in the delta: mentioned in the 70's by Amyot (1977) in relation to some villages near Ayutthaya, the possibility to farm 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. This process 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) correspondingly, lower rents and land prices; 3) the higher availability of land for rent (many old farmers); 4) a higher supply of non-agricultural jobs in the area and higher emigration rates; 5) the limited labour requirements of this type of rice cultivation: the main operation is land preparation, which can be performed on large areas with a four-wheel tractor. This is *now accentuated by the mechanisation of harvest,* which removed the last bottleneck in farm operation. In more intensive areas, the picture is quite different: unimaginable at the time of transplanting, larger farms are also appearing but, as land preparation, water management and crop care require much more attention, the case is rather exceptional and the trend not yet significant.

Rather than the mark of a capitalistic attempt to seize land, this incipient concentration of land (mostly through the rental market) appears as a result of the dramatic decline of the number of children engaging in agriculture and of the possibility to farm larger areas with mechanisation (and therefore less hired labour). This, so far, remains limited 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 possible,* due to the peculiarities of the rice system. Furthermore, as the effect of the demographic transition initiated *circa* 1970 is at present starting to impact on the average number of heirs, we may expect this trend to gain momentum in the future. With the demise of agriculture, one can legitimately envisage in the long run 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 Asian averages of 1-2 ha.

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

3.3 Tenancy, landlessness and farmers eviction

Several episodes of history have pointed out to high levels of indebtedness in the rural delta. The 1970 crisis was also characterised by the growth of the population of wage labourers and abuse by landlords. Surveys by the Agricultural Land Reform Office in the 1970s found a percentage of landless labourers between 5 and 23% of the total farms, with the exception of Ayutthaya (30%).

The interpretation of the causes and consequences of landlessness is a subject of much controversy[22]. It is a widely held view 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; Douglass, 1984, Chiengkul, 1983; Tanabe, 1994). Other authors lay emphasis on population pressure and land fragmentation by inheritance as the main causes of landlessness (Montri, 1930; Wagstaff, 1970; Piker, 1975; Chumphot, 1975; Chirapanda and Tamrongtanyala, 1981). Both processes are obviously at work, but in different proportions according to the sub-area and the point in time, which calls for a cautious treatment.

More generally, the origin of the population of wage labourers lacks of clear evidence. It is often assumed that they correspond to a further downfall of full-tenant farmers. The 1964 survey over *5 central provinces*[23] found that 81% of the full tenants never possessed any land prior to becoming tenants (Chaiyong et al, n.d.). Similarly, the 1965 survey over *11 central provinces*[24] found a percentage of 87% (Chaiyong et al, 1965.). Ten years later, ALRO surveys found that most of the landless were born or long-time residents of their province (only 13% of landless had moved from another province in the last 5 years preceding the surveys), it was still not clear how they had become landless (Chirapanda and Tamrongtanyala, 1981). Only 7% of the landless had land 10 years ago; similarly, only 13% of people with less than 5 rai had more land 10 years ago (11.5% had less and 76% the same amount), of which about a 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 60's surveys suggest that there is a large part of the population of wage labourers which is rather "stable" and descend from one or several generations of landless farmers. In 1975, Kitahara (1977) also notes 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".

[22] 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).

[23] Pathum Thani, Ayutthaya, Lop Buri, Nakhon Nayok, Nakhon Sawan.

[24] Incuding Phetburi, Nakhon Pathom, Suphan Buri, Chai Nat, Singburi, Saraburi, Bangkok, Chachoengsao, Samut Prakan, Thonburi, Kanchanaburi.

This situation can be tentatively explained by two lines of arguments: the first one is that many (probably most) landless farmers have left for the land or urban frontier and that they were therefore not captured by surveys carried out in the delta. This probably applies to the surveys carried out in the mid-sixties, at a time of sustained migration. The second is that there are several factors which can be raised to explain the lower geographical mobility of landless people, particularly wage labourers: their lower economic status implies a greater precariousness and a greater risk aversion; their lower educational level does not favour the obtention of skilled jobs; elderly also have no opportunity to migrate and may require more economic support and the proximity of children who tend to stay in the neighbourhood.

Most surveys suggest that the economic situation of landless people is inferior to that of other farmers, although with varying degrees (see Wagstaff, 1970). It stands to reason that the status of wage labourer or tenant being more precarious and less desirable than that of landed farmers, this difference is likely to translate into income differentials. Assessing this difference is uneasy because it is extremely difficult to capture the income of wage labourers or small farmers with multiple incomes through surveys: in the 1979 survey, for example, their non-farm income was found to be 7,200 baht, while farm income was only 5,184 baht, and 40% would receive remittances. In addition to the difficulties in capturing composite and fluctuating incomes, the auto-consumption of farm products (eggs, hens, backyard fruits and vegetables) and self-caught fish is often extremely significant and not little contributes to shoring up the family's subsistence needs[25].

