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FINAL REPORT OF THE GREATER BANGKOK SLUM HOUSING MARKET STUDY

VOLUME 2: SURVEY FINDINGS

Submitted to the
Regional Housing and Urban Development Office (RHUDO),
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by

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"The housing problem in the metropolitan area of Bangkok is becoming increasingly serious, due to the tremendous increase in population living within the urban area and the high price of land. It is a problem which presently deserves a great deal of attention..."

-- Renoo Suvarnsit, Secretary General,
National Economic Development Board
(now the National Economic and Social
Development Board, NESDB),

1972

"If everybody knows it, it's probably wrong."

-- Nobel Laureate Milton Friedman,
in referring to conventional wisdom

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ABSTRACT

Prior research on the slum housing market in the Bangkok metro area (eg., PADCO, 1990; PADCO, 1987) found that this segment of the overall housing market declined in relative terms during the 1974-1987 period. This declining share of stock was attributed largely to the dramatic increase in housing built by the commercial private ("formal") sector. This finding has generated a considerable amount of attention from Thai Government officials and the donor community, among others, as evidence that the interaction of market forces and a supportive public policy environment is addressing the shelter needs of the urban poor.

This report, Volume 2 of the Greater Bangkok Slum Housing Market Study, examines changes in that housing market segment since 1987, and is based largely on the findings of a survey of residents in 968 randomly-selected houses in 78 randomly-selected slum settlements throughout the Greater Bangkok Area (GBA).

This report focuses on the following:

- 1) A review of the survey effort and methodology;
- 2) A re-examination of GBA slum housing market growth, 1987-1992;
- 3) An analysis of the house-level survey responses; and
- 4) An analysis of trends, policy implications, and slum improvements.

Key findings of this report include:

Slum Growth. Contrary to the apparent trend of relative decline noted by prior research, the GBA slum housing market increased in size in both relative and absolute terms during the 1987-1992 period. Data gathered as part of this study indicate that the GBA slum housing market grew by nearly 69 percent during the 1987-1992 period, or roughly double the percentage growth of the entire GBA housing stock. Slum housing now accounts for 17.2 percent of the total GBA housing stock, up from the 13.7 percent level of 1987.

Squatting Activity. While squatting is more widespread than reported previously, it is also in relative decline. During the 1987-1992 period, the bulk of housing growth in slum communities occurred on privately-owned land, mostly under some kind of rental arrangement, an indication that GBA slums are becoming increasingly commercialized.

Income Levels. The average monthly household income in survey slums is 5,087 Baht, compared to the GBA average monthly household income of 15,865 Baht. The median income is 4,500 Baht, compared to the GBA median income of 12,205 Baht. Female-headed households who live together earn 15-20 percent less than mixed households (both male- and female-headed) or all-male headed households who live together, but have higher per capita incomes due to smaller household sizes.

Housing Costs, and Willingness to Pay for Improvements. Despite very low incomes, slum residents are willing to pay for selected community improvements. These improvements would cost 150 Baht per house per month, thereby increasing average housing costs to 15.0 percent of average monthly income, up from the current 13.5 percent.

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GENERAL EXPLANATORY NOTES

- * Annual rates of change or growth refer to average annual compound rates, unless otherwise stated.
- * A hyphen between years (eg., 1989-1990) indicates that the time period includes both the entire beginning and entire end year.
- * A slash between years (eg., 1984/1985), quite common in Thai documents of earlier years, indicates a fiscal year (typically October 1 to September 30).
- * A period (.) is used to indicate a decimal point.
- * Percentages in tables and charts may not total to 100.0 due to rounding error.

ABBREVIATIONS/ACRONYMS

GDP	- Gross Domestic Product
GNP	- Gross National Product
RTG	- Royal Thai Government
NESDB	- National Economic and Social Development Board
NHA	- National Housing Authority
NSO	- National Statistical Office
BMA	- Bangkok Metropolitan Administration
BMR	- Bangkok Metropolitan Region (includes BMA and contiguous changwat of Pathum Thani, Nontha Buri, Samut Prakan, Nakhon Pathom, and Samut Sakhon)
GBA	- Greater Bangkok area (includes BMA and contiguous changwat of Pathum Thani, Nontha Buri, and Samut Prakan)
USAID	- United States Agency for International Development
RHUDO	- Regional Housing and Urban Development Office, USAID

DISTANCE AND AREA CONVERSIONS

1 square meter (sq. m.)	= 10.76 square feet (sq. ft.)
1 wah	= 2 meters
1 square wah	= 4 sq. m., or 43.06 sq. ft.
1 rai	= 400 sq. wah, or 1,600 sq. m., or .395 acres, or .16 hectares
1 kilometer (km.)	= 1,000 meters, or .621 miles
1 square km.	= .3856 sq. miles, or 625 rai, or 100 hectares, or 247 acres

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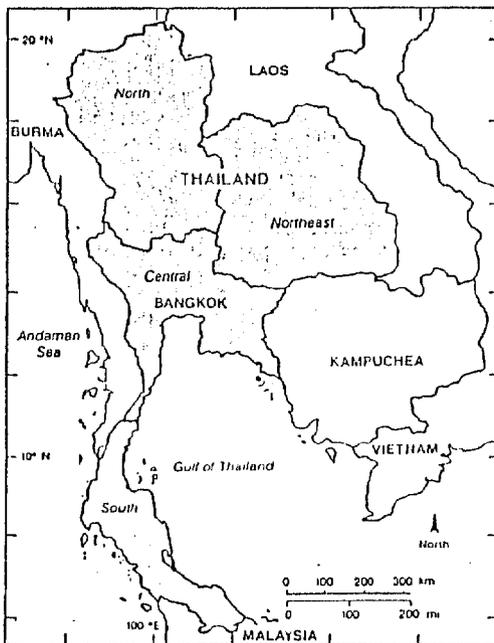
EXECUTIVE SUMMARY

In referring to conventional wisdom, Nobel Laureate Milton Friedman once said, "If everybody knows it, it's probably wrong." This report is the second of a two-volume study of slum communities in the Greater Bangkok area (GBA) of Thailand, and will challenge those steeped in the conventional wisdom regarding those communities.

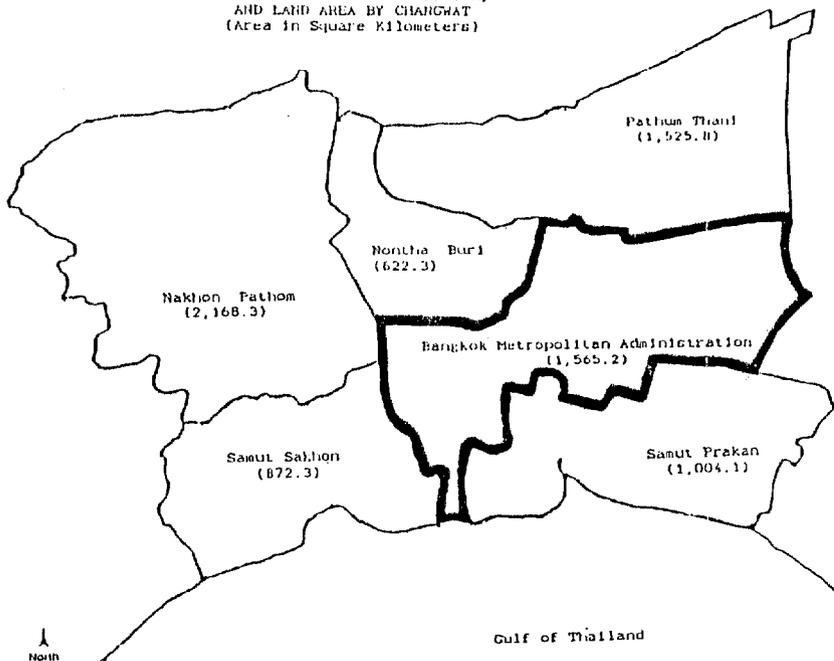
Prior research on the slum housing market in the Bangkok metro area (eg., PADCO, 1990; PADCO, 1987) is the basis for much of the current conventional wisdom. This research found that the slum community segment of the overall housing market declined in relative terms during the 1974-1987 period. This declining share of stock has been attributed largely to the dramatic increase in housing built by the commercial private sector. This finding has generated a considerable amount of attention from Thai Government officials and the donor community, among others, as evidence that the interaction of market forces and a supportive public policy environment is addressing the shelter needs of the urban poor in at least one developing country.

The data presented here were gathered from 968 self-designated heads of houses in 78 randomly-selected slum settlements throughout the GBA. The GBA is located within a portion of the Bangkok Metropolitan Region (BMR) of central Thailand (See Map 1 and Map 2), and includes the changwat (provinces) of the Bangkok Metropolitan Administration (BMA), Pathum Thani, Nontha Buri, and Samut Prakan. Therefore, this study has generated data to facilitate analysis at the level of the market, jurisdiction, individual community, and individual slum house.

MAP 1
REGIONS OF THAILAND



MAP 2
BANGKOK METROPOLITAN REGION,
AND LAND AREA BY CHANGHAT
(Area in Square Kilometers)



BMR Total = 7,758.0 sq. km.

Source: Royal Thai Survey Department, Ministry of Defense, in:
National Statistics Office (NSO). Population and Housing
CENSUS. Bangkok: NSO, 1990 Preliminary Report; pp. 59-67.

This research effort was conceived originally as more of a baseline study than a policy document, but has nonetheless generated a series of findings with implications for urban management in general, and urban housing policy in particular. In addition to a discussion of findings, then, a discussion of implications seems appropriate, particularly in light of current policy trends.

Rather than rely largely on Royal Thai Government (RTG) data, as was done in Volume 1 of this study, Volume 2 is based almost entirely on the responses of 968 individuals, who together have lived in a GBA slum community for a total of 24,490 person-years -- or an average of roughly 25.3 years per respondent. This vast knowledge base regarding life in GBA slum communities was tapped via a survey questionnaire administered mostly by residents of the community they surveyed. It is the contention of this author that while this knowledge base is not infallible, insights gained from it are often more reliable than official data with respect to a host of house-based characteristics.

Contrasts between official RTG data and the survey data presented here serve as the basis for challenging the conventional wisdom regarding GBA slums. Key contrasts, for example, include the following:

- * The GBA slum housing market increased in size in both relative and absolute terms during the 1987-1992 period. This growth is in contrast to the relative decline noted by previous research.

During the five year period ending in 1992, the number

of houses increased by roughly 41 percent in those GBA slum communities which were in official existence in 1987. Housing growth occurred exclusively in those slums which had fewer than 200 houses in 1987, i.e., there was an aggregate, absolute decline in the number of houses in slums which had more than 200 houses in 1987. In addition, there was an estimated formation of 271 net new slum communities, each with an average of 165 houses, in the "3C" area of changwat Pathum Thani, Nontha Buri, and Samut Prakan.

The growth of slums in existence in 1987, coupled with the addition of 271 net new slums during the 1987-1992 period, results in a 69 percent increase in the number of slum houses during the same period, a rate roughly double that of the number of official house registrations. This growth has altered the trend of relative decline noted by previous research, for slum housing now accounts for 17.2 percent of the total GBA housing stock, up from the 13.7 percent level of 1987.

- * There are currently far fewer people per slum house (5.03) than National Housing Authority (NHA) and BMA data would suggest. However, the average number of people in the houses surveyed is consistent with data compiled by the National Statistical Office (NSO) as part of its bi-annual survey efforts.

In addition, while the average house population is lower than some official figures, it appears that housing density within slums has increased since 1987. While data were not collected on the physical areas of survey slums, average survey slum community size increased from 101 houses in 1987 to 148 houses in 1992, while median size increased from 50 to 100 houses. Thus, while house-level overcrowding in the GBA slum housing market is less than previously thought, the market itself is not only much greater in size, but slums appear to be much denser.

* The number of communities where squatters exist is far greater, and squatting activity more widespread, than official NHA data indicate. Residents in at least one house in 46 of the 77 slum communities, or 59.7 percent of all slums surveyed, are not paying rent.

Much of the discrepancy with official data is due to the unit of analysis used; NHA survey efforts have been at the slum community level, while this survey effort has examined rental status at the house level. Moreover, this widespread squatting activity is not a recent development: 85 percent of those not paying rent were living in the same house in 1987 when the NHA last conducted a comprehensive survey of slum communities.

While squatting is more widespread than previously thought, it is also in relative decline. During the

1987-1992 period, the bulk of slum housing growth occurred on privately-owned land, typically under some form of rental agreement, an indication that GBA slums are becoming increasingly commercialized.

* Data collected on house registration status indicates that, at most, 86 percent of slum houses are registered. Registration levels are lower in newer slums and in the 3C area. Undercounting of unregistered houses occurred as part of the survey effort, so the estimate of houses which are registered officially in GBA slum communities is only 75-85 percent of the actual total.

* The majority of survey slum residents are originally from the GBA, and not from changwat outside the GBA. The survey slum is the place of origin for 11 percent of all survey respondents; an additional 43 percent of respondents are originally from elsewhere in the same changwat as the slum of current residence. Overall, 62 percent of respondents identified the GBA as the place of origin.

While data on the place of birth for each of the 4,872 survey slum residents was not compiled, 44.4 percent of all residents in the survey houses were born in the slum of current residence. Moreover, at least one person was born in the survey slum of current residence in 67.5 percent of the 959 survey slum houses for which

complete data exist. This dispersion of births in survey slums, together with the high percentage of respondents whose place of origin is the GBA, underscore the claim that GBA slum communities are occupied more by GBA residents than by migrants from outside the GBA.

Other key findings of this report include the following:

- * Based on a review of survey data, a new term, the Household Unit (HU) was coined to underscore the average number of households found in survey houses, or dwelling units. The term dwelling unit is used here to denote a separate, detached house, the most dominant type of slum housing at the present time. While 623 of the 968 slum houses surveyed contained only one household, the remaining 345 houses contained 820 households. The average number of households in this latter group is 2.38, while the average for all survey houses is 1.49 households per house.

The notion of unity within a slum house is strengthened further by the finding that households in 91.9 percent of the survey houses are related by blood or marriage.

- * Conventionally-defined households (one house, with one household composed of a husband and wife, with or without children) account for 34.9 percent of the 1,443 households surveyed. This percentage level is roughly

one-half the 1990 percentage of 67.1 percent for all households in the BMR, which suggests that maintaining conventionally-defined households is extremely difficult in environments of poverty like the GBA's many slum communities.

