

The Low-Cost Rental Housing Market in Bangkok, 1987

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ABSTRACT

Approximately one-third of Bangkok households rented their accommodation during the 1970s, and this proportion was slowly decreasing by 1981. Most rental housing is in row houses, but the proportion of apartments is increasing. Construction materials are evenly divided between concrete and brick on the one hand and wood on the other.

A general inventory of projects in late 1986 revealed at least 100 formal-sector rental housing projects that were constructed within the previous 2 years. A sample of 11 of these projects was surveyed through interviews with project personnel, and members of 7 households in each project. The projects surveyed had on average 120 units each, suggesting that 4,000–5,000 units/year were recently added to the rental housing stock. About one-third of the units surveyed were found to be vacant.

Thirty-one projects where rents were below \$US64/month,¹ 25% of the median household income in Bangkok in 1986, were selected for a second survey. Five different types of rental accommodation were identified: concrete apartments, wooden apartments, low-cost houses, row houses in land subdivisions, and rooms and houses in land rental slums. Rents in these units ranged from \$20–64/month. They catered to small young households (average 3.1 persons) of a young age-group (average 28 years) mostly in the second income quintile (\$140–212/month).

Eight low-rent concrete apartment projects were then assessed as to their economic feasibility. Most projects were found to be economically feasible, renting units for \$48–64 per month. All projects required land in good locations, valued at \$40–60/sq. m; as well as high densities (more than 94 units/1,000 sq. m). Their feasibility was found to be very sensitive to rents, construction costs and operating costs. Given present practices, it appears that such projects can indeed be replicated on a small scale, but more thorough demand studies are needed to determine whether large-scale low-cost rental housing projects should be undertaken by the National Housing Authority (NHA) or by the private sector at the present time.

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¹Conversion rate: \$US1.00 = 25 Baht (1986).

INTRODUCTION

This pilot study of the low-cost rental housing market in Bangkok forms a part of a more general investigation by the Bangkok Land Management Study Team of the housing delivery system aimed at households earning below-median incomes in Bangkok at the present time. The other major components of this system, low-cost houses produced by the National Housing Authority (NHA) and the private sector and informal land subdivisions and slums, are the subject of other working papers in the study. This particular paper focuses on the low-cost rental housing market, limiting the investigation to rental units put on the market between 1985 and 1987.

This study aims at exploring the main characteristics of the various types of rental units now offered on the market, as well as the profiles of the households inhabiting them. An overall estimate of the demand and supply of rental accommodation in Bangkok is beyond the scope of this paper.

A particular objective of this study was to determine, on a preliminary basis only, the economic feasibility of low-cost rental housing at the present time. To attain this objective we investigated the cost and revenue structure of eight new rental projects currently on the market, and conducted a study of the feasibility of replicating such projects elsewhere in the city.

Given the limited time and resources available, it was not possible to assess whether it would be profitable for the NHA to re-enter the rental housing market at the present time. However, some of the conclusions of our limited-scale feasibility study do have a bearing on this question. A more comprehensive feasibility study of government involvement in the rental housing sector is needed in order to answer this question in a more confident manner.

THE GENERAL CHARACTERISTICS OF RENTAL HOUSING

Four separate surveys conducted by the National Statistical Office contain data on the proportion of households in the Greater Bangkok Metropolitan Area who rent their dwellings. Table 1 summarises the results of these studies. Although the categories used in these four different studies are not the same, we can see

Table 1. Housing tenure in the Greater Bangkok Metropolitan Area, 1975–1981

Type of tenure	1975–1976 socioeconomic survey (%)	1981 socioeconomic survey (%)
Own house and land	21.8	24.7
Own house and rent land	34.3	21.1
Rent house	34.4	30.0
Stay free	9.5	24.2
Total	100.0	100.0
Type of tenure	1976 housing survey (%)	1980 census (%)
Owner	54.0	48.7
Hire purchaser	37.0	6.3
Renter	0.0	31.4
Payment in kind	8.3	3.4
Stay free	0.3	7.7
Unknown		2.5
Total	100.0	100.0

Source: National Statistical Office, *Socio-Economic Survey*, Greater Bangkok Metropolitan Area, 1975–1976 and 1981; *1976 Housing Survey*; *1980 Census*.