In contravention to the picture of destitution commonly raised when it comes to the landless issue, two points also deserve mention. A first one is the impression or evidence gathered by some observers 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, 75). This is echoed ten years late by Visser (1980) who reckons 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".

These fragmentary observations do not serve to deny the existence of instances of rural poverty, even less to justify policies or historical facts adverse to the delta's peasantry. Nevertheless, they may serve to put the delta into a wider historical comparative perspective (as historical accounts from other Asian countries are generally much drearier) and also contribute to explain the existence of a population of landless families which appears to be both growing in numerical terms, and stable in terms of family reproduction.

These observations date back twenty years or more. No additional comprehensive data on the question have been provided hitherto, raising the concern that the rapid change occurring in the agrarian system (Kasetsart University and ORSTOM, 1996) may have led to a recent increase in landlessness or a worsening of the income differential. In 1987, landless

[25] "The average household has animal protein obtained from self-caught fish, eggs from their own chickens, or meat from their own slaughtered animals as well as home grown vegetables at its disposal for about 200 days per year, and self cultivated rice for the entire year" (Visser, 1980).

agricultural holdings were estimated at 500,000 in Thailand (Chirapanda, 1998). Regarding the central Plain, some hints on the present situation can be derived from an analysis of the national population (1960, 1970, 1980, 1990) and agricultural (1963, 1978, 1993) censuses data. As the former defines *agricultural households* by the fact that agriculture is the main occupation of the head of the household, while the latter consider *agricultural holdings* if they cultivate a land of at least 2 rai (regardless of the tenure status), the difference is strongly correlated with the number of agricultural wage labourers. It can be shown that the two variables have increasingly diverged in the course of the past 30 years, amounting to 100,000 households (20 % of agricultural households) in 1990 for the rural delta. A mapping by amphoe of this difference (see Molle and Srijantr, 2000) shows that the areas with higher rates are around Bangkok (with extension towards the coastal area, Chon Buri and Chachoengsao), and in the flood prone area (with an unexpected extension to the south of Suphan Buri). The first zone is associated with labour intensive peri-urban horticulture, and aquaculture, while the second zone is correlated to the low profitability/risk of rice cultivation in flood-prone areas, a high proportion of old farmers unable to carry out farm operation by themselves and to the proximity of factories and urban centres providing complementary job opportunities[26].

In contrast with the situation in the 60's and 70's, there remains little doubt that this increase in wage labour in recent years is almost totally due to the reproduction of the population of wage labourers itself. On-going field surveys in 3 villages[27] of the Central Plain found with very few exceptions that landlessness had happened in the preceding generation.

Let us now reconsider the meaning of tenancy and landlessness. If ones 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, Chiengkul (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, don't make a very good case for such rather straightforward points of view; this may be linked with the difficulty to define the Delta agrarian system as a subsistence economy[28]. As soon as the postwar period, Janlekha (1955) observes 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 proposes 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". The first part of the statement, however, is known to have notable exceptions, such as most of the cases of peri-urban vegetable farming and some raised beds orchards in Damnoen Saduak area (Cheyroux, 1998), which combine tenancy and high value crops on small plots of land.

[26] In addition the regions of Ayutthaya and Ang Thong are also known for their non-agricultural activities (bricks, handicrafts, etc)

[27] Located respectively in Suphan Buri, Lop Buri and Ayutthaya provinces and chosen for their contrasting cropping intensities.

[28] Indeed, the few references to the Chao Phraya delta made by Scott (1976) generally picture it as a particular case rather than an example to which his theory should be applied.

More generally, over our 5 inner Changwat, 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 provinces and are much likely to correspond to cash crops and peri-urban vegetable/fruit production farms. Thus the category of small full-tenant farmers (also mostly engaged in other activities: see later section) who are most likely to suffer hardship, say 5%, appears not negligible but nevertheless secondary.

The second statement is worth being emphasised. Not rarely is the case of Rangsit and other areas in the surrounding of Bangkok mentioned in a negative fashion because of their high rates of tenancy, an exception in Thai landscape. A closer look at statistics, limited to Pathum Thani province, reveals that the average size of rice-growing farms is 29 rai in 1993 (and was 39 rai in 1978, at a time when tenancy was raising more concern than now). Land rents have also been shown to be in general low on the East Bank. Rice double-cropping over 29 (rented) rai gives an income which compares favourably with average rural incomes.