* Female-headed households number 345, or 23.9 percent of survey households. Houses occupied solely by one or more female-headed households number 141, 14.6 percent of survey houses. The average number of people in these houses is 3.78, compared to the overall average of 5.03 people, 6.87 people for houses with at least one female-headed and one male-headed household, and 4.89 people for houses occupied solely by one or more male-headed households.

* The average duration of stay of respondents in a survey house is 19.8 years, 23.1 years in the survey slum of current residence, and 25.3 years for a GBA slum community. The data thus suggest some circulation of households within and among GBA slum communities.

Respondents have lived in "newer" slums an average of 16.4 years, but the "newer" slums have only been in official existence since 1984. This finding suggests strongly that there is a "shadow" slum housing stock of communities which are like slums in all aspects except official recognition. The implication of this finding is extremely notable: the GBA slum housing market is larger than official figures suggest.

Respondents in houses occupied solely by one or more female-headed households have lived in the survey house an average of 24.3 years, the survey slum 28.9 years, and a GBA slum community 30.6 years. Respondents in these houses have thus spent a greater amount of their lives living in GBA slums, i.e., in habitats of poverty, than respondents in houses with mixed or all-male household heads.

- * Eleven (11) percent of respondents have always lived in the survey house, while another 31 percent stated that their previous residence was either another house in the survey slum or a house in another GBA slum community. In addition, the majority of respondents (51 percent) stated that their previous house was a wooden house (in Thai, baan mai) outside of a slum. Also, movement from other GBA housing market segments -- shophouses and flats, for example -- is almost negligible.

Of the 482 respondents who stated that their previous house was a wooden house, 181 are from the GBA. It appears that the 181 GBA respondents may have lived in wooden houses in what were formerly rural areas of the GBA, and are now rapidly urbanizing areas. 141 of the 181 GBA respondents have moved to the survey slum from elsewhere in the same changwat.

In addition to the conversion of mostly rural, peripheral GBA land to urban uses, which has caused many families

to move from mostly wooden houses into nearby -- and familiar -- slum communities, the re-development of urban land occupied by non-slum, low-cost housing (eg., wooden houses) into condominiums, offices, and other uses also appears to have caused a move to nearby slums.

- * The presence of nearby employment opportunities was the chief reason for moving to the survey house for 37 percent of respondents, while proximity to relatives and friends accounts for a combined 25 percent of responses. Tenure security had the lowest of all response rates, at five percent. This response pattern suggests that access to employment is the key determinant in the housing location decision of slum dwellers, and that slum dwellers seem to view housing as an input to income-generating activities, i.e., a place to earn a living, rather than merely a place to live. Furthermore, tenure security is apparently not perceived as a problem relative to more pressing needs such as earning an income and proximity to relatives and friends.

There has been a statistically significant change in the reasons given for moving to a slum community house since 1987. Among respondents who have lived at the survey house for five years or less, i.e., roughly since 1987, access to employment rises to a response rate of 42.7 percent, compared to 37 percent among all respondents. The second-leading response is eviction, at 19.6 percent, up from 14 percent among all respondents.

- * Rent relationships are quite marked in the survey slums. Only 18.4 percent of respondents rent from another household in the same house, while 61.7 percent of respondents pay rent to a landlord who lives elsewhere in the same slum community. Within houses, then, there is a low level of sub-renting, while a majority of respondents appear to be sub-renting at the community level.

- * When rent is paid, the average monthly rental payment is 493 Baht, while the median payment is 260 Baht. Rents tend to be higher when respondents rent only a house, rent both land and a house, live in the 3C area, in newer slums, in unregistered houses, and in those houses where respondents have lived for five years or less.

- * There is almost universal electrical service in survey slums, regardless of house registration status, slum size, slum age, or location within the GBA. Nearly 80 percent of respondents receive electrical service directly from the Government, with indirect connections via neighbors (18.2 percent) and landlords (2.7 percent) accounting for the remainder. Only nine survey houses do not have electrical service. The average monthly payment for service is 306 Baht, with the Government providing the highest cost service.

- * Nearly 75 percent of respondents receive some form of solid waste (i.e., "refuse", or "garbage") collection and disposal service. The service is performed by either the Government,

a community-based organization, or the landlord. Only about 70 percent of those receiving service actually pay for that service, with the Government having the lowest level of payment-for-service. Among those not receiving service, placing refuse under or around house is the preferred method of disposal.

The average monthly cost for service is 22 Baht, while the average number of pick-up days is 19. The median value is 15 days -- every other day of the month -- while the modal value is 30 days per month, which suggests widely varying levels of service. Service provision for community groups and landlords is somewhat less frequent than the Government, while fee collection rates are higher, suggesting that the Government could raise both fees and collection rates while also improving service.

* While only 18.7 percent of survey respondents are aware of recycling activity in their slums, they are located in 34 of the 77 slum communities. Recycling activity is thus fairly widespread at this time, and the geographic basis for increasing the level of recycling activity also appears to exist at the present time. This activity could lead to additional income generation and environmental improvement, both in and out of survey slums.

* In-house sanitation infrastructure is nearly universal in survey houses, as nearly 98 percent of respondents have

a toilet located inside the house. Nearly 72 percent of respondents have a relatively high-cost porcelain-covered toilet fixture, while 76.3 percent of respondents have a slab concrete bathroom floor. Nearly 43 percent of the 714 respondents who have a concrete bathroom floor have expended their own funds to have the floor installed, indicating a willingness and ability to pay for in-house sanitation improvements. Roughly 80 percent of the respondents who invest funds for such improvements are living in registered housing, which appears to indicate that some form of legally-recognized tenure security -- however tenuous it may be -- leads to resident improvement of living environments.

- * The Government provides direct water service to roughly two of every three survey houses. Respondents in 52 percent of the survey houses have small, house-based meters, for which a fee is paid. Unlike other services, nearly all of the houses served directly by the Government are registered. Other key sources of water service are neighbors, wells, vendors, landlords, and canals and other water bodies.

The average monthly cost for water from all sources is 194.5 Baht. The median amount is 150 Baht, or a median per capita water bill of roughly one Baht per day per person-month. On a per capita basis, the cost of water purchased from Vendors is roughly 66-84 percent greater than metered water or other forms of in-slum service.

* The sum of monthly costs for rent, electricity, garbage, and water constitute the surrogate measure of the key housing costs incurred on a monthly basis. The average monthly housing cost for those respondents who pay all four cost components is 1,016 Baht per month, while the median value is 640 Baht. For respondents who do not pay all four costs -- rent is typically the missing cost component -- the average is 742 Baht per month, while the median value is 526 Baht. Housing costs are generally higher in the 3C area, for unregistered houses, for newer slums, for houses where respondents have lived five years or less, and -- on a per capita basis -- for houses where heads of households are exclusively female.

* The average monthly household income in survey slums is 5,087 Baht, compared to the 1992 GBA average monthly household income of 15,865 Baht. Roughly 98 percent of survey households earn less than the GBA average income. The median income is 4,500 Baht, compared to the 1992 GBA median household income of 12,205 Baht. Roughly 93 percent of the survey households earn less than the GBA median income.

Houses occupied exclusively by one or more female-headed households earn 15-20 percent less than houses occupied by mixed or all-male headed households, but have higher average per capita incomes due to much smaller household sizes. Ironically, those households which do not pay rent

have the highest household incomes, while those who rent only a house have among the lowest household incomes of all survey households.

* With respect to official RTG definitions of poverty, it appears that both absolute and relative poverty can be found in great abundance in GBA slum communities. About 21 percent of survey households live in absolute poverty, defined officially as incomes at or below 2,635 Baht per month. Thus, roughly four of every five survey households do not officially live in absolute poverty. Either the absolute poverty income threshold is unrealistically low, only the more well-off among the poor can afford to live in GBA slum communities, or both.

* A review of the relationship of housing costs to income indicates that among all respondents, an average of 13.5 percent of monthly income is devoted to housing costs, while the median value is 9.1 percent. About 54 percent of all households devote 10 percent or less of monthly income to pay housing costs, another 25 percent devote 11 to 20 percent of income, while the remaining 21 percent of respondents devote 21 percent or more of monthly income to pay for housing costs.

For respondents who actually pay rent on a monthly basis, the average rate increases to 17.5 percent, with a median value of 14.1 percent. As might be expected, then, rental

status has a considerable effect on the share of monthly income devoted to housing costs, unlike most of the other characteristics examined (eg., GBA sub-area, survey house registration status, slum age, sex of household head(s), or years living in the survey house). Those households which do not pay rent devote the smallest portion of income to housing costs -- 9.3 percent -- of all households examined, while house renters devote the highest share of monthly income -- 26.0 percent -- to pay for housing costs.

In conclusion, even when the focus is solely on respondents who pay rent, the conventional standard of devoting 25-35 percent of monthly income to housing costs is not generally attained in GBA slum communities.

- * Slum residents have expressed a willingness to pay for selected community-wide improvements, despite very low incomes. These improvements would cost 150 Baht per house per month, thereby increasing average housing costs from 13.5 percent of monthly income to about 15 percent.

The two community-wide improvements that slum residents are most willing to pay for are drainage facilities and land purchases. Slums are often located on poorly-draining land, and drainage facilities often serve the dual role of both relieving low-lying areas of water runoff and removing household and bathroom wastes. The perceived or real threat of eviction is a major slum resident concern.

While not all slums may require drainage improvements, the maximum cost of building low-cost drainage facilities in all of the GBA's estimated 1,660 slum communities is roughly US\$81.5 million. By comparison, this amount is equivalent to less than 50 percent of the money that will be spent on advertising of housing and real estate projects in the GBA in 1993 alone.

The cost per slum house would be 7,000 Baht (US\$280), an amount that could be paid off by slum residents in roughly six years, at standard loan terms. Public, private, and non-governmental sector entities, both Thai and non-Thai, are likely sources of initial funding and assistance for a program to improve drainage facilities in all GBA slums.

While land purchases may not be necessary in all GBA slums, the estimated cost of purchasing all land in the GBA presently occupied by slum communities is nearly US\$3 billion. Therefore, land purchases can only be successful if a significant amount of funding is made available from outside the slums. While slum residents are willing to pay, in this instance such payments would be more on the order of paying for most or all of the administrative and related costs for whatever institutional arrangements were developed to manage land purchases.

While considerable social and political opposition, and many institutional questions, would have to be dealt with,

a means of financing such purchases on a broad scale is possible through the creation of a slum community investment fund. This fund could be financed by an annual amount equivalent to one percent of the foreign exchange reserves held by the RTG, which are currently US\$22 billion. A one percent annual amount to a slum investment fund from this source would be US\$220 million at the present time.

The second source of financing for a slum improvement fund would be a one percent linkage fee imposed on the amount of investment promotions recipients receive from the RTG Board of Investment (BOI). In 1992 alone, such a fee would have generated US\$128.8 million for a slum improvement fund.

While the notion of market-wide purchases of land occupied by slums is highly unlikely, cost and financing can no longer be viewed as impediments to such an initiative. In 1992, for example, the two funding sources alone would have generated approximately US\$350 million, an amount sufficient to purchase land in 200 slums. In 8-10 years, then, perhaps land in all GBA slum communities could be purchased, and held by a potentially wide array of institutional entities, with some form of assurance that slum communities could remain intact for an extended period of time. Slum residents could fund some of the administrative costs of land purchases, as well as improvements to their homes and communities, secure in the knowledge that the threat of eviction -- as it presently exists -- had been largely eliminated.

SECTION ONE: REVIEW OF THE STUDY EFFORT

Defining the Study Area. The study area for this research effort is the Greater Bangkok Area (GBA) of Thailand, a 4,717.4 square kilometer (1,820.6 square mile) area comprised of the four changwat (provinces) of the Bangkok Metropolitan Administration (BMA), Pathum Thani, Nontha Buri, Samut Prakan, and (See Maps 1 and 2 above, and Map 1, Appendix C, Volume 1).

Key RTG housing institutions like the National Housing Authority (NHA) and the Government Housing Bank (GHB) often make a distinction between the "urban areas" of the GBA and the entire GBA when compiling and analyzing housing data. This study notes the distinction but does not adopt it, for it is generally accepted in professional and academic circles that a study of slum communities in a large urban area like the GBA is a study of a largely urban phenomenon, i.e., a segment of an urban housing stock. As such, it is redundant to distinguish between a study of slum communities in the GBA and a study of those same communities in something called the "urban areas" of the GBA.

The Representative Nature of this Survey. To lend credibility to survey findings, an effort was made to draw a survey sample of GBA slum communities -- and selected houses within those slum communities -- that was as reflective of all GBA slum communities and slum houses as possible. Drawing a sample that is a mirror-image reflection of what statisticians call "the larger population" -- in this instance, an entire slum housing market in an urban region of more than eight million people -- is never entirely possible unless the sample is, in

fact, the population being studied. When a sample is also the entire population to be studied, the sample becomes, in effect, a census.

It was never the intent of this study to conduct a census of slum communities and slum houses in the GBA, but rather a sample that was considered representative of the entire population of slum houses and communities. To enhance the potential for a high degree of sample representativeness, a multi-stage sampling design was developed to select randomly both survey slum communities and survey houses within those communities in each of the four changwat in the GBA. The first stage, quite difficult due to a lack of current secondary data (See Vol. 1, esp. pp. 52-54), involved the determination of the size of the population being studied -- the GBA slum community housing market -- so that a five percent sample could be drawn from it. Table 1 shows the conservative estimate of GBA slum community market size used and the number of both intended and actual survey slums, by changwat.

As discussed in Volume 1 (See Vol. 1, pp. 47-62), while it was possible to obtain current information on the number and size of slum communities in the BMA, an estimate for elsewhere in the GBA had to be developed due to a lack of current data. While a five percent sample was drawn for each changwat, based on the conservative estimate of GBA slum communities, the actual number of communities surveyed was five less than the estimated number of 83 to achieve the desired five percent sampling level. While the actual sampling level was thus 4.7 percent, the 78 survey slum communities represent a 5.6 percent sample of the 1,401 communities officially recognized by the BMA and NHA in 1992 (See Vol. 1, Table 15, p. 53).