Table 2. House tenure by income quintiles, 1975-1985

House tenure	1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile		Slum survey 1985
	1975-1976	1981	1975-1976	1981	1975-1976	1981	1975-1976	1981	1975-1976	1981	
Own house and land	17.9	25.9	19.8	21.1	18.0	20.5	23.3	24.0	29.9	31.5	12.4
Own house and rent land	44.5	31.8	37.8	24.1	34.5	22.6	30.4	16.0	24.1	11.0	48.7
Rent house	29.1	24.4	33.7	32.7	38.3	31.5	37.5	32.5	33.5	29.0	26.8
Stay free	8.5	17.9	8.7	22.1	9.2	25.5	8.8	27.5	12.5	28.5	12.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Statistical Office, Socio-Economic Survey, Greater Bangkok Metropolitan Area, 1975-1976 and 1981; National Housing Authority, 1985 Slum Survey (unpublished).

that approximately one-third of the households in Bangkok occupied some form of rental accommodation during 1975–1981. The proportion of renters does appear to be decreasing, if we compare the two socio-economic studies carried out in 1975–1976 and in 1981.

These two studies also provide statistics on the proportion of renters in different income quintiles. These, together with more recent data on house tenure from the unpublished 1985 survey of 118 slums undertaken by the NHA, are summarised in Table 2. The table demonstrates that in the first income quintile there are substantial numbers of people who own houses on rented land. These are the slum dwellers in the land rental system. This is clearly borne by the data in the slum survey, which shows that 48.7% of the slum dwellers owned their houses but rented land.

There are substantial numbers of land renters in the other income quintiles as well. Still, the number of house renters climbs up to one-third in the second to the fourth income quintiles. In the ensuing discussion we shall take it as given, therefore, that approximately one-third of the households in Bangkok presently live in rented accommodation.

The 1980 housing census provides a picture of the type of rental accommodations available in Bangkok. These are summarised in Table 3. Most rental housing was found to be in the form of row houses (which include townhouses and shophouses as well as rows of rental rooms). Between the early 1970s and 1980 there was a substantial increase in apartment rentals, however, mostly due to the NHA's rental housing programme, which will be discussed in greater detail below.

Table 4 provides data on the type of construction of rental dwellings in the city. Rental housing is roughly divided into two types of construction: cement or brick on the one hand and wood on the other, in approximately the same proportions.

Table 3. Types of rental accommodation in Bangkok, 1980

Type	Proportion (%)
Detached house	20.6
Duplex	2.4
Row house	57.4
Apartment	10.7
Room	8.2
Unknown	0.7
Total	100.0

Source: National Statistical Office,
Population and Housing Census, 1980.

Table 4. Construction materials of rental housing, 1980

Materials	Proportion (%)
Cement or brick	43.7
Wood and cement or brick	6.6
Wood	45.7
Local materials	1.0
Reused materials	0.6
Unknown	2.3
Total	100.0

Source: National Statistical Office, *Population and Housing Census, 1980.*

Since no study of the overall rental market had been undertaken in the recent past, it was not at all clear to the study team whether the rental housing market was a dynamic market with new units added to the rental stock, or whether the market was stagnant, basically renting the same units again and again. The pursuit of an answer to this question prompted the particular methodology adopted for the study, which is described below.

METHODOLOGY

A 1980 study of the housing market undertaken by the NHA conducted a cursory review of the rental market and concluded that no new low-cost rental units were being constructed at the time of the study.²

The Bangkok Land Management Study proceeded to examine the state of the rental market in late 1986. Altogether, a total of 100 rental housing projects, which advertised as currently renting apartments for the first time, were identified from newspapers, real estate magazines and windshield surveys in the more central areas of the metropolis. A random sample of 11 projects was selected and a survey was conducted in those projects. Where interviews proved impossible, additional projects were selected for interview. The results of the survey are described in the following section.