As for mixed owner/tenants farms, their share is higher than 20% for 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 their lack of land by a higher share of rented land, as the distribution of rented and owned land appears to be totally homogenous: in all size classes, the share of rented land varies in a very narrow interval of 40 to 50% (1993 data). Again, it is difficult to separate "well-to-do" farmers in this category based on the sole farm size. However, renting land is indicative of farms which 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 of land re-allocation (Stifel, 1976). Based on a comparison of ten villages in Southeast Asia, Fujimoto (1996) observes 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".

Eventually, a striking conclusion of the figures presented in § 2 is that both the hypotheses of the emergence of a growing class of mixed owner/renter farmers (Mehl, 1981; Montesano; 1992) and the spread of tenancy are invalidated. Rather, it is the unexpected spectacular growth of small-size fully owned farms which is put in sharp relief.

3.4 The land jigsaw: an interpretative dilemma

The agrarian dynamics underpinning these evolutions of the land system are subject to interpretation but it is attempted here to show how they come down to a dichotomic dilemma.

The evolution of the 1950-63 period can be seen in two different ways. We may argue that the differences in farm size strongly reflect the logic of the family cycle (farm land dovetails the amount of labour force in the household), rather than absolute differences in land endowment, and that the new land brought under cultivation is (numerically) allotted to all types of farms. In other words, there is an increase in the number of farms (with a limited

decline of 6% of the average farm size) which is distributed over the whole spectrum of farms found at different stages of evolution. The growth of farms under 6 rai, however, is very significant and this period can also be said to experience a growing land saturation, the emergence of very small farms and, probably, the growth of landless holdings. 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 next 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 is only slightly decreasing, *it is likely* that the increase in the number of farms due to partible inheritance is 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 on their being able to offset a poor initial land endowment by further land acquisition or rental. It is also likely that in recent years both the rates of farm creation and farm eviction have been reduced to smaller values. 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[29], while effectively failed and evicted farmers may be correspondingly limited in number[30].

The number of farms and farmers who have "disappeared" in the process described above *remains indeed the key – but still concealed – point of the final interpretation.* In fact, there is no way to estimate these rates from the statistics in hand. The only evidence is that there was a massive transfer of the labour force (and of the main occupation of the holdings) from agriculture to the other economic sectors (locally and in Bangkok), together with a growing class of wage labourers. *The fulcrum point is whether this shift has been predominantly governed by will (say a "pull" process) or by force (a "push");* in other words, whether it has been fuelled by young generations *choosing* to stray from 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 constraints to move. In the first case, no farms disappear and the move, on the contrary, allows the maintaining of a viable farm size for fewer holdings (for other siblings); in the second case, 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 (see below) - and of the fact that the family land endowment does not allow a sustainable division. On the other hand,

[29] Or even less if we consider the total average including those who do not continue farming because the land is transformed to non-agricultural uses. In other areas, 2 (or a bit less because of singles) is the approximate threshold under which the number of farm will be declining, because of the recomposition of farms at marriage.

[30] A low rate of farm creation, as prevailing nowadays, and a high rate of small farmers eviction would translate into a decreasing number of farms and a growing average farm size, which are not observed.

giving up farming after a failure may be forced but also be attenuated by the facts that higher, or at least more stable, wages are offered in the cities, that other non-farm activities are possible, or that the sale of land appears as a viable option (especially to ageing farmers with no heir willing to take over the farm, and/or where land prices are high). The whole dynamic is further governed by the possibility of "horizontal" expansion (when land was 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* eventually lies in an interrelated set of interactions: 1) the agricultural and non-agricultural sectors 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 its 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 the transformation process has mainly been a "pull" process, especially during the last 15 years, although the *1970 crisis* probably corresponds to a transient increase of the "push" factors. 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 60's, the status of full-tenancy and landlessness cannot be strongly linked with a previous status of small holder, 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 big farmers invariably invest part of their surplus in the education of their children who, consequently, preferably 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 [see for example Thompson (1941), Kaufman (1960)[31], Smuckarn (1972), Amyot (1975) and Douglass (1984)].

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 the sole farm size or farm ownership: intensification (triple cropping), diversification (high value-added crops), multiple-activity and

[31] "Villagers themselves emphasise that real success in Thai society, to which they aspire and 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".

multi-incomes (including remittances[32]) 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 (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 composite than the sole head's revenue. It might therefore not be 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. This section provides a few elements in support of this view.