TABLE 1

INITIAL ESTIMATE OF SURVEY SAMPLE SIZE, AND ACTUAL NUMBER OF
SLUM COMMUNITIES SURVEYED, BY CHANGWAT

Changwat	Total No. of Slums, 1992	Survey Sample Size @ 5%	Actual No. of Slums Surveyed
BMA	978 /1/	49	48
Samut Prakan	461	23	20
Nontha Buri	148	7	8
Pathum Thani	73	4	2
Totals =	1,660	83	78

/1/ BMA figure based on 1992 field survey by the BMA. Figures for other changwat based on "Historical" growth scenario of 271 net new slum communities in the three changwat during the 1987-1992 period (See Vol. 1, Table 18, at page 57). This sum is added to the 411 slums existing in 1987 to total 682 slums. Distribution by changwat is based on application of percentage shares derived from 1987 NHA data, as follows:

Changwat	1987 Slums	% of Total	1992 Slums
Samut Prakan	278	67.6%	461
Nontha Buri	89	21.7	148
Pathum Thani	44	10.7	73
Totals =	411	100.0	682

Source: Based on 1987 NHA data on slum communities.

The spatial pattern of the actual survey sample is also consistent with the pattern of the intended survey sample. This consistency of geographic coverage was viewed as absolutely critical to achieving the representativeness of any sample drawn. A review of the Table will show that geographic coverage was achieved.

The second stage of the sampling design entailed selection of the dominant GBA slum community types so that the survey sample reflected the same share of these types as the entire population. 1987 NHA data on GBA slum communities served as the basis for the selection of

survey slums by community type, due to the lack of comprehensive, current data for the entire GBA. In addition to identifying the five percent sampling level for field survey work, then, four (4) criteria were selected to enhance the representativeness of the sample:

- 1) Land ownership status: whether slums are located on land owned by the public, by the private sector, or a mix of both public and private sector entities;
- 2) Size, with "large" slums considered those of more than 200 houses;
- 3) Rental status, with non-payment of rent (i.e., squatting) of key interest;
- 4) Age, with official existence of the slum community prior to 1984 the key determinant.

With these criteria in mind, lists of potential slum communities in each changwat were prepared for use by survey assistants to locate communities and identify potential resident interviewers for subsequent training. Survey assistants were instructed to draw randomly from the lists in selecting slum communities for visits. The results of the slum community selection process, by criterion, are shown in Table 2 below. Again, the criteria were selected because they represent characteristics of GBA slum communities which are often used to differentiate various types of slums. While numerous forms of, say, public land ownership or rent payment exist, and innumerable permutations among the criteria exist (eg., an old squatter community of less than 200 houses on private land, or a newer rental community of more than 200 houses on public land, etc.), the four criteria listed above form a reasonable basis for identifying the major slum community types typically found in the GBA.

TABLE 2

COMPARISON OF KEY SURVEY SLUM COMMUNITY SELECTION CRITERIA,
IN PERCENT

Characteristic	Criterion	Survey Slums	NHA Data/1/
Land Ownership Status	% of slums on private land	64.9%	64.0%
Slum Community Size	% of slums with more than 200 houses	11.5	11.0
Rental Status	% of slums where no rent is paid	18.2	13.4
Age of Slum Community	% of slums officially "new" as of 1984	36.4	22.2

/1/ Data from 1987 NHA survey of slum communities in the GBA.
All percentages in this Table, and all other Tables in
this report, were calculated by Author.

In the case of both the land ownership and community size criteria, the percentages for the survey sample and the larger slum community market are nearly identical. The survey sample contained higher levels of both squatter slums and "newer" slums (as identified via the 1987 NHA database). While unintentional, slightly higher levels of these two criteria relative to the levels found in the 1987 NHA database may compensate, in part, for reliance on the dated NHA information. A greater share of "newer" communities in the survey sample, then, could better reflect the greater number of newer slums formed during the five-year time lag between the NHA's 1987 data collection effort and the July 1992 survey period of this study.

The survey sample also contains a slightly higher share of survey communities identified by the NHA as squatter slums. Not only is the percentage differential between the survey sample and the NHA database

not great, the data collected as part of this study indicate that squatting was far more widespread in 1987 than the NHA database would indicate, which raises questions regarding the validity of NHA data.

A closer look at perhaps the key criterion, land ownership status, indicates that the sample drawn for surveying is highly representative of the GBA slum community housing market, with percentage shares in all categories nearly identical (See Table 3).

TABLE 3
LAND OWNERSHIP STATUS OF SURVEY SLUMS AND
ALL GREATER BANGKOK SLUMS, IN PERCENT

Ownership Category	Survey Slums	All GB Slums/1/
Privately-held land	64.9%	64.0%
Public	24.7	25.2
- Wat	9.1	9.1
- Other Public	15.6	16.1
Mixed	10.4	10.6
- Wat and Private	6.5	4.0
- Other Pub./Private	3.9	6.6
Unknown	---	0.2

/1/ Distribution based on 1987 NHA data on slum communities.

The third stage of the sampling design involved identification of survey houses within survey slums. A procedure was designed to assist resident interviewers in randomly selecting houses for interviews. This procedure is described in Volume 1, Appendix C, pages 12-14, and was a critical element of the interviewer training workshops. A review of addresses on completed survey forms suggests strongly that survey houses were selected in a random manner.

Some Limitations of Survey Sampling. As noted above, field survey work based on a sample drawn from a larger population inevitably introduces some sampling error, or bias, which can affect both data gathering and interpretation. Perhaps the greatest potential source of this type of error was the use of the 1987 NHA database to draw the sample. The database is not only dated, but is not entirely accurate; a small number of resident interviewers, for example, questioned the NHA's 1987 official house total in their communities. Most of the interviewers stated that the totals were too low.

The near-total reliance on the 1987 NHA database to draw the survey sample has the effect of excluding those slum communities that have been officially (or unofficially) recognized since 1987, simply because there are no reliable data on these communities. However, the survey of officials in each of the BMA's 38 districts conducted as part of this study did result in an updated slum community total for the BMA, but did not include any information on the four selection criteria. In addition to slums formed since 1987, the survey sample did not include other "non-slum" slum communities like "bridge", "small", and "emergent" slums, as well as housing located on the GBA's many construction sites (See Vol. 1, esp. pp. 45-47). This latter form of housing, while exhibiting many of the physical characteristics of slum community housing, is officially considered temporary or transient housing, and thus not part of the permanent slum housing stock -- at the same time that slum housing itself is often perceived in official circles as temporary or transition housing.

An additional source of sampling error may have been introduced by the

process of community participation in the survey. As part of the slum community selection process, community leaders were contacted to aid in identifying a resident willing to be trained to conduct interviews in the community. If leaders were not willing to participate in the survey, or somehow could not find someone willing and able to serve as a paid interviewer, the community was not included in the survey. Thus, most of the communities surveyed were "self-selected" in the sense that community leaders were willing to participate in the survey effort. This willingness to participate may, in itself, reflect a desire to bias the results by providing erroneous responses. However, no systematic pattern of responses appeared in the data gathered which would suggest an effort to bias results.

Sampling error was introduced with respect to surveying houses which are not registered. In the course of de-briefing sessions with survey interviewers, two interviewers mentioned that unregistered houses were not included in their surveys even though the houses were identified for surveying via application of the random selection method introduced at the training sessions. The interviewers thought that unregistered houses were not to be included in the survey. It is not known whether other interviewers also excluded unregistered houses from their survey samples. While the affected slums are quite small, and thus of minor consequence unto themselves, this misunderstanding suggests that the number of unregistered houses in GBA slum communities may be somewhat larger than is indicated by this survey.

In addition to possible sampling errors, various forms of non-sampling error are inevitably introduced into any survey effort. While

response rates for any one question were generally at or above 95 percent, the number of non-responses may have nonetheless biased the data. When households do not respond to the survey question on income, for example, it may be due to the highly variable nature of income generation, which, in turn, could indicate that some households are earning very low incomes. Incorporation of responses from these households, then, might reduce the values of overall summary statistics on income and provide a more accurate picture of income earning levels in GBA slum communities. Conversely, not responding to the income question may be attributable solely to a concern that responses might be shared with, say, the tax authorities.

Many survey researchers feel that questions regarding income are among the most sensitive to be asked by either a known or unknown survey interviewer, and thus the kinds of questions most prone to high rates of non-response. The response rate to the income question asked as part of this survey, however, was 97.7 percent, with only 22 of 968 respondents not responding. This high rate may be due to the fact that the question was asked at the end of the interview, consistent with conventional practice, and merely requested the total amount earned by the people living in the survey house on a regular basis, rather than the earnings of individuals or individual households. While this manner of asking the income question subsequently required re-coding of data to ascertain statistics on household income, it may have made it easier to respond. In doing so, the income data collected may be relatively accurate, in that there was no need for multiple responses or relatively complex calculations by respondents.

Response errors, in the form of untrue or inaccurate responses, or a misunderstanding of the question, or poorly-phrased questions which resulted in inaccurate responses, also occur in the course of field survey work. While some questions were pre-tested with community leaders, and the questionnaire was reviewed on numerous occasions by several government and non-government slum housing experts prior to the initiation of the field survey effort, some response errors could have occurred.

A review of the data collected indicates that the question most affected by response error appears to be the one regarding the type of house used prior to moving to the survey house (See Question 8 of survey questionnaire, at p. 10, Volume 1, Appendix C). One of the responses was "rural house" (baan mai), which is also the term used commonly to describe a wooden house. Wooden houses, of course, exist not only in rural areas, but also in and out of urban slum communities. Several responses to the prior-house-type question indicated that the response was confusing to respondents. For example, respondents identified their previous house as a baan mai, when responses elsewhere in the interview indicated that the response "another house in this slum" or "a house in another slum in Greater Bangkok" would have been a more accurate response. Also, some respondents indicated that they had moved from a baan mai in the BMA to a slum community in, say, Samut Prakan. It was not clear from the data whether the respondent had lived in a wooden house in one of the BMA's slum communities, or a wooden house in some other BMA location. Where other data provided by a respondent made it possible, responses were re-coded to reflect accurately the type of prior house. However,

this could not be done in each instance, making it necessary to interpret the results of the question on prior house type with caution.

SECTION TWO:

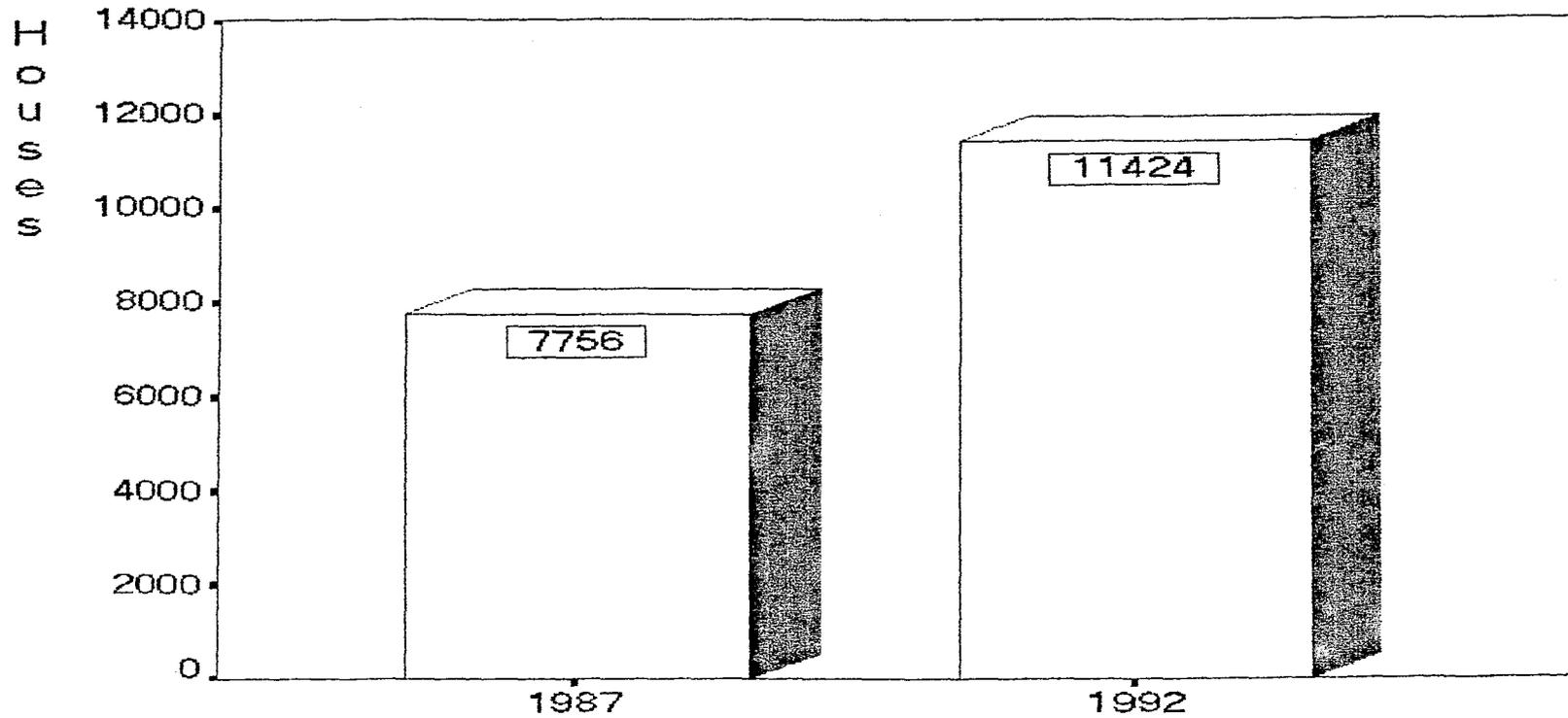
ANOTHER LOOK AT SLUM HOUSING MARKET GROWTH IN THE GREATER BANGKOK AREA, 1987-1992

Analysis of data subsequent to the completion of Volume 1 of this study indicated that some minor, though important, tabulation errors occurred. At Appendix C of Volume 1, the total number of survey slums stated was 76. The actual number of slums surveyed was 78, with two slums in changwat Nontha Buri merging into one during the 1987-1992 period, for a total of 77 slum communities. Summaries of data at the slum level of analysis are based on this number, rather than the total number of slums surveyed (78), or the number stated in Volume 1 (76).

The General Characteristics of Growth. Table 4 below shows the number of survey slums by changwat, along with changes in the number of houses in survey slums during the 1987-1992 period. The housing stock in the survey slums increased by almost 50 percent (See Figure 1), with changwat Nontha Buri registering the highest rate of growth.

The comparable growth rates of the BMA and "3C" area (changwat Pathum Thani, Nontha Buri, and Samut Prakan) suggest that BMA slum housing stock growth must have been extremely substantial during the 1987-1992 to counter the significant number of slum houses demolished as part of eviction and redevelopment efforts. While data for the "3C" area do not exist, and 1992 BMA data are only disaggregated to the district

Figure 1: Survey Slum House Totals,
1987 and 1992



Note: 47.3 percent increase, 1987-1992.