This initial survey indicated that a number of additional types of low-cost rental accommodations escaped detection earlier, because they did not advertise in the media, nor did they post signs on the main roads. Most of these rental projects were small in size and catered to low-income households. A second survey was then conducted in 26 additional rental housing projects which were less than 2 years old and which rented to households with below-median incomes. The median income in Bangkok in 1986 was approx. \$256/month.³ The search for rental units that catered to these low-income groups was thus limited to those renting for less than \$64 per month. This assumed that households were willing to pay up to 25% of their monthly incomes for housing, a figure which is supported by consumption expenditure data for Bangkok.⁴

Prior to the initiation of the second survey, a typology of the currently-available rental housing in Bangkok was constructed. This typology included only private-sector rentals, as no new rental projects have been constructed by the government in recent years. Altogether, five types of rental accommodation currently on the market were identified. These are shown diagrammatically in Fig. 1.

The survey of these rental projects consisted of interviews with landlords and their agents in 31 project offices, as well as interviews with 135 households in 17 projects, with at least 21 interviews in each of the five project types. The survey made it clear that there existed an active market in low-cost rental accommodation. An attempt was then made to assess the economic feasibility of building new rental units at the present time.

As it was not possible to obtain reliable cost figures from project owners, the study employed experienced assessors to estimate the cost structure of eight rental housing projects. Four of the eight projects were found to be economically feasible. Given the valuation data on these projects, we constructed a prototypical rental housing project, along the broad outlines of the projects

²National Housing Authority, *Present Standards and Prices on the Housing Market in Bangkok*, Bangkok, 1980.

³National Statistical Office, *Socio-Economic Survey, Greater Bangkok Metropolitan Area — 1986 (First Quarter)*, Draft Report, 1987.

⁴National Statistical Office, *ibid*. The average housing expenditure in Bangkok in 1986 amounted to 26.2% of monthly household incomes.

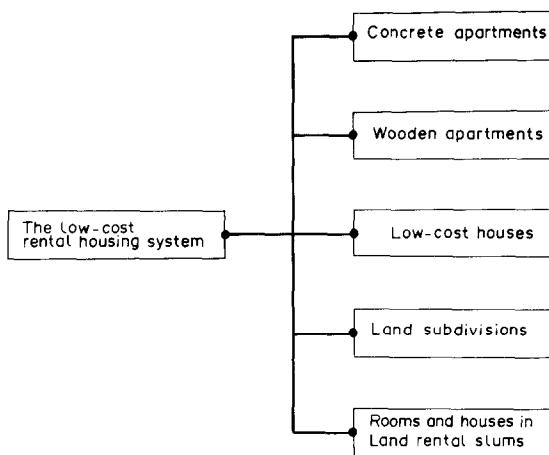


Fig. 1. The low-cost rental housing system.

surveyed. Again, it was possible to show that such a project yields adequate returns. This does not necessarily imply that rental housing is economically feasible on a broad scale at present, but rather that given the present practices of rental housing developers it is a realistic economic proposition. The economic feasibility analysis is presented in the next section.

THE PRESENT STATE OF THE RENTAL HOUSING MARKET

Our limited surveys did not enable us to assess in numerical terms the annual number of rental units added to the housing stock in Bangkok. We initially identified a total of 100 rental projects currently offering apartments for rent in the formal housing market for the first time. These were all less than 2 years old, concrete apartment units in walk-up or high-rise buildings. A number of projects were shophouse-type conversions, where a shophouse structure was modified into a large number of small one-room apartments, with or without private bathrooms.

Our survey of 11 projects was not altogether random, as it proved impossible to enter the more lucrative rental projects, which cater largely to the international community. The 11 projects surveyed had an average of 120 units per project, and an occupancy rate of 64%. None of the projects started selling earlier than in mid-1984. This suggests in broad terms that there may be more than 10,000 rental units which have appeared on the market within the past 2 years, or more than 5,000 units per year. The relatively low occupancy rate, 64%, also suggests that there may be as many as 3,000 vacant apartment units on the market at the present time. These figures are indicative only, however and need to be further explored to be of value.

Most of the 11 projects surveyed rented single-room apartments with private bathrooms and outdoor kitchens. The average size of units was 31 sq. m, and the average monthly rental was \$104. Rentals ranged from \$40-\$400/month, but 5 of the 11 projects had units which rented for less than \$64/month. Altogether 27% of the units rented for less than that amount. The average rent per net sq. m for all units was \$3.10, not much different from present rental rates for office space in downtown areas.

As mentioned earlier, our initial survey failed to identify most rental accommodation which was not part of the formal market. It did become clear,

however, that there are now a number of rental arrangements which cater to low-income households. Having identified the main types available, the study team went in search of typical projects in the field. A sufficient number of projects were identified within a few days, suggesting that such rental projects may be in ample supply.