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 2 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 activities on their own holding as the source of main income, 40% also have secondary additional incomes. Non-farm cash income in the Central Region represented 40% of the total income in 1976, and up to 65% in 1991[33] (TDRI, 1995).

Another important point is that agriculture in the last 30 years has undergone processes of both intensification and diversification which compensate, and mot probably offset, the declining 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 50's onward. The later concomitant and much interrelated advents of High Yield Varieties, rice double cropping[34] and on-farm improvement together with drainage works in the upper delta, have allowed a quantitative leap in productivity. 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 gradually came out as a significant transformation process in the delta. In the *rural delta*, the area cropped with non-rice crops increased from 19 to 26% between 1978 and 1993, while the proportion of farmers not growing rice[35] moved from 19 to 28%. During the same time, the share of farmers planting a non-rice crop (irrespective of whether they also grow rice or not) rose from 35 to 44%.

[32] 34% of migrants in Bangkok with origin in the Central region were regularly sending remittances home, 30% of them less than 1,000 baht/month; 39.3% between 1,000 and 2,000 baht, 16% between two and three thousands and 15% over 3,000 baht/month (NSO, 1997a).

[33] Khumvilai (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".

[34] Developing in larger scale after the construction of the Sirikit dam in 1974. However, limited available water resources and infrastructure constraints only allow to cultivate an average of 50% of the paddy land in the dry season.

[35] These include the sugar-cane growers of the Mae Klong area.

Although supported by government policies (TDRI, 1995), diversification is an endogenous dynamic constrained by several factors (markets, credit, skill learning, water and soil conditions, reliability of the irrigation system, competition with off-farm opportunities). In any case, crop diversification represents a mainstream and far-reaching process, aiming at reducing risk against price fluctuations and increasing income on a shrinking land through cash crops and high value-added productions such as aquaculture, vegetables, fruits, orchids, etc. The fact that the hike in small holdings is associated with full ownership and areas of agricultural diversification (Nakhon Pathom, Bangkok's vicinity) is indicative of a significant, albeit spatially limited, "vertical growth", which pulls economic thresholds downward.

The quasi absence of unemployment (before the crisis) in urban areas[36], 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 from India, Africa or South America, where the phenomena is clearly of the "push" type, urban unemployment and criminality are high, and the rate of return to rural areas very low. In other words and in relative terms, and although this may not do justice to the poorest urban strata, it would probably be darkening the picture a bit too far to state that, to use Engels' expression, farmers unwilling to get frizzled in the (rural) frying-pan chose 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 80's and the mechanisation of harvesting in the 90's have been driven by labour shortage (Molle and Chompadist, 2000). It can be argued, however, that labour shortages were experienced only at the time of transplanting and harvesting and that in other instances labour would probably be in excess. There is some truth in this statement and the reduction of these job opportunities has contributed to turn wage labour less regular and more precarious.

Another argument is provided by Labour force surveys which evidence a differential between rural wage labour and urban work in manufacture or construction. Industrialisation and a slow agricultural development have widened the productivity gap between agriculture and non-agricultural sectors. As a result, rural resources have been shifted to the non-agricultural sector (Poapongsakom, 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 (these figures apply to the national level).

This line of argument is further strengthened by considering deflated wages, which evidence a turning point in 1988. While real rural wages have been stagnating during the 1965-85 period, agricultural real wages have almost doubled during the last ten years and progressed in line with the construction sector in Bangkok[37]. This, together with the sustained differential

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

[37] But without its irregularities: interestingly enough the crisis is sharply felt in Bangkok construction sector but not in the country side until 1999.

shown above, is characteristic of a "pull" process. Other data from the Labour Force Surveys show that *1988 is 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 3.5 million in the ensuing decade*. This is consistent with the hike in real wages and shows that since the late 80's at least labour is getting scarcer in agriculture (Central Region).

This turning point is correlated with the record-breaking inflow of foreign investments over the 1986-95 period, when a new Japanese-owned factory was opening every three days (Nation, 16 November 1999), with demographic trends (the rate of the population entering the labouring class age is now declining in both relative and absolute terms[38]), which contributes to the decline of the labour force engaged in agriculture. This is further compounded by the fact that the decline in the agricultural labour force affects exclusively the younger strata of the population, mostly the 15-24 years old category and, secondarily, the 25-34 one (Siamwalla; 1999).