Sources: 1987 = NHA; 1992 = Author survey.

TABLE 4

NUMBER OF SLUM COMMUNITIES SURVEYED, BY CHANGWAT,
AND HOUSING GROWTH IN SURVEY SLUMS, 1987-1992

Changwat	# of Slums	Number of Houses		Change	
		1987	1992	No.	%
BMA	48	4,398	6,468	2,070	47.1
"3C" Area /1/	30	3,358	4,956	1,598	47.6
- Samut Prakan	20	2,078	2,774	696	33.5
- Nontha Buri	8	730	1,370	640	87.7
- Pathum Thani	2	550	812	262	47.6
Totals =	78	7,756	11,424	3,668	47.3

/1/ 3C Area = Samut Prakan, Nontha Buri, and Pathum Thani.
Sources: 1987: NHA; 1992: Author survey.

level, 24,101 houses were removed officially from the BMA slum housing stock during the 1990-1992 period alone, while official data show that at least 32,760 houses were constructed during the same period. This level of construction and de-construction activity has no equivalent in any other segment of the GBA housing stock, which has an overall annual stock loss -- due to demolition, fire, right-of-way purchase, etc. -- of perhaps no more than 1-2 percent. Stock removal in the BMA's slum housing segment during the 1990-1992 period amounted to nearly 17 percent of the official BMA 1990 total of 147,697 houses, while new construction amounted to 32,760 houses, a 22 percent increase over the 1990 total. The total activity (construction and de-construction) of 56,861 houses was equivalent to 38.5 percent of the 1990 slum housing stock. More so than nearly any other segment of the GBA's entire housing stock, then, the slum community housing segment is expanding and changing at a rapid pace.

Table 5 shows housing stock change in all survey slum communities during the 1987-1992 period, and provides a more refined insight into slum-level housing change throughout the GBA. Large communities did not fare well over the 1987-1992 period, with significant decreases in the number of houses in these slums. Many smaller slums, however, grew into the 200-300 house range, a level considered large in 1987, while others either remained the same size or declined in size to the 10-20 house range. This very small size jeopardizes the official status of these communities as slums.

TABLE 5
SLUM COMMUNITIES SURVEYED, BY KHET AND CHANGWAT

1. Bangkok Metropolitan Administration (BMA) (n = 48)

Name of Slum	Khet	NHA #	No. of Houses	
			1987	1992
Kusoanthong	Sathorn	6/7	100	290
Paak Klong Chongnonsee	Yannawa	6/54	300	261
Lung Talard	Klongsaan	7/13	60	63
Chankasem	Bang Sue	7/21	60	186
Soi Si Kaam(Sapan Kwa)	Dusit	7/29	80	173
Rattapan	Ratthevi	8/19	72	43
Lang Wat Makkasan	Ratthevi	8/37	40	62
Rim Klong Bang Sue	Huay Kwang	9/1	100	110
Ruamjaipiboon 2	Huang Kwang	9/4	80	113
Soi Pawanaa	Bang Khen	10/16	34	34
Anusawaleelark 4	Bang Khen	10/19	40	38
Sit Luang Poo Khaow	Don Muang	10/52	280	182
Nuan Jit	Klong Toey	11/4	170(500)	514
Rim Klong Wat Sapan	Klong Toey	11/18	70(200)	540
Huakoang	Klong Toey	11/60	400	520
Klong Paisingtoe	Klong Toey	11/69	97	136
Soi Paikrasuang	Prakhanong	11/139	30	23
Sukhapiban 1 Road	Prakhanong	11/141	25	25
Klong Prawet	Prakhanong	11/146	32	28
Soi Pratit	Pra wet	11/148	20	14
Soi Patjamit	Bangkapi	12/2	25	20
Soi Sanongkhun	Bangkapi	12/41	25	34
Liab Klong Saamwaa	Minburi	14/1	193	427
Farm Lard Krabang	Lard Krabang	15/12	37	43

Table 5 (continued)

Prachatipok Rd.	Thonburi	16/22	30	15
Prajoa Taaksin Rd.	Thonburi	16/25	20	15
Sahakit Company	Thonburi	16/52	26	25
Saarapee 3	Klongsaan	17/14	76	196
Wanaawan	Klongsaan	17/21	27	140
Wat Suwannaaraam	Bangkok Noi	18/14	360	305
Wat Ruaksuttaraam	Bangkok Noi	18/37	350	504
Wat Wimutiyaram	Bang Plad	18/48	20	24
Watpakineenat	Bang Plad	18/94	30	23
Samakki	Bang Plad	18/95	50	30
Phetkasem Soi 1	Bangkok Yai	19/19	70	90
Nakhorn Sangphet	Pasichareon	20/10	25	53
Sapaanklongyai Tieb	Paasichareon	20/12	37	39
Soi Petkasem 39	Paasichareon	20/17	25	48
Nang Nong 2	Chomthong	21/1	80	278
Wat Chaiyapruekmaalaa	Taling Chan	22/4	80	173
Wat Noi Nai	Taling Chan	22/11	60	180
Saamyag Thonburi	Ratburana	23/19	30	12
Tai Ror Ror Wat Bang.	Ratburana	23/20	40	43
Wat Muang	Nong Kham	24/6	19	129
Liab Klong Paasichareon	Nong Kham	24/9	30	27
Lang Sor Nor Lark 2	Nongkham	24/11	18	32
Wat Bangkhuntien Nai	Bangkhutien	21/23	40	33
Suwanprasit 1	Buengkoom	12/45	25	175

Total = 4,398 6,468

47.1% increase

2. Changwat Samut Prakan (n = 20)

Name of Slum	Khet	NHA #	No. of Houses	
			1987	1992
Soi Wat Ratpoethong	Muang	258	80	450
Moo7 Tambon Bangboomai	Muang	268	40	296
Soi Thongsuk	Sumrongklang	6	200	48
Yak Bang Prong	Prapradang	190	1,000	352
Nua Klongsumrong	Prapradang	8	30	132
Trongkhaam Baan Lakethai	Prapradang	124	50	200
Rim Klong Mahaawong	Muang	219	50	50
Ninrat	Bangprong	187	30	60
Tidaakaa	Bangprong	186	70	60
Soi Wat Bangpueng	Prapradang	56	34	52
Soi Benjasuk	Prapradang	77	30	123
Paaket	Prapradang	48	20	208
Taangkoang Wat Sumrong Nua	Sumrongklang	155	30	23
Kokmaa	Muang	222	127	103
Khaang Rongkradaad	Sumrong	146	70	100
Soi Chawaan 2	Muang	200	50	100
Kangboo	Sumrong Tai	148	62	196

(Table 5 continued)

Rongrian Satrikao	Sumrong	173	30	61
Soi Montaatip 1	Sumrong Nua	201	60	150
Lang Baan Yai	Prapadeng	139	15	10
			-----	-----
		Total =	2,078	2,774

33.5% increase

3. Changwat Nontha Buri (n = 8)

Name of Slum	Khet	NHA #	No. of Houses	
			1987	1992
Klong Suay Samaki	Muang	23	40	60
Bonkai	Muang	38/39	60	445
Pattana Kaaloong	Muang	61	40	283
Moo4 taa Sai Wat Tamnaktai	Muang	62	100	252
Klong Lampoolai	Paak Kret	65	350	90
Klong Baan Gao (Baan Moen)	Paak Kret	96	120	53
Sapan Nontaburi	Paak Kret	102	20	187
			-----	-----
		Total =	730	1,370

87.7% increase

4. Changwat Pathum Thani (n = 2)

Name of Slum	Khet	NHA #	No. of Houses	
			1987	1992
Taamjaimia	Moo 3	5	400	251
Wat Hong	Muang	26	150	561
			-----	-----
		Total =	550	812

47.6% increase

NOTE: Initially, seven (7) slum communities were selected for field survey work in Nontha Buri. During the actual field survey, however, the survey interviewer for one of the selected slum communities discovered that two communities identified by the NHA in 1987 as separate and distinct communities had, in fact, grown together during the 1987-92 period to form one community.

1987 housing totals in parentheses indicate a slum community leader estimate of slum housing total; official NHA total also appears for comparison. 1987 estimates were requested because of large differences between 1992 totals and the 1987 NHA data.

Source: 1987: NHA; 1992: Author survey.

Some Specific Characteristics of Growth. What kinds of slum communities grew most rapidly during the 1987-1992 period? Based on survey data gathered as part of the study, growth occurred chiefly in smaller slums, in those slums located on privately-owned land, and in slums with some form of rental arrangement.

The summary statistics of survey slum communities in both 1987 and 1992 shown in Table 6 provide a clear picture of slum community housing market change over time. During the 1987-92 period, there was an increase in average community size of nearly 50 percent, and a doubling of median community size. At the same time, however, there was a reduction of both minimum and maximum community size.

TABLE 6

SUMMARY STATISTICS OF SURVEY SLUM COMMUNITIES, 1987-1992

Characteristic /1/	1987	1992
Average Community Size	101	148
Median Community Size	50	100
Modal Community Size	30	23, 43, 60
Minimum Community Size	15	10
Maximum Community Size	1,000	561

/1/ Figures in number of houses unless otherwise noted.

Note: For the purposes of calculation, the two communities in changwat Nontha Buri which merged into one during the 1987-1992 period are treated as one community in both 1987 and 1992.

Sources: 1987: NHA; 1992: Author survey.

This seemingly contradictory finding is explained by examining the composition of community growth, as shown in Table 7 below. There was

a decline in the number of communities with fewer than 100 houses, and a very large increase in communities of 101-300 houses. Moreover, the upward shift in slum size was not due solely to the growth of small slums, for "larger" slum communities as of 1987 as a group actually declined in both absolute and relative terms during the 1987-1992 period, as shown in Table 8.

TABLE 7
COMPOSITION OF SURVEY SLUM COMMUNITY SIZE, 1987-1992

1987 Size Category	1987		1992		Change	
	No.	%	No.	%	No.	%
Less than 100 Houses	62	80.5	40	51.9	- 22	- 35.5
101-200 Houses	6	7.8	19	24.7	13	216.7
201-300 Houses	2	2.6	8	10.4	6	300.0
More than 300 Houses	7	9.1	10	13.0	3	42.9

Source: 1987: NHA; 1992: Author survey.

TABLE 8
HOUSING STOCK CHANGE IN SURVEY SLUM COMMUNITIES,
BY 1987 SIZE GROUP, 1987-1992

1987 Size Group/1/	1987			Status in 1992		
	Number of Slums	Number of Houses	% Share	No. of Houses	% Share	87-92 Change
"Smaller"	68	3,816	49.2	8,445	73.9	121.3%
"Larger"	9	3,940	50.8	2,979	26.1	-24.4%
Totals = 77		7,756	100.0	11,424	100.0	47.3%

/1/ Smaller = 200 or Fewer Houses.
Larger = More than 200 Houses.

While the specific histories of the nine "larger" communities existing in 1987 are not known, the number of houses in three of the nine larger communities grew by 23 percent, while the remaining six communities experienced a significant reduction in the number of houses, quite possibly as a result of eviction and relocation efforts. One interpretation of this data may be that both small and large slums are vulnerable to eviction, but for different reasons. Small slums have no critical mass of people to fight eviction, and are relatively easy to demolish. Large slums, on the other hand, are often the easy targets of "clean-up" efforts to rid the metropolis of slums simply because they come to symbolize a host of urban ills: demolish the slum, goes the thinking, and you eradicate the "ill" of the moment. Having large numbers to combat eviction efforts is often insufficient when the political momentum of a "clean-up" effort is strong.

Table 9 below shows slum community housing change during the 1987-1992 period by land ownership status, based on 1987 NHA data. Housing growth in slums located on privately-owned land was over 100 percent during the same period. By comparison, there was an actual decline in the number of houses located on land with mixed ownership. It would seem that mixed land ownership might confer additional tenure security to slum residents simply because property rights are less clearly defined, and land assembly for redevelopment relatively more difficult, but apparently this is not the case. Furthermore, housing growth on public land (either wat land, or other public sector land) was modest in comparison to growth on privately-owned land. Survey data indicate that housing growth in this latter category accounted

TABLE 9

HOUSING STOCK CHANGE IN SURVEY SLUM COMMUNITIES,
BY LAND OWNERSHIP STATUS, 1987-1992

Land Ownership Status/1/	1987	1992	Change	
			No.	Percent
Privately-Owned Land	3,245	6,534	3,289	101.4
Wat Land (Public)	550	701	146	27.5
Other Public Land	1,751	2,054	303	17.3
Wat and Private	1,940	1,895	- 45	- 2.3
Other Public & Private	270	240	- 30	- 11.1
Totals =	7,756	11,424	3,668	47.3

/1/ Determined by NHA as part of 1987 survey. Figures represent the number of houses in each category for the period shown. Sources: 1987: NHA; 1992: Author survey.

for roughly 90 percent of all survey slum housing growth during the 1987-1992 period.

The data in the Table are based on an update of 1987 NHA slum-level data by mostly resident surveyors. House-level data also collected by the same surveyors (via the survey questionnaire) seem to indicate that the pattern of housing growth by land ownership status is quite similar, but that the percentages are somewhat different. While, for example, the slum-level data shown above indicate that housing growth on privately-owned land accounted for 89.7 percent of the 1987-1992 growth in slum housing, the house-level data indicate that this same category accounted for 67.9 percent of growth during the period. The main discrepancy between the slum- and house-level data are in the two mixed ownership categories. The slum-level data for these categories

show an absolute and relative decline in housing stock change over the 1987-1992 period (See preceding Table), while house-level data show a combined 8.0 percent increase (18 of 224 respondents) in housing on mixed ownership land. Clearly, however, the nature of interviewing a randomly-selected respondent in a survey house, in itself, would result in some level of incorporation into the 1992 database. Thus, the pattern of housing growth by land ownership status found at the house-level should be viewed as a general confirmation of the slum-level growth pattern shown in Table 9.

Housing growth in survey slums during the 1987-1992 period changed the composition of rental status from predominantly land and house renting to predominantly land renting. As shown in Table 10 below, the reason for this change was the 125 percent increase in the level of house ownership. Moreover, 75.4 percent of the increase in survey slum housing stock was due to the combination of house ownership and land renting, suggesting that the majority of net new slum housing during the 1987-1992 period was ownership housing. Growth in the other rental status categories are both modest and relatively similar when compared to the 125 percent growth in land renting. Rather than seek out housing in other segments of the housing market, then, it appears that families were willing to risk possible eviction to invest in housing, trading off location for tenure security.