All five types of projects identified share a number of common characteristics. The renters rented small flats or rooms, with an average floor area of 22 sq. m. They were relatively young people with small households and a high labour-participation rate, and therefore with relatively high *per capita* incomes. The average age of inhabitants was 28 years; the average number of income earners/household was 1.5; the average household size was 3.1; the average household income \$216/month; and the average *per capita* household income almost \$92/month. Because of the relatively small number of persons per income earner, the proportion of income spent on rent averaged only 16.5%.

There were a number of variations between the different types of rental accommodations identified. The most critical difference was between concrete apartment rentals and the rest of the rental units, all of which could be considered as a group of "informal" rental arrangements. The average monthly rent in concrete apartments was almost \$48. The averages in the other arrangements were \$26 for wooden apartments, \$22 for low-cost houses, \$23 for row-house rooms in informal land subdivision projects, and \$19 for rooms and small houses within land rental slums.

Slums and wooden-apartment dwellings offered the smallest units, less than 15 sq. m in area, while the other arrangements offered more than 20 sq. m. The number of people in the slum units was higher, averaging 4 persons/unit, compared to 2.5 in the concrete flats, 3 in the wooden apartments, and 3.6 in low-cost houses and informal land subdivisions. When one considers that this cheap accommodation is shared by several income earners, the resulting total housing expenditure/income earner is low indeed. Four persons sharing a unit can pay as little as \$6 per month each for housing. These arrangements are often of great advantage to temporary migrants to the city who come for short periods of time, when they do not work farming their fields.

Given the rental and household income data, we then compared levels of affordability of different types of rental accommodations by different income quintiles, given the present income distribution in Bangkok. We divided the households surveyed into three groups:

- (1) those renting for more than \$64/month which were identified in the first survey;
- (2) those renting concrete apartments for less than \$64/month;
- (3) those renting in the "informal" rental sector (in wooden apartments, low-cost houses, land subdivisions and land rental slums).

A fourth category added to the comparison were renters of NHA flats, which were surveyed by one of the authors in late 1983.⁵ The NHA renters included in the comparison were the original renters who did not transfer their flats, and who were paying \$12–19/month for rent at the time of the survey.

The aim of the comparison was to obtain some insight on the following questions: what are the household incomes of those who can afford the rent in each one of the four categories? Are these rental units occupied by people who pay less or more than one-quarter of their incomes for rent?

We first obtained data for the income distribution for Bangkok for 1986.⁶ Households were then divided into five income quintiles as follows:

⁵ Parpis Amtapunth, *Survey on Allocation: low-income housing and allocation of NHA rental and hire-purchase units in Thailand*, Report No. 1030, Institute for Housing Studies — BIE, Rotterdam, December 1983.

⁶ National Housing Authority, *op. cit.*

First Quintile Up to \$139 per month

Second Quintile \$140–215

Third Quintile \$216–304

Fourth Quintile \$305–473

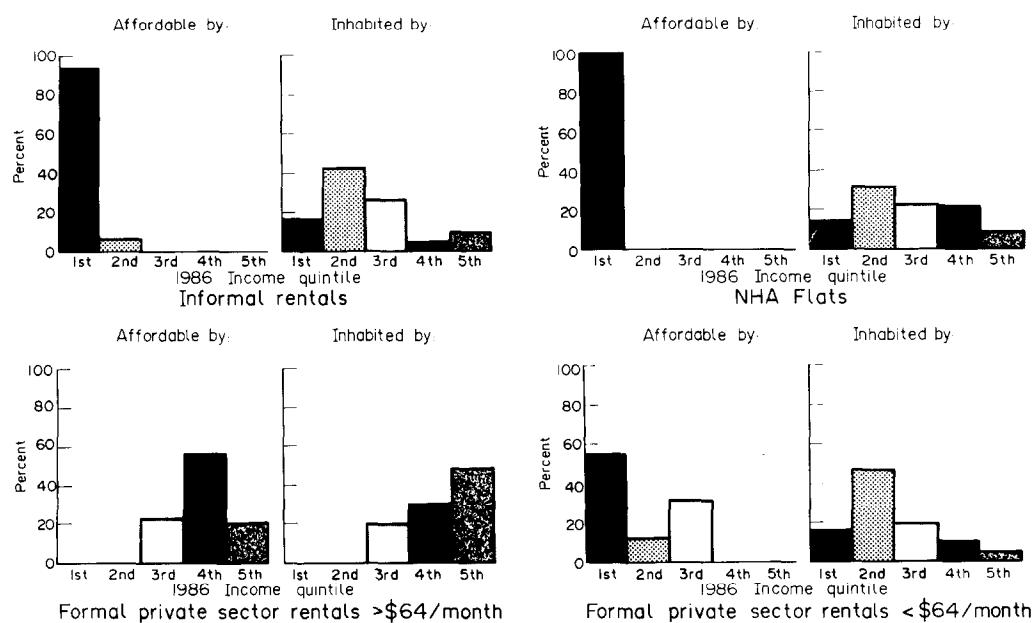
Fifth Quintile More than \$473 per month.