4 Conclusion

The evidence presented in this paper, somewhat unexpectedly[39] dismisses much of the common knowledge on the Chao Phraya delta land system. *"The past 25 years has 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 as early as 1930, this statement (Zimmerman, 1931) has been issued in one form or another all along the XXth century. The data compiled in this study show that this process, visible in time of crisis, did not eventually materialise as a hallmark of the delta agrarian system. The share of land cultivated by tenants was found rather stable since the 1930s (around 40%) and no significant trend of land concentration was evidenced, albeit in the 1950-63 period, but the larger farms were subsequently fragmented and tenancy levelled off, while the full-owners of reduced farms outnumbered all other categories. 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 its outcome, this peculiarity was at the *origin* of the history of the agrarian system and remained as a stigmata all along the century.

Many scholars have often extrapolated evidence concerning some part of the region (notably Rangsit[40] or Ayutthaya) or some particular periods of history notably the 1910, 1930 and 1970 crises). Focus on Rangsit-centred evidence (the Rangsit case is more documented because the interests of the nobility were at stake) may lead to a distorted vision of the overall situation in the delta (the "*Rangsit bias*") and tells little about the process in other areas (the "silent frontier": see Molle (forthcoming)).

[38] 15 years ago, natural growth was already reduced down to 1.75% *per annum*

[39] It must be acknowledged that most of these conclusions stand in contrast with the working hypotheses of the authors at the inception of their investigation.

[40] The Rangsit area was the first large scale development scheme: most of it is located within Pathum Thani Province (see Fig. 1)

However significant, the decline of the average farm size (30 to 21 rai) and the growth of small scale holding 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, out-migration to the upland frontier and to cities), and by some degree of alteration of customary partible inheritance. There is little doubt left 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 its pessimistic acknowledgement that the reorientations in socioeconomic organisation required to alter demographic parameters and structures of production "are innately gradual, not cataclysmic".

Through these processes, not deprived of hardships and periodical deadlocks, the delta 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 60s and the 70s constitute a period of stagnation and crisis, they 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 rural population pressure on land, better access to credit and rising rice prices (1973-1980), decreased taxation and technical change (introduction of High Yield Varieties, double cropping, 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 refers to a "pull" process, in which alternatives to agriculture are relatively attractive, urban unemployment is negligible and rural real wages appreciate. All of the net population increase has been numerically transferred to non-agricultural sectors, rather by will than by destitution. This transfer is not limited to lower economic strata and overwhelmingly concerns younger generations. While a "push" process points out to failed farmers encountering no other option than surviving as precarious wage labourers (Chiengkul, 1983a; Douglass, 1984), a "pull" interpretation tends to stress the fact that this class of labourers exists *because* there is a local demand for agricultural labour (Ramsay, 1985), due to intensification and to ageing farmers hiring labour, complemented by non-agricultural job opportunities.

This paper showed that sticking to simple categories of "landless", "tenant" and even "farmer" as measures of social and economic well-being, or as normative representations, was increasingly inadequate and might be misleading. As emphasised by Rigg (1996), "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".

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, is historically extremely meaningful. To what extent the combined effect of demographic change and labour seepage to other economic sectors will be gradually strengthened remains a surmise. While there is no reason to transpose the experience of developed countries in an Asian context, there is also no reason to rule out the possibility that the rural Chao Phraya delta will, at least partly, undergo, a process of consolidation of larger farms. Its characteristics of rather low population density (for Asian standards), high level of mechanisation and numerous and increasing non-agricultural job opportunities with relatively higher wages contribute to lend credence to the hypothesis. The Central Plain of Thailand could foreshadow a deeper historical demise of agriculture, somewhat similar to what is already on the way in Malaysia.

Most of the analysis presented in this report has remained little judgmental of the processes which have been highlighted. The notion of "non-sustainability", which governs some of the trajectories, 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.

Data on indebtedness, though numerous, have been found inconclusive and do not allow a clear longitudinal analysis. Debts vary in kind, amount and purpose and cannot be systematically correlated to farm assets and farm categories. With the growing supply of institutional credit in the late seventies, the working capital needed to buy agricultural input is mostly provided by Banks, co-operatives or farmers themselves.

In addition to the blurring of the frontier between rural and urban domains alluded to earlier, the study has also pointed out to an emerging wider structural change which might foreshadow far-reaching evolutions of agriculture. 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 class. Due to the advance in educational standards and the rising opportunity cost of labour, this process is unlikely to be reversed. With an ageing and shrinking population of farmers, the demise of agriculture could develop and reach proportions only witnessed in Malaysia (in the region).

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 and drawing most of their income from non-farm sources (as seen in East Asia). The respective profitability of rice and sugar cane 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 transformation.

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