There was also very little growth in squatting activity during the 1987-1992 period, as the number of houses where no rent of any kind was paid increased by only 13.9 percent, the lowest increase of any category studied. The share of squatter houses in the survey slums

also dropped from 25.4 percent in 1987 to 19.6 percent in 1992, although, as noted above, survey data indicate that squatting was far more widespread than the 1987 NHA database would suggest. More will be said about this finding in Section Three of this report.

TABLE 10

CHANGE IN THE NUMBER OF HOUSES IN SURVEY SLUM COMMUNITIES,
BY NHA RENTAL STATUS, 1987-1992

Rental Status/1/	1987	1992	Change	
			No.	%
Both Land & House Rental	2,929	3,460	531	18.1
Land Rent Only; own house	2,212	4,979	2,767	125.1
House Rent Only	644	741	97	15.1
No Rent Paid	1,971	2,244	273	13.9
Totals =	7,756	11,424	3,668	47.3

/1/ Status based on community-level analysis by NHA as part of 1987 survey.

Sources: 1987: NHA; 1992: Author survey.

The data above suggest that the GBA slum housing market became more commercialized during the 1987-1992, consistent with trends towards increasing commercialization of other GBA land and housing markets. The apparent increase in homeownership, together with a relative decline in squatting activity, can be viewed as a positive sign of growing income levels in slum communities, as well as evidence of a perception that tenure security in slum communities may be improving. Again, however, house-level data indicate that while rental activity was more vigorous than squatting activity, and that land renting is the main form of rental activity, a different pattern of rental

activity emerges relative to the slum-level data presented above. More will be said about this finding in Section Three.

A Comment on House Registration. Table 11 data on house registration in survey slums. The overall percentage of registration is generally consistent with the 87.5 percent registration level found in the survey of BMA slum communities by district-level BMA officials. In addition, the BMA registration levels are higher than those found in the 3C area, perhaps due to a higher level of attention devoted to slum community management.

TABLE 11
REGISTRATION STATUS OF HOUSES IN SLUM SURVEY COMMUNITIES,
BY CHANGWAT, IN PERCENT

Changwat	% of Houses Registered	% of Houses Unregistered
Pathum Thani	86.8%	13.2%
Nonthaburi	89.0	11.0
Samut Prakan	75.5	24.5
B.M.A.	90.7	9.3
Totals =	86.0% (n = 832)	14.0% (n = 136)

Source: Author survey, 1992.

As noted earlier, de-briefing sessions with survey interviewers indicated that at least two interviewers mentioned that they did not survey unregistered houses. These houses were treated as if no one were home, suggesting that the percentage of unregistered houses might be higher than that found in the survey.

A comparison of findings between this survey and the BMA's own 1992 district-level survey of slum communities provides a further indication of possible undercounting of unregistered houses in BMA slum communities. BMA personnel found five districts which had no unregistered houses in slum communities, i.e., 100 percent house registration in all slum communities within the districts. Those districts are: Bangrak; Bangkoknoi; Klongsan; Pranakorn; and Ratburana.

A review of data gathered as part of this study, however, indicates that there was at least one unregistered survey slum house in three of those five districts. In Klongsan, where survey data are relatively plentiful, eight (8) of the 33 houses surveyed, or roughly 24 percent of survey houses, were unregistered. Assuming that this percentage could be applied to the BMA's district-level survey total of 3,886 houses to determine the number of unregistered houses in the Klongsan district, as was done for other BMA districts (See discussion in Vol. 1, pp. 47-52), the total number of slum community houses in Klongsan district would increase by 933 houses.

What the house registration data collected here and by the BMA suggest is the systematic undercounting of unregistered houses in Greater Bangkok slum communities, and thus the size of the entire GBA slum community housing market. The 86 percent registration level should thus be viewed as the possible maximum level, with the actual level estimated here to be in the 75-85 percent range. Given this level of house registration, then, as many as one of every four GBA slum community houses in 1992 may not have been counted as part of official

efforts due to their unregistered status, thus relegating them to the "shadow" housing stock -- that portion of the slum housing stock not reflected in official figures (See Volume 1, Table 15, p. 53).

Revised Estimates of GBA Slum Housing Market Growth. The survey data collected as part of this study, and the earlier interviews with BMA district-level officials, provide a basis for estimating GBA slum housing market growth during the 1987-1992 period. Due to the availability of current, relatively reliable district-level data within the BMA, and the absence of such in the "3C" area, the two sub-areas of the GBA will be treated somewhat differently.

Table 12 presents a summary of estimates of BMA slum housing market growth during the 1987-1992 period, based on both interviews with BMA district-level officials and the field survey data. Growth has not been modest, as the official 1992 BMA estimate of 156,356 houses would indicate. Again, this estimate only includes registered houses, while the estimates shown below include both registered and unregistered houses. Even though the number of slum communities in the BMA fell from 1,077 to 978 during the 1987-1992 period, the data in Table 12 indicate that the number of slum houses in the BMA actually increased by roughly 40 percent. Average community size thus increased from 123 houses to 191 houses during the 1987-1992 period. While no accurate data exist to determine changes in the physical area of survey slum communities during the period, the data above suggest strongly that housing density increased in BMA slum communities during the five-year period ending 1992.

TABLE 12

ESTIMATES OF SLUM HOUSING MARKET GROWTH IN THE
BANGKOK METROPOLITAN ADMINISTRATION, 1987-1992
(in houses, unless noted otherwise)

1987/1/	1992 Estimates of Slum Housing Totals		
	Interviews/2/	Field Survey/3/	Average
132,059	178,728	194,259	186,494
	35.3% growth	47.1% growth	41.2% growth

/1/ Volume 1, Table 13, p. 49. Data based on 1987 NHA survey.

/2/ Based on interviews with all 38 district-level BMA officials; see discussion in Volume 1, pp. 47-52.

/3/ Total equals application of percentage increase shown in Table 4 above to 1987 BMA slum housing total (132,059 houses).

Table 13 presents a summary of growth estimates for the "3C" area of the GBA. Based on survey data, the 411 communities in existence in 1987 grew by an average of 47.6 percent, slightly higher than the BMA average of 47.1 percent. In addition, housing growth in the 271 new 3C slum communities was roughly 44,700 houses, so total 3C slum housing stock growth during the 1987-1992 period is estimated at roughly 60,000 houses, an increase of approximately 160 percent.

At first glance, this large increase seems improbable. However, the 271 net new slums in the 3C area during the 1987-1992 period is based on both the historical growth rate of slums over the 1974-1987 period and the pattern of increasing dispersion of BMA slum growth towards the 3C area during the 1987-1992 period. Furthermore, the average slum size of 165 houses is slightly smaller than the 1992 average of 165.2 houses per slum in the 411 communities existing as of 1987. The

TABLE 13

ESTIMATES OF SLUM HOUSING MARKET GROWTH IN THE "3C" AREA, 1987-1992
(in houses)

1987	1992 Growth Estimates			Percent Change
	Existing Slums/1/	New Slums/2/	Total	
39,606/3/	58,458	44,715	103,173	160.5
41,711/4/	61,565	44,715	106,280	154.8
40,659/5/	60,013	44,715	104,728	157.6

/1/ Slum communities existing in the 3C area in 1987 (n = 411); see Volume 1, pp. 55-60. Figure based on 47.6 percent increase in 3C area survey slum housing stock during the 1987-1992 period; see Table 4 above.

/2/ New slum communities developed during the 1987-1992 period; see Volume 1, pp. 55-60. Each of the 271 new slums is estimated to have an average size of 165 houses, roughly similar to the 1992 average of 165.2 houses found in the 411 slums existing in 1987.

/3/ Author interpretation of 1987 NHA data for the 411 slums in the 3C area.

/4/ NHA estimate of housing total for slums in 3C area. See: NHA. Housing Stock Survey by Using 1988 Aerial Photography. Bangkok: NHA Centre for Housing and Human Settlement Studies (CHHSS), Table 3, p. 13.

/5/ Average of the two 1987 NHA figures for 3C slum housing stock.

assumption of roughly equivalent size between existing and newer slums in 1992 is, in fact, inconsistent with the older and newer slums in the 3C area in 1987. Average size in slum communities in official existence as of 1984 was 86.3 houses, while average size of slums considered new as of 1984 was 106.2 houses. Therefore, the assumption of roughly equivalent size between older and newer slums has the effect of generating a conservative estimate.

The two preceding Tables provide a basis for generating three estimates of GBA slum housing market growth during the 1987-1992 period. These estimates appear below in Table 14, and suggest that

GBA slum housing growth was substantial during the 1987-1992 period, with an average numerical increase of 118,502 houses, for an average percentage increase of 68.6 percent over the average 1987 GBA slum housing market total of 172,718 houses.

TABLE 14

GBA SLUM COMMUNITY HOUSING ESTIMATES, 1992

Estimate/1/	BMA	3C	GBA
Low	178,728	103,173	281,901
High	194,259	106,280	300,539
Average	186,492	104,728	291,220

/1/ The "Low" estimate is based on lowest figures appearing in Tables 12 and 13 for the BMA and 3C areas of the GBA.

The "High" estimate is based on highest figures in Tables 12 and 13 for the BMA and 3C areas.

The "Average" estimate = Average of the "Low" and "High" estimates.

The rate of GBA slum housing market growth during the 1987-1992 period was roughly double that of total GBA housing market growth, as Table 15 illustrates. While the figure for total housing growth in the GBA only reflects the number of officially registered houses during the interim period, and thus underestimates actual growth to an unknown extent, the magnitude of slum housing market growth relative to the performance of the entire housing market is nonetheless significant. To achieve parity with the slum housing stock growth rate, the number of "unofficial" (i.e., unregistered) houses constructed within the GBA but located outside of GBA slum communities would have to be roughly

TABLE 15

COMPARISON OF HOUSING STOCK CHANGE IN GBA SLUM COMMUNITIES
AND THE GBA, 1987-1992

Housing Market	No. of Houses, 1987	No. of Houses, 1992	Change	
			No.	%
GBA Slums/1/	172,718	291,220	118,502	68.6
Entire GBA	1,256,382/2/	1,689,240/3/	432,858	34.5
*** Slums as % of GBA	13.7	17.2		

/1/ The 1987 BMA slum housing total was 132,059 (See Table 12).
The 1987 3C slum housing total was an estimated average of
40,659 houses (See Table 13). 1992 total from Table 14.

/2/ Figure from Volume 1, Table 9, p. 41. Source document:
PADCO. Bangkok Land and Housing Market Assessment.
Washington DC: PADCO, 1990, Table 11, p. 42. (Note:
This is a revision of the PADCO Table referenced in
Volume 1, Table 9, p. 41.)

/3/ Figure represents a net addition to the 1987 total of
432,858 houses that were registered with the RTG Land
Department during the period 1 January 1987 to 1 January
1992. While the data for slums were collected in March
1987 and July 1992, and are thus not directly comparable
on a month-by-month basis to the total GBA housing data,
the time periods of the two data sets are nearly coterminous,
and thus comparable without resorting to interpolation to
account for monthly variations.

equivalent to the number of officially registered houses. Such a high
degree of unofficial housing activity appears highly unrealistic.

Based on the data collected as part of this study, the GBA slum
housing market expanded in both absolute and relative terms during the
1987-1992 period. This finding is contrary to previous studies, which
found that the GBA slum housing market segment was in relative
decline, due largely to the growing number of low-cost housing options
provided by the private sector homebuilding industry.

SECTION THREE: SURVEY FINDINGS

This section of Volume 2 will focus on the responses provided by the self-designated "head of house" in 968 randomly-selected houses in 77 randomly-selected slum communities throughout the four-changwat GBA (See Vol. 1, App. C, Map 1, for location of survey slums.). The presentation and analysis of data will appear in the general order of the survey questionnaire used as part of the survey effort (See Vol. 1, Appendix C, pp. 9-11, for copy of survey questionnaire.).

For the purposes of the survey effort conducted as part of this study, "head of house" was defined as the head of the people living in the survey house during the survey period. While it was known prior to the survey effort that it is not uncommon for more than one household to live in the same house in a GBA slum community, survey interviewers were instructed to interview only one head of household per survey house (See Vol. 1, App. A, pp. 2-3, for definition of household used in this study.). In addition, interviewers were instructed to ask for either the eldest person living in the survey house, or the eldest, economically-active person living in the survey house. A review of selected survey questionnaires indicates that interviewers were successful in this regard.

Although only the head of house was interviewed, detailed information was collected on all individuals living in the survey house on a regular basis. The head of house was also asked to identify social relationships and households existing within the survey house, which was checked subsequently for consistency with official definitions.

House Registration. While discussed in general terms in the previous section, survey data provide additional detail on house registration status. Registration levels are higher within the BMA, due largely to higher registration levels in older slums, as Tables 16 and 17 show.

TABLE 16

REGISTRATION STATUS OF SURVEY HOUSES, BY AREA

Area	Registered		Un-registered		Totals	
	No.	%	No.	%	No.	%
BMA	488	90.7	50	9.3	538	55.6
"3C"	344	80.0	86	20.0	430	44.4
Totals =	832	86.0	136	14.0	968	100.0

Source: Author survey, 1992.

TABLE 17

REGISTRATION STATUS OF HOUSES IN SURVEY SLUM COMMUNITIES,
BY AGE OF SLUM

Age of Slum	Houses Registered		Houses Unregistered		Totals	
	No.	%	No.	%	No.	%
Existing as of 1984	561	89.8	64	10.2	625	64.6
New as of 1984	271	79.0	72	21.0	343	35.4
Totals =	832	86.0	136	14.0	968	100.0

Source: Author survey, 1992.