Given this income distribution, we could determine the maximum rent which could be afforded by each income quintile. The proportions of rental units in each of the four categories which could be afforded by each income quintile were then calculated. For example, a unit which rents for \$32 per month is affordable by a household with a monthly income of \$128, and thus is affordable by households in the first income quintile. The question is: in reality, is it occupied by a household earning more or less than \$128 per month?

In all four categories we found that, in general, households paid less than 25% of household income for rent, and that rental units affordable by a lower-income group were occupied by a higher-income one. This is true for all four categories, but particularly for the informal rentals and for the NHA flats. Both could be easily afforded by the first quintile of the income distribution in Bangkok in 1986 (the 20% of households in the metropolis earning the lowest incomes). As it turns out, and not surprisingly, they are inhabited by households in all five income quintiles. This is shown graphically in Fig. 2.

The formal private-sector rental units which rent for more than \$64 per month exhibit a slightly different pattern. The flats are affordable by the upper three quintiles and are inhabited by households with incomes in these ranges as well. Again, they are inhabited by fifth quintile households which could afford more expensive rents but appear to prefer them to other arrangements. The concrete apartments in our survey which rent for less than \$64 are affordable by the first three income quintiles, but are inhabited by households with incomes in all quintiles, and particularly by households in the second quintile — those earning between \$140 and \$215 per month.

Some of these low-cost rental arrangements appeared to have taken on the role of the slums in supplying cheap accommodation in relatively good locations.



Source Bangkok Land Management Study 1987

Fig. 2. Affordability vs actual occupation in different rental housing submarkets.

The location of these rental units was generally less advantageous than that of the slums, however. Their average distance from the city centre was 15.0 km, compared with 8.4 km for the slums surveyed in 1984. A significant number of rental units were located well within the urbanised area of the city, offering very good access to economic opportunities. The locations of the 31 low-cost rental projects surveyed are shown in the attached map.

All in all, these new rental projects play an important role in offering a housing solution which does not require any initial saving, neither for a downpayment on a house nor for the construction of a dwelling in a slum or a squatter settlement. They appeal to smaller households that are not yet ready to make a commitment to settle in any permanent location, and yet are seeking a clean and private place to live. It is quite possible that some of these arrangements compete with the slums for the low-cost renters as well, diverting some of the people who may otherwise resort to occupying existing slums or creating new ones. Their presence may explain the reduction in the growth of slums in recent years, another finding of the Bangkok Land Management Study. Their rents are surprisingly low, however, raising the question of whether they are indeed economically viable. This question was partially answered by the study team through the analysis described below.

THE ECONOMIC FEASIBILITY OF RENTAL HOUSING PROJECTS

No attempt was made to examine the economic feasibility of all types of rental projects. Our investigation was limited to new concrete apartment projects which rented units for less than \$64 per month, 25% of the current median household income in Bangkok. Eleven low-cost concrete apartment projects were surveyed by the study team (five in the first stage of the study and an additional six in the second stage). Eight of these projects were chosen for a preliminary feasibility analysis. A team of private sector valuers were then sent to assess the land value, the cost of construction, the quality and quantity of construction, and any additional expenditures on furnishings, taxes and other miscellaneous items.

In assessing project feasibility, it was assumed that project developers owned the land and applied for a 100% loan (for 15 years at 11.5% *per annum*) to cover all other costs. It was further assumed that 30% of monthly revenues were required for operating expenses: management and operating personnel, maintenance and repair, vacancies, and taxes. Given this assumption, it was possible to identify those projects which were economically viable.

Four of the eight projects had negative internal rates of return on investment, could not repay the construction loan, and had negative monthly cash incomes. The four remaining projects showed positive rates of return, ranging from 8 to 24%. These projects could provide sufficient debt coverage on the construction loans (118 to 125%), and had positive net returns on their investment in land (4 to 20%). They also provided positive monthly cash incomes to project owners, ranging from \$250 to \$1,000 per month. Land values in these projects ranged from \$40 to \$60/sq. m. Summary data on these projects are presented in Table 5.

Two of the projects became feasible when lower operating costs were assumed: one project became feasible when operating costs formed only 20% of gross revenues, and one became feasible at 10% of gross revenues. The two other projects remained unfeasible whether they charged for operating expenses or not.

The study team, with the assistance of the valuation team, then proceeded to create a prototype project, based on those projects currently found on the

Table 5. The economic feasibility of a proposed prototype project based on eight low-cost rental projects, 1987

No.	Item	Prototype
1	Cost (US\$)	
	Building construction	214,300
	Land	63,435
	Finishes	5,315
	Other costs	5,905
	Total construction cost	225,520
	Total	288,955
2	Dates of construction	
	Started	Beginning 1987
	Finished	Beginning 1988
	No. of months	8
	Months to-date	
3	Number of units	
	Type A	90
	Type B	
	Type C	
	Total	90
4	Size of units (sq. m.)	
	Type A	24
	Type B	
	Type C	
5	Gross floor area	2,592
	Net rentable area	2,160
	Cost/sq. m. construction	83
	land area (sq. m)	912
	land price/sq. m	70
	Floor area ratio	2.84
	Land cost/unit	705
	Total cost/unit	3,211
	Total cost/sq. m rentable	134
6	Monthly rental	
	Type A	61
	Type B	
	Type C	
7	Rental income	
	Type A	5,490
	Type B	
	Type C	
	Total rental revenue	5,490
	Operating expenses	2,197
	Net revenue	3,293
8	Percent return on total cost	13.7
	Debt service (100% loan on const.)	2,634
	Debt service coverage	125
	Net return on land	12.5%
	Internal rate of return	16.5%
	Monthly cash income	661

Source: Bangkok Land Management Study, 1987.

market which appeared to show promise. A schematic floor plan for the project is shown in Fig. 3.

The parameters of the prototype are shown in the right-hand column of Table 5. The apartments follow a shophouse post-and-beam construction, which creates bays of 4 m by 6 m. Each bay then forms a small flat, with a separate bathroom and a verandah used as an outdoor kitchen. No parking is provided. There is a common stairwell, rooms for an office, a shop, and a number of maids, and long corridors on each floor giving access to all the rooms. This arrangement

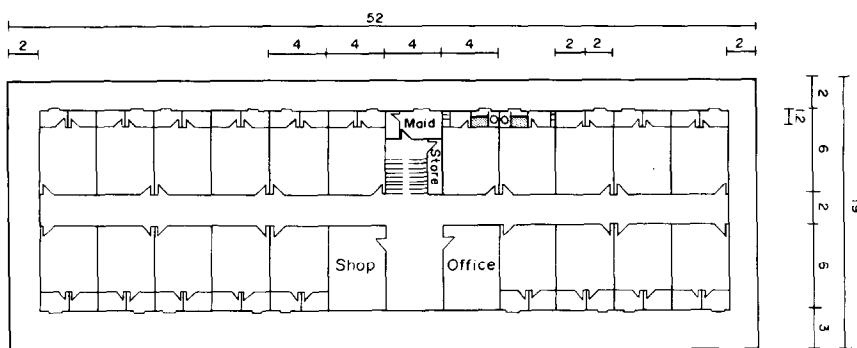


Fig. 3. Floor plan for a typical low-cost rental project.

allows for the construction of 90 apartment units on four floors, at an average construction cost of \$84/sq. m of gross floor area. The shop can be rented out for additional income. The entire project requires a total of 912 sq. m, and allows for a density of 99 units/1,000 sq. m similar to the average density of National Housing Authority rental projects.