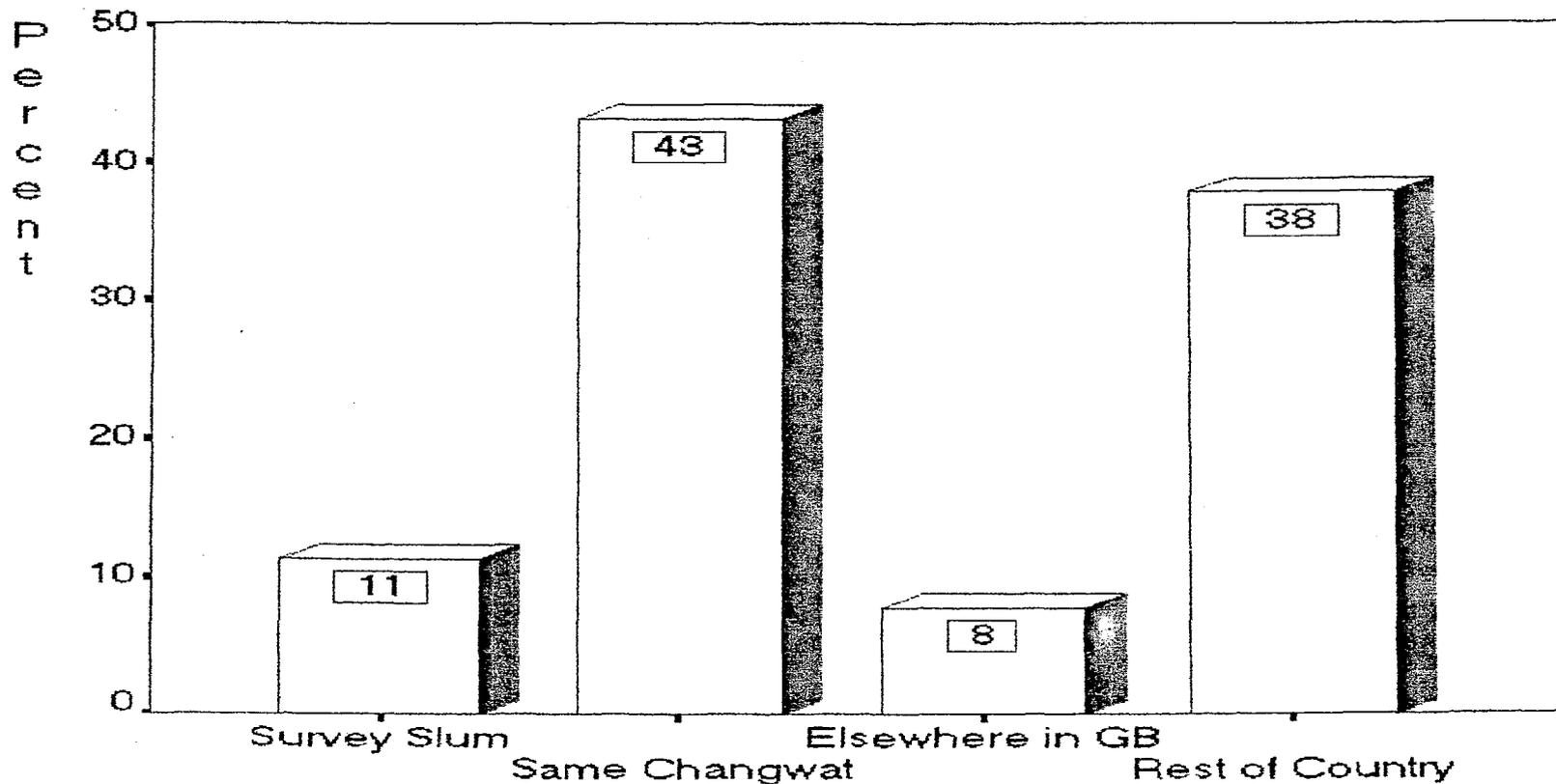
As noted in Volume 1, the pattern of slum housing market growth during the 1987-1992 period was clearly away from the central portion of the BMA, and towards the 3C area. Given that registration levels are

lower in newer communities, and that these newer communities are more common in the 3C area, it is not surprising that official slum housing counts might underestimate the actual size of slum housing growth in these areas. This pattern of undercounting in newer communities should be borne in mind when reviewing official slum housing studies.

A New Concept: The Household Unit. Based on a review of survey data, the term "household unit" was coined to underscore the number of households found in survey houses, or dwelling units. The term "dwelling unit" is used here to denote a separate, detached house, the dominant type of housing in GBA slums at the current time. While 623 of the 968 houses surveyed, or 64.4 percent of the total, contain only one household, the remaining 345 houses contain 820 households. The average number of households in this latter group of houses is 2.38, while the overall average number of households per house is 1.49. The notion of unity within a house is strengthened further in this instance by the survey finding that 91.9 percent of the households in the survey houses are related by blood or marriage.

Origin of Household Units. Figure 2 shows the origin of household units, based on the respondent's place of origin. Eleven percent (111 of 957) of respondents identified the slum community they currently live in as their place of origin, i.e., the respondent was born in the survey slum. An additional 43 percent of respondents are originally from elsewhere in the same changwat as the current slum of residence. Overall, the GBA is the place of origin for 62 percent of all survey respondents, with the rest of Thailand serving as the place of origin for the remaining 38 percent of respondents.

Figure 2: Origin of Household Units



Migration Status

Source: Author survey, 1992

n = 957

Table 18 provides additional detail on place of origin. The data show that slum housing has ceased to be a housing market segment occupied predominantly by migrants from outside of the GBA, as nearly two of every three respondents are from the GBA. More specifically, the GBA changwat where a given slum community is located, together with the slum communities, are the places of origin for a majority -- 55 percent -- of respondents. Thus, unlike the perceptions of many, the Northeast region is not the main source of in-migration. Rather, the changwat comprising the Central region outside of the BMR are the main place of respondent origin.

TABLE 18
RESPONDENT PLACE OF ORIGIN, BY AREA

Area	Number	Percent
GBA	594	62.1%
Rest of BMR/1/	16	1.7
Central/2/	187	19.6
Northeast/3/	99	10.4
North/3/	50	5.2
South/3/	10	1.0
Totals =	956	100.0%

Note: There were 12 non-responses, so the total number of responses is 956.

/1/ Includes changwat Nakhon Pathom and Samut Sakhon. See Map 2 for location.

/2/ Area outside the BMR but within the area shown in Map 1 as "Central".

/3/ See Map 1 for locations.

Source: Author survey, 1992.

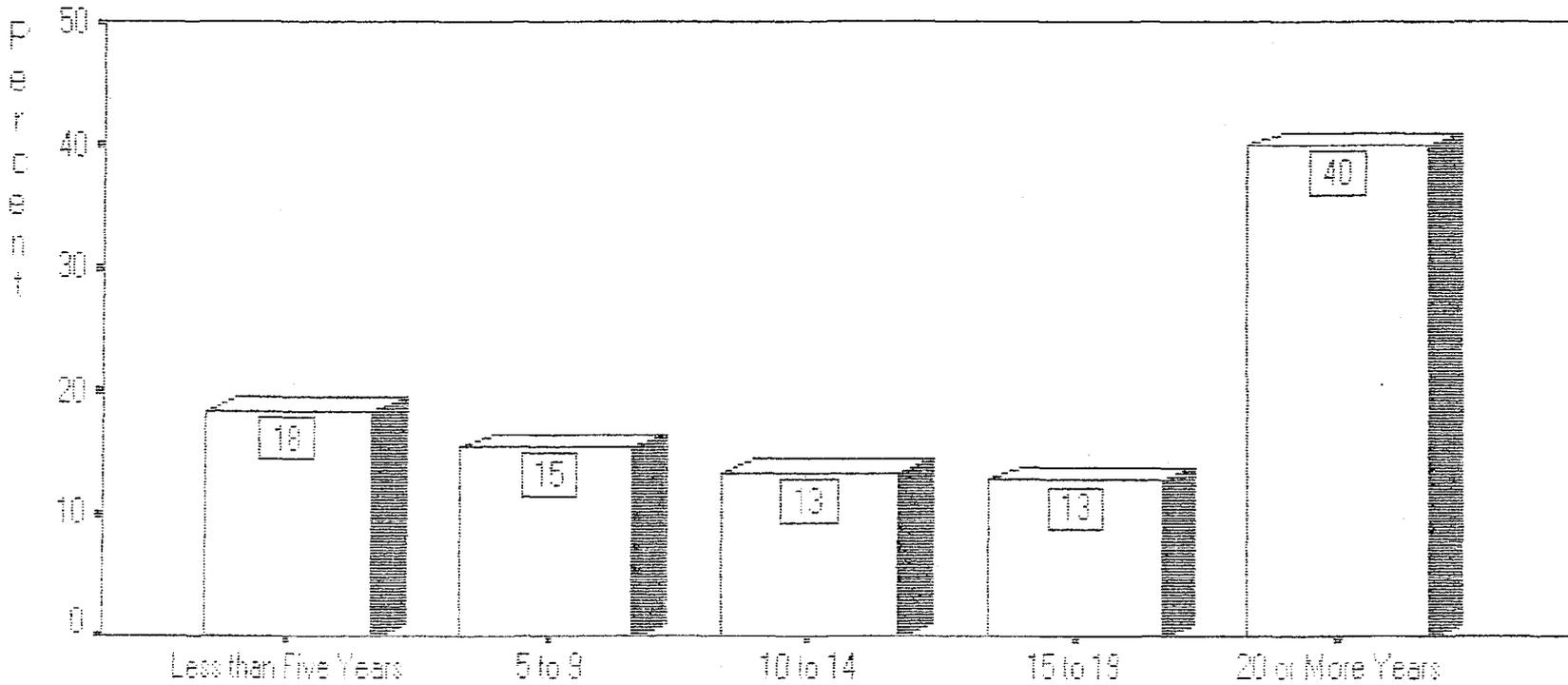
More generally, 2,165 of the 4,872 people occupying the survey houses, or 44.4 percent of the total survey house population, were born in the survey slum. The actual percentage is probably slightly higher, but detailed information on place of origin and birth was incomplete for nine (9) survey houses. While data were not gathered on the place of origin of each HU member, it appears that the bulk of slum community residents were also born in the GBA, given that 62.1 percent of HU heads identified the GBA as the place of origin. Based on this assumption, it is reasonable to contend that a majority of GBA slum housing is not occupied by in-migrants, but rather a majority of people either born in the survey slum or from elsewhere in the same changwat.

Duration of Stay in Survey House, in Survey Slum, or Other GBA Slum.

Figures 3-5 below show the percentage of HU heads who have lived in slum houses in either the survey slum or other GBA slums for various periods of time. The data summarized in the Figures show that 40 percent of HU heads have lived in the same slum house for 20 or more years, 48 percent have lived in both the survey house or other houses in the survey slum for 20 or more years, and 53 percent have lived in both the survey slum and other GBA slums for 20 or more years. These data indicate that there is circulation of household units both within the houses of the survey slum, and from one GBA slum to another.

The second largest group shown in Figures 3-5 are the more recent arrivals to the slum housing market, i.e., those living less than five years in that market. The data appearing in Section 2 on the increase in the number of houses in slums would suggest a higher percentage of

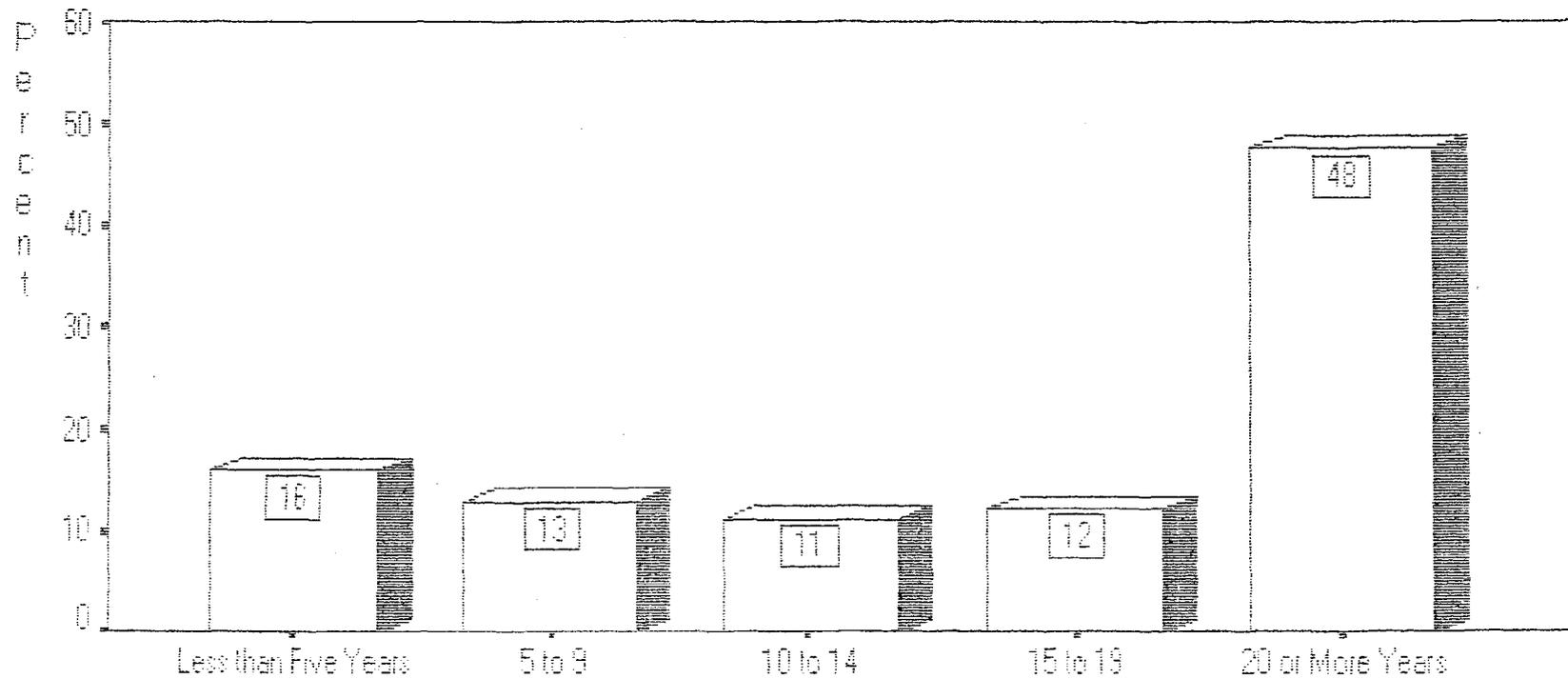
Figure 8: Number of Years Head of Household Unit
has Lived in Survey House



Years H of HU has Lived in House

Source: Author survey, 1982 n = 941

Figure 4: Number of Years Head of Household Unit
has Lived in Survey Slum

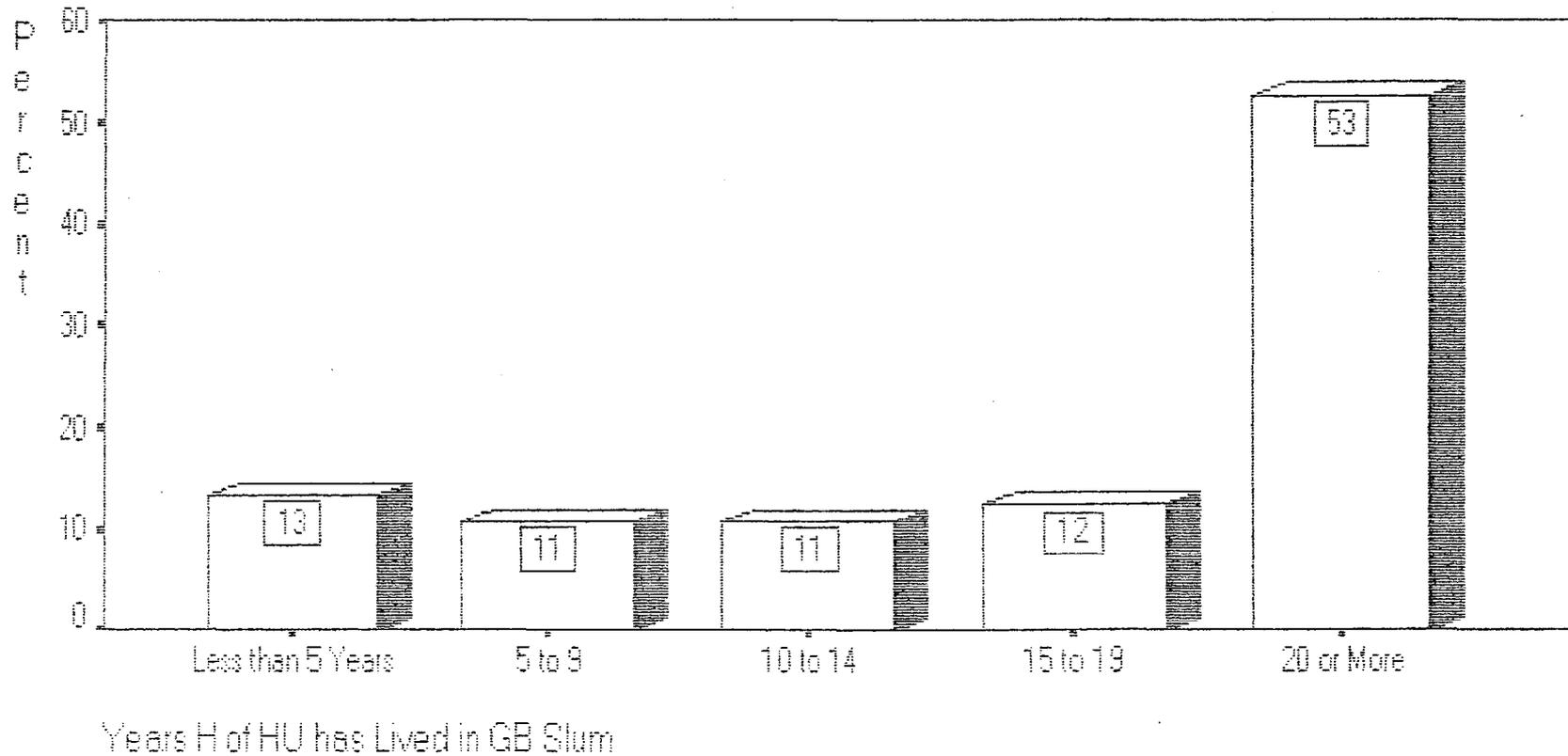


Years H of HU has Lived in Slum

Source: Author survey, 1992

n = 848

Figure 5: Number of Years Head of Household Unit
has Lived in a GBA Slum Community



Source: Author survey, 1992 n = 943

recent arrivals, so it appears that more recent arrivals are somewhat under-represented in the sample drawn as part of this survey. When, however, the data are adjusted to coincide more accurately with the five-year period between 1987 and 1992 (i.e., five years or less in the survey house, compared to less than five years, as shown in Figures 3-5), the number of respondents moving into survey houses during the 1987-1992 period results in an increase of 31.5 percent over the number of respondents living in survey houses as of 1987. While houses and respondents are not directly comparable, the common feature between the two sets of data is that the survey slums were in existence in 1987. Thus the 31.5 percent increase in the number of respondents since 1987 should not be seen as being necessarily incompatible with the Section Two finding of a roughly 40 percent increase in the number of houses in those slums existing in 1987.

Table 19 shows selected summary data for Figures 3-5, and further indicates both the long-term residence of many respondents and the recent arrival of others. The most frequent, or modal, response for length of stay in the survey house was one year (n = 57, or 6.1% of

TABLE 19

SUMMARY STATISTICS ON LENGTH OF STAY OF RESPONDENTS IN GBA SLUMS

Location of Stay	Average No. of Years	Median No. of Years	Modal Year(s)
Survey House	19.8	15	1
Survey Slum	23.1	16	4, 20
GBA Slum	25.3	20	15, 20

Source: Author survey, 1992.

valid responses), which might suggest that movement into the slum housing stock is relatively high at this time. Some of these newcomers, however, have lived in the same slum, or another GBA slum, for some time, as the data in Figures 3-5 indicate.

Of particular interest are the differences in duration among houses occupied exclusively by household(s) headed by female(s), mixed heads of household(s), and all-male(s)-headed households. In contrast to the data appearing in the previous table, survey data indicate that HUs with exclusively female-headed household(s) have lived longer in the survey house, survey slum, and a GBA slum community than the two other household types. HUs with all-male heads of household(s), then, may be more mobile than the All-Female and Mixed HUs, given that HUs with all-male heads of household(s) have consistently lower values for each summary statistical measure shown in Table 20.

TABLE 20

NUMBER OF YEARS IN GBA SLUM HOUSING, BY SEX OF HOUSEHOLD HEADS

Location	All Respondents	All-Female	Mixed	All-Male
In Survey House:				
- Mean	19.8	24.3	23.3	18.1
- Median	15.0	19.0	18.0	14.0
- Mode	1.0	1.0	1.0	5.0
In Survey Slum:				
- Mean	23.1	28.9	25.9	21.3
- Median	18.0	20.0	20.0	16.0
- Mode(s)	4.0, 20.0	15.0	15.0	4.0
In GBA Slum:				
- Mean	25.3	30.6	27.6	23.7
- Median	20.0	24.0	24.0	20.0
- Mode(s)	15.0, 20.0	15.0	15.0	4.0

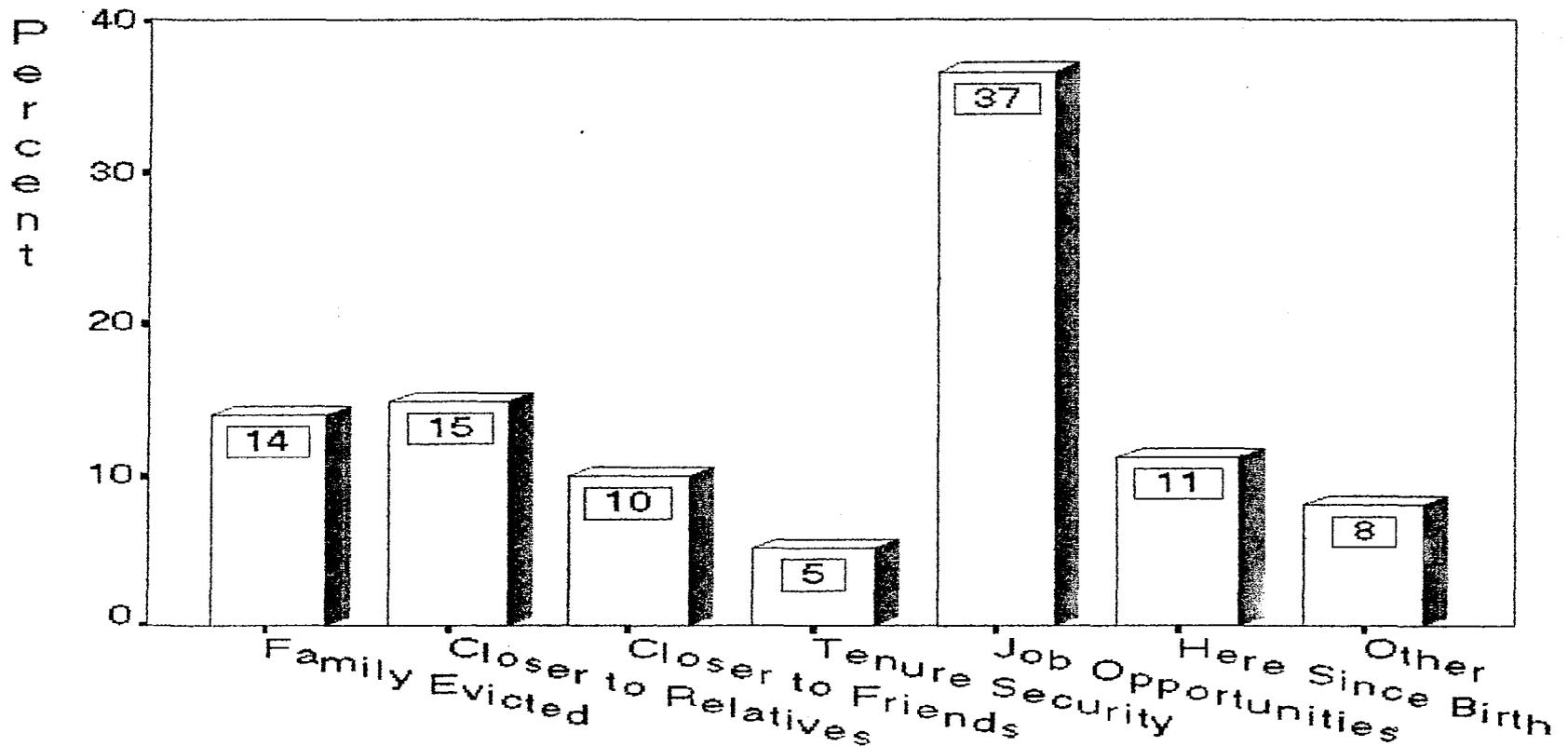
Source: Author survey, 1992.

It could be that limited employment opportunities and income conspire to reduce the number of moves made by HUs with exclusively all-female heads of household(s).

As might be expected, there is a strong association between the length of stay in a slum community and respondent age, as age increases the longer that respondents have lived in a survey house, a survey slum, or another GBA slum. Overall, the average age of survey respondents is 48.9 years, while the overall median 48.0 years. However, the average age of survey respondents who have lived in a survey house for five years or less is 41.5 years (median = 40.0 years), while the average age of respondents who have lived in a survey house for 20 or more years is 55.6 years (median = 50.0 years), with steady increases in age as duration of stay increases. The data seem to indicate that HU heads in survey slum communities can be considered middle-aged.

Reason for Moving to Current House. Figure 6 provides information on the reason given by respondents for moving to the survey house. The main reason given is the presence of nearby job opportunities, either in factories or on the street (eg., food sales). This response accounted for 37 percent of all responses, and rises to roughly 42 percent when the response "Here Since Birth" (i.e., respondent has always lived in slum) is discounted. This response accounted for 11 percent of all responses. The "Tenure security" response had the lowest response rate (5 percent) of all responses given, suggesting that tenure security is not perceived as a problem relative to more immediate needs like employment or the proximity to family and friends, who often provide valuable economic and social support.

Figure 6: Reason for Moving to House



Reason for Move

Source: Author survey, 1992

n = 963

The finding that opportunity for employment is a key determinant in the housing location decisions of slum dwellers suggests that housing in slums is viewed by slum dwellers as an input to income-generating activities, i.e., a place to earn a living, rather than merely a place to live. This finding, while consistent with earlier research by Perlman (1987) and others (See, for example, reference to Perlman in the Bibliography of Vol. 1, at p. 81), must be emphasized here to underscore the difficulty that slum dwellers have when they are evicted and forced to relocate. Not only is their house lost when this occurs, but the market for the goods and services they sell is lost as well.

Table 21 shows the responses of HU heads to the survey question on the reason for moving, by time of residence in the survey house. HU heads who have lived in the survey house for five years or less provided

TABLE 21

REASON FOR MOVING TO SURVEY HOUSE, BY DURATION OF RESIDENCE
(in percent)

Reason	Residence of 5 Years or Less	Residence of More Than 5 Years
Family was Evicted	19.6%	11.9%
Closer to Relatives	8.4	16.7
Closer to Friends	10.2	9.4
Tenure Security	9.7	3.7
Job Opportunities	42.7	35.1
Always Lived Here	NA	15.6
Other	9.3	7.6

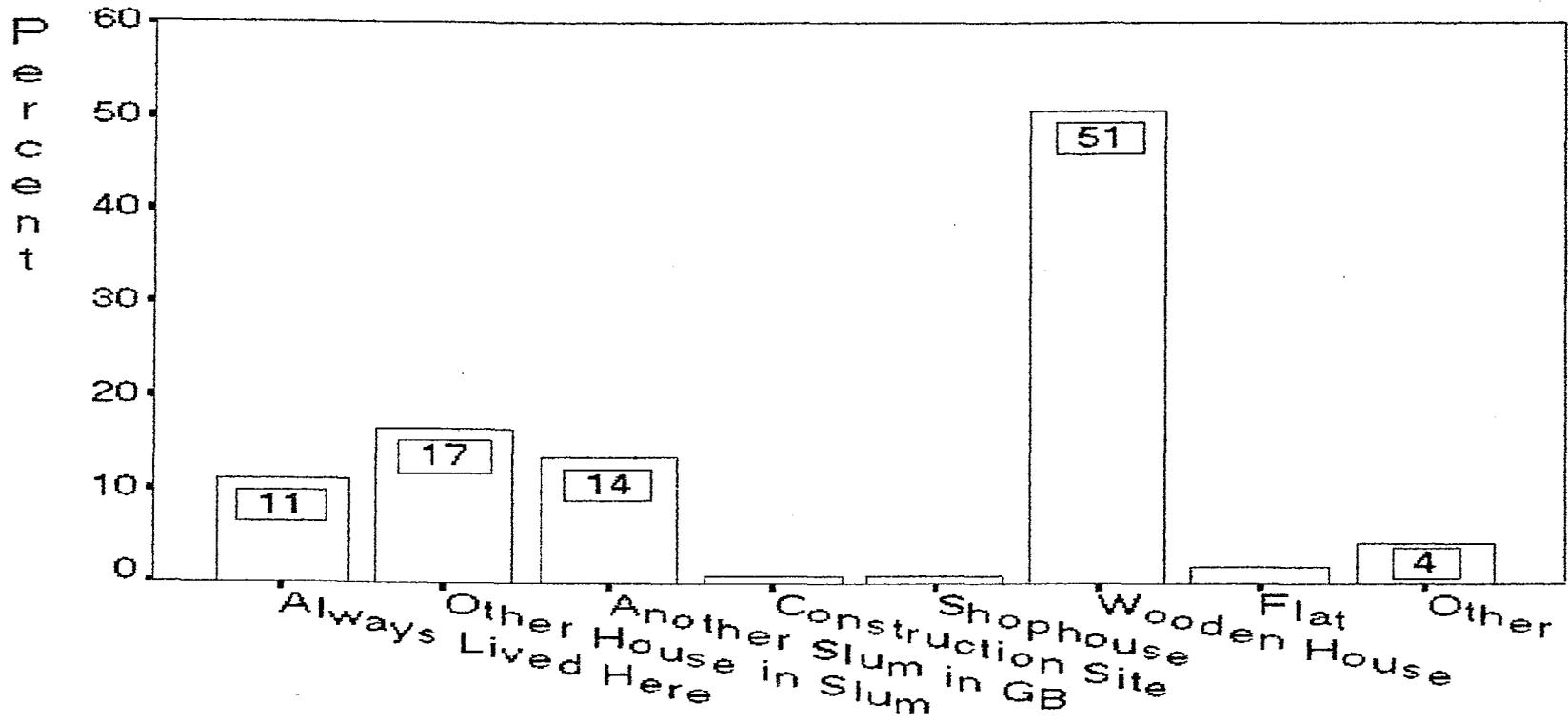
Source: Author survey, 1992. n = 963.

somewhat different reasons for moving than those who have lived in the survey house for more than five years (i.e., since before 1987). A Chi-square test of statistical significance was applied to the data responses to the reason-for-moving question to determine whether there was a relationship between what is essentially time and the reason for moving to the survey house. Does, for example, the higher response, "Family was Evicted" among more recent arrivals to survey houses provide a basis for claiming that evictions were more prevalent during the 1987-1992 period than before that time?

The Chi-square test indicates a high degree of association, in that it is extremely unlikely (i.e., less than one chance in 200,000) that the differences in reasons for moving between more recent and older residents are due to sampling error or other factors. Further, the test also indicates that it is also highly likely that the differences found in the survey sample also exist in the larger population of slum residents. Therefore, job opportunities and tenure security appear to be more important as reasons for moving to the survey house among more recently-arrived residents to survey houses, while proximity to family and friends -- taken together -- has become a less important factor for moving.

Type of Prior House. Figure 7 summarizes the responses to the survey question regarding the kind of house that respondents lived in just prior to moving to the survey house. Of primary interest here is the identification of various housing stock segments which are related directly to the slum housing market segment, in terms of the movement of people from one segment to another.

Figure 7: Type of Prior House



Previous DU Type

Source: Author survey, 1992 n = 965

Note: Construction site, Shophouse, and Flat = 3.5 percent.

In addition to the 11 percent of HUs who have always lived in the survey slum, another 31 percent stated that their prior house was either another house in the survey slum, or a house in another GBA slum community. The bulk of respondents (51 percent) stated that their prior house was a "Wooden House", while all other housing market segments together amounted to less than eight (8) percent. The other segments, however, were quite diverse. For example, boats moored along canals and the Chao Phraya River were identified as prior houses by respondents, and included in the "Other" category. The link to other housing market segments is almost negligible, accounting for only 3.5 percent of all responses. Of particular note is the almost non-existent movement of respondents between so-called "formal sector" housing market segments (eg., shophouses and flats) and GBA slums.

A review of the "Wooden House" responses indicates that 301 of the 482 respondents stated their place of origin as outside of the GBA, where the great bulk of the housing stock is constructed of wood. However, as noted earlier, respondents were possibly confused by the response "Wooden House", for in Thai a wooden house (baan mai) can mean a house located in a rural area, or a house made of wood. 141 of the 181 GBA "Wooden House" responses stated their origin as the same changwat as the survey slum, while another 40 "Wooden House" respondents stated their origin as elsewhere in the GBA. It could be that respondents moved from wooden houses in what were formerly rural -- but now urbanizing -- areas of the GBA. Among the 141 respondents who moved to a slum community within the same changwat, in particular, the move may well have been to a slum that was both familiar to respondents and better located in terms of access to jobs, family, or friends.

An additional explanation appears to be the effect of the urban re-development process. As land values increase, and the market and financial feasibility of condominiums, offices, and other intensive land uses improves, the incentive to re-develop land increases. Apparently, some of the land re-developed recently has included non-slum, low-cost housing (eg., wooden houses), causing people to seek low-cost housing elsewhere. It could be that many respondents have been affected by the process of land re-development.

Several of the "Wooden House" responses were re-coded to reflect more accurately the actual housing situation of respondents prior to moving to the survey house. Responses were re-coded only in those instances where information elsewhere in the questionnaire indicated clearly that the respondent had either always lived in the survey house, had lived in another house in the survey slum, or another GBA slum. It is assumed here, based on the degree of re-coding undertaken, that many more of the 181 GBA-based "Wooden House" responses could be re-coded to one of the three responses noted in the previous sentence. If this additional re-coding activity could be undertaken accurately, it would more precisely reflect actual housing moves within and among GBA slum communities than the survey data currently indicate.

Overall, the data on prior house type suggest that within the GBA, slum housing is most closely associated with baan mai, with little movement of respondents from other GBA housing market segments to the slums. This finding can be viewed as positive in terms of the low level of respondent movement from "formal sector" market segments to slums in a presumably downward manner. While the data are not

complete enough to make a definitive claim, the level of movement of respondents within and among slum communities may indicate that there are limited non-slum options available to slum dwellers when a move is necessary. Stated another way, there may be a "glass ceiling" of sorts with regard to movement out of the GBA's slums into other housing market segments, in that people are not able to pay more for other types of housing (eg., shophouses and flats). Finally, the data also indicate that there is greater movement of respondents into GBA slums from outside the GBA than from other GBA market segments.

Household Characteristics of Survey House Residents. Information on survey slum households (HHs) appears in Table 22 below. The average number of households living in survey slum houses is 1.49. In the BMA, the number is 1.56, while in the 3C area the number is 1.41. The number of people per household (3.38) compares favorably with data from surveys conducted by the RTG's National Statistical Office as part of that agency's bi-annual Socio-Economic Survey. In 1986, the NSO found that average GBA household size was 3.8 persons, while in 1988 the figure was 3.5. Assuming that average household size continued to decline from 1988-1992 as it did between 1986-1988, the average household size in the GBA in 1992 was 3.22 people.

Households headed by females total 345, or 23.9 percent of all survey slum households. Survey houses occupied exclusively by female-headed households total 141, and include 170 female-headed households. The average number of people in survey slum houses occupied exclusively by female-headed households is 3.78, notably less than the 6.87 persons per house wherein both male- and female-headed households exist. It

TABLE 22

SELECTED GENERAL CHARACTERISTICS OF SURVEY SLUM RESIDENTS,
AND GENERAL CHARACTERISTICS BY SEX OF HEAD OF HOUSEHOLD(S)

Characteristic	Total	Household Type		
		All Female(s)	Mixed	All Male(s)
No. of Households	1,443	170	381	892
No. of Houses	968	141	150	677
No. of HHs/House	1.49	1.21	2.54	1.32
No. of People	4,872	533	1,030	3,309
No. of People/House	5.03	3.78	6.87	4.89
No. of People/HH	3.38	3.14	2.70	3.71

Source: Author survey, 1992.

is in the mixed households where the number of households and people is highest, and where living and environmental conditions are likely to be lowest. Other household-level characteristics include:

- * No. of One-Person HHs = 16; 1.7% of HH total
- * Other one-household houses = 607; 42.1% of HH total
- * Pop. in one-HH houses = 2,497; 4.01 persons/house, 51.3% of survey pop.
- * "Intact" households (1 house containing one HH of husband, wife, with or without children) = 503; 34.9% of HH total, 52.0% of house total
- * Multiple-HH houses = 345 houses; 2.38 HHs/house

The definition of an "intact" household was developed as part of a 1990 study by the Chulalongkorn University Social Research Institute for the NHA as part of the IBRD Third Shelter Technical Assistance Project (Reference at Vol. 1, p. 74; definition at p. III-3 of source document). The CUSRI study team found that 67.1 percent of all BMR households in 1990 could be defined as intact. The relatively low

percentage of such households in GBA survey slums suggests strongly that it is hard to maintain traditionally-defined households in environments of poverty like the GBA's slum communities.

Table 23 below provides additional detail on households by the sex of the head(s) of household(s). Nearly 70 percent of the survey houses (677 of 968) are occupied by one or more male-headed households, while the number of households in these houses ranges from 1-8. Houses occupied exclusively by one or more female-headed households account

TABLE 23

DISTRIBUTION OF HOUSEHOLDS IN SURVEY HOUSES, BY NUMBER AND SEX OF HEAD OF HOUSEHOLD(S)

No. of Households	Sex of Head of Household(s)			Totals	
	Female(s)	Mixed	Male(s)	HHS	Houses
1	114	NA	509	623	623
2	25	97	132	508	254
3	2	28	30	120	60
4	--	22	4	52	26
5	--	3	1	20	4
8	--	--	1	8	1
Totals: Houses	= 141	150	677	--	968
H-holds	= 170	381	892	1,443	--

Source: Author survey, 1992.

for 14.6 percent of all survey houses, and contain no more than three households. Houses where there are both male-and female-headed households total 150, or 15.5 percent of survey houses. Again, the

mixed-household houses have a higher number of both households and people per house than the other two household types surveyed.

Extent of Family Relations Within Survey Houses. A number of questions were asked regarding the intra-house relationships of slum residents. As mentioned earlier, the great bulk of residents are related by blood or marriage, even though the percentage of "intact" families is significantly lower than the general GBA population. Table 24 below provides general information on social relations.

TABLE 24

RELATION OF SURVEY SLUM RESIDENTS BY BLOOD OR MARRIAGE

Relation Status	No. of Houses	% of Total
All Residents Related	888	91.9%
Not All Related	62	6.4
One-Person HU	16	1.7

Source: Author survey, 1992.

The data indicate a very high degree of sharing of living space among related persons, as well as the very low number of houses occupied by just one person. A review of the individual cases indicates that a number of children from changwat outside of the GBA are living in survey houses with a grandmother, or aunt or uncle. Based on the data collected, the majority of these children are currently enrolled in school, which may have been a key reason for moving to the GBA to live with relatives. The "Not All Related" category in Table 24 also includes persons who are related by blood or marriage, so the overall

measure of "relatedness" may be higher than the 91.4 percent figure shown in Table 24 above.

Other social characteristics appear in Table 25, including data on registration of individuals in survey houses. In addition to the registration of houses, which was discussed earlier, individuals must register at a nearby local government office prior to the age of 16 to vote and avail of selected public services. Roughly 3,100 survey slum residents, or 64 percent of the survey total, are registered. The remaining 36 percent of survey house residents are unregistered, with

TABLE 25

SELECTED POPULATION CHARACTERISTICS IN SURVEY HOUSES

Characteristic	Number	% of Total
No. of people living in slums	4,872	100.0%
No. of people born in slums	2,165	44.4
No. of people registered at house	3,117	64.0
No. of unregistered people	1,755	36.0
No. of people older than 15 who are not registered at house	758	15.6

Source: Author survey, 1992.

an average of 1.83 unregistered people per survey house (for the 960 survey houses where reliable data are available). The number of unregistered persons 16 or older, however, is 758, for an average of .79 unregistered persons per survey house (again, for the 960 survey houses where reliable data are available).

While the percentage of people born in the slum is 44.4 percent, at least one person was born in the survey slum in 67.5 percent of the 959 survey houses for which reliable data exist. This dispersion of births in the survey slums, coupled with the high percentage of HU heads who identified the response "Elsewhere in Changwat" as their place of origin (See Figure 2 above), indicates once again that the GBA slum housing market is no longer a migrant-oriented segment of the housing stock, but rather a market segment oriented to GBA residents.

Table 26 summarizes data on the relational distribution between house and individual registration. There are roughly 1,300 unregistered

TABLE 26

DISTRIBUTION OF REGISTERED AND UNREGISTERED SURVEY HOUSE RESIDENTS,
BY HOUSE REGISTRATION STATUS

Resident Reg. Status	No. in Reg. Houses		No. in Unreg. Houses		Totals	
	No.	%	No.	%	No.	%
Registered	3,013	69.8	104	18.7	3,117	64.0
Unregistered	1,303	30.2	452	81.3	1,755	36.0
Total =	4,316	100.0	556	100.0	4,872	100.0

Source: Author survey, 1992 (n = 960).

people living in 762 of the 826 registered survey slum houses where reliable data are available, or 30 percent of the total number of residents living in registered housing. In addition, there are 104 people registered in 36 of the 134 unregistered houses. It is not necessarily the case, then, that people living in registered housing are themselves registered, and vice versa.

The data above suggest that official estimates of the number of GBA slum dwellers, which are based on the number of registered people living in registered slum community houses, may systematically undercount the actual number of slum dwellers, due to the pervasive presence of unregistered people and houses.

Rental Status of Survey Houses. The slum community database compiled by the NHA in 1987 as part of earlier USAID-funded work (eg., the 1987 PADCO study) identified slum communities on the basis of several criteria. Rental status was one of many criteria used to describe and categorize the communities. For example, the NHA designated a slum community as a "squatter" slum if its residents were not paying rent on a regular basis for land or house occupancy. As noted in Section Two, a review of the 1987 NHA data indicates that 13.4 percent of slum communities in existence in 1987 were considered squatter slums, while 18.2 percent of the slum communities included in this survey effort were identified by the NHA as squatter communities. By comparison, Sapon Pornchokchai, in his 1985 study, 1020 Bangkok Slums (See reference in Vol. 1, p. 77), identified 16.3 percent (166) of the 1,020 slums in existence in 1984 as squatter communities.

Given the scale of the NHA's 1987 effort to gather detailed data on slum communities throughout the GBA, it is more than understandable that the unit of analysis would be the slum community at-large, rather than individual houses within GBA slums. Unlike the NHA's reliance of an entire slum community as the unit of analysis for determining rental status, however, this study uses the individual slum house. This smaller unit of analysis permits greater detail than the NHA