Given the results of our survey it appears that the best locations for such apartments are lanes which are immediately off major roads, not further than 100 m from such roads. Average land values in such locations are of the order of \$50 to \$90/sq. m. At \$70/sq. m for land, \$83 per gross sq. m of construction, and 40% of gross revenue for operating expenses the project produces good rates of return.

Assuming that the project owner buys the land and borrows the entire amount required for constructing and furnishing the units, the analysis yields the results shown in Table 5: the project can rent units at \$6 per month, pay taxes, and maintain a 10% vacancy rate and still be economically feasible. It provides a comfortable debt-service ratio of 12.5%, an internal rate of return of 16.5%, a 12.5% return on the investment in land, and a monthly cash income of \$66.

The feasibility of the project is very sensitive to the amount of rent charged. If rents are reduced to \$50 per month, no money remains for the purchase of land at all. For each reduction of monthly rents of \$2, the amount of money available for the purchase of land is reduced by \$11.25/sq. m. The opposite is also true. If rents were increased to \$67 per month, the project owner could afford to buy land for \$104/sq. m.

The feasibility of the project is also sensitive to construction costs/sq. m of gross area. The average cost for the eight projects surveyed was \$69/sq. m. The design for the prototype project assumed a cost of \$83/sq. m. An increase in construction costs to \$106/sq. m again leaves no funds for the purchase of land. The funds available for the purchase of land decrease by an average of \$12.75 for every increase of \$4.00/sq. m in construction costs.

The feasibility of rental housing is clearly sensitive to operating costs as well. If we decrease operating costs in our prototype project from 40% to 35%, then the project owner can afford to decrease the rents from \$6 to \$57 per month. At operating costs averaging 22.5% of gross revenue, he can reduce rents to \$48 per month.

THE IMPLICATIONS OF THE ANALYSIS

Given the limited scope of the study, it is indeed difficult to draw very broad conclusions from our analysis. Several important implications do, however,

emerge. First, low-cost rental units are appearing on the market. There does appear to be a demand for such apartments, particularly for the very low-rent units provided by the informal sector. These units play an important role in satisfying the need of particular types of low-income households — mostly young ones with a small number of people and a relatively high number of income-earners — for temporary accommodations that do not require an investment on their part.

Second, while an economic analysis of the informal-sector projects has not been attempted, it does appear that several formal-sector projects are economically feasible and yield good returns, even though they charge low rents.

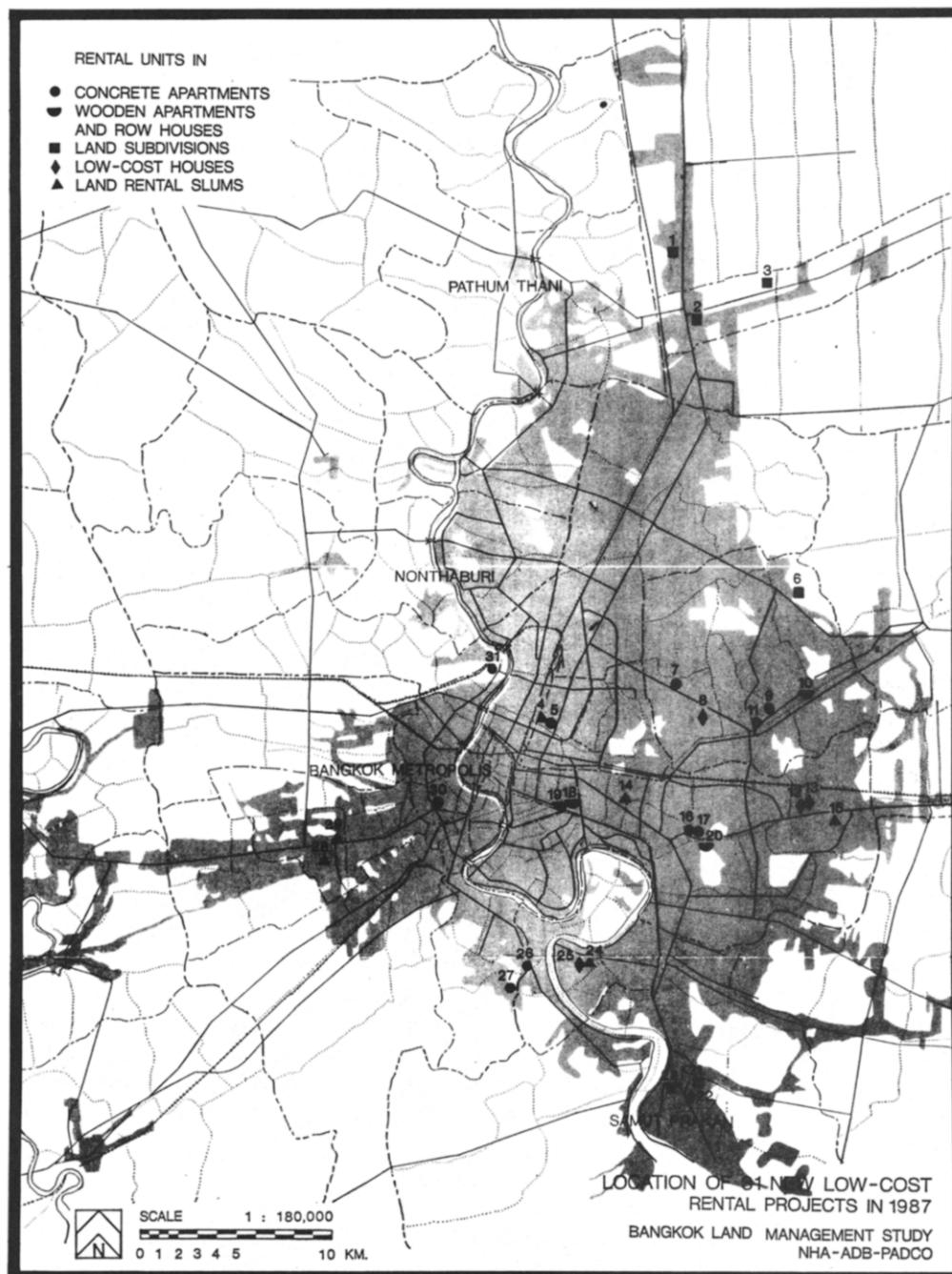


Fig. 4. Location of 31 new low-cost rental projects in 1987.

They are likely to be particularly successful in small plots within a short walking distance from major arterial roads.

The rents collected in such projects are not dissimilar to the *de facto* rents now prevalent in National Housing Authority projects. Between 1973 and 1983 the National Housing Authority constructed approximately 17,000 rental units in six housing projects, most of them in central locations. The size and density of these projects is summarised in Table 6.

Most apartment units in these projects rent for \$12 to \$18 per month, well below their economic rent, which appears to be in the range of \$60/month and more. Many of the units have been transferred over the years, at transfer prices ranging from \$800 to \$3,200. The current transfer price is in the region of \$2,600, and units can now be transferred officially with a payment of \$200 to the NHA. The monthly payment on a 10-year loan of \$2,600 at the current interest rate (11.5%) is approx. \$38. We can conclude, therefore, that together with the payment of the transfer fee, NHA flats now rent for \$50 to \$56 per month. These rates are similar to those found in the projects surveyed by the study team. At these rents, the NHA flats have practically no vacancies. Some flats in these projects are, in fact, sublet for \$60 per month and more.

The actual size of the rental market in the \$56 to \$64 per month category is unfortunately not sufficiently clear. Hence it does seem premature to recommend any large-scale rental projects either to the NHA or to the private sector. It may be safer at present to construct small projects on small pieces of land in good locations, unless sufficient demand can be demonstrated to exist. The key issues for economically feasible projects are: paying a sufficient amount for land in a good location, not less than \$60/sq. m and possibly more; keeping the cost of construction to that of typical shophouse levels; maintaining a high density of units (not less than 94 units per 1,000 sq. m, and keeping operating costs low (below 40% of gross revenues). If these four conditions are met, rental housing projects that cater to households with below-median incomes do appear to be economically feasible.

Table 6. NHA rental project characteristics

Project	Number of units	Density (units/1,000 sq. m)
Dindaeng I	2,382	98
Dindaeng II	5,308	88
Huay Khwang	3,407	45
Klong Toey	3,538	130
Bon Kai	1,276	99
Tung Song Hong	1,056	74
Total/average	16,967	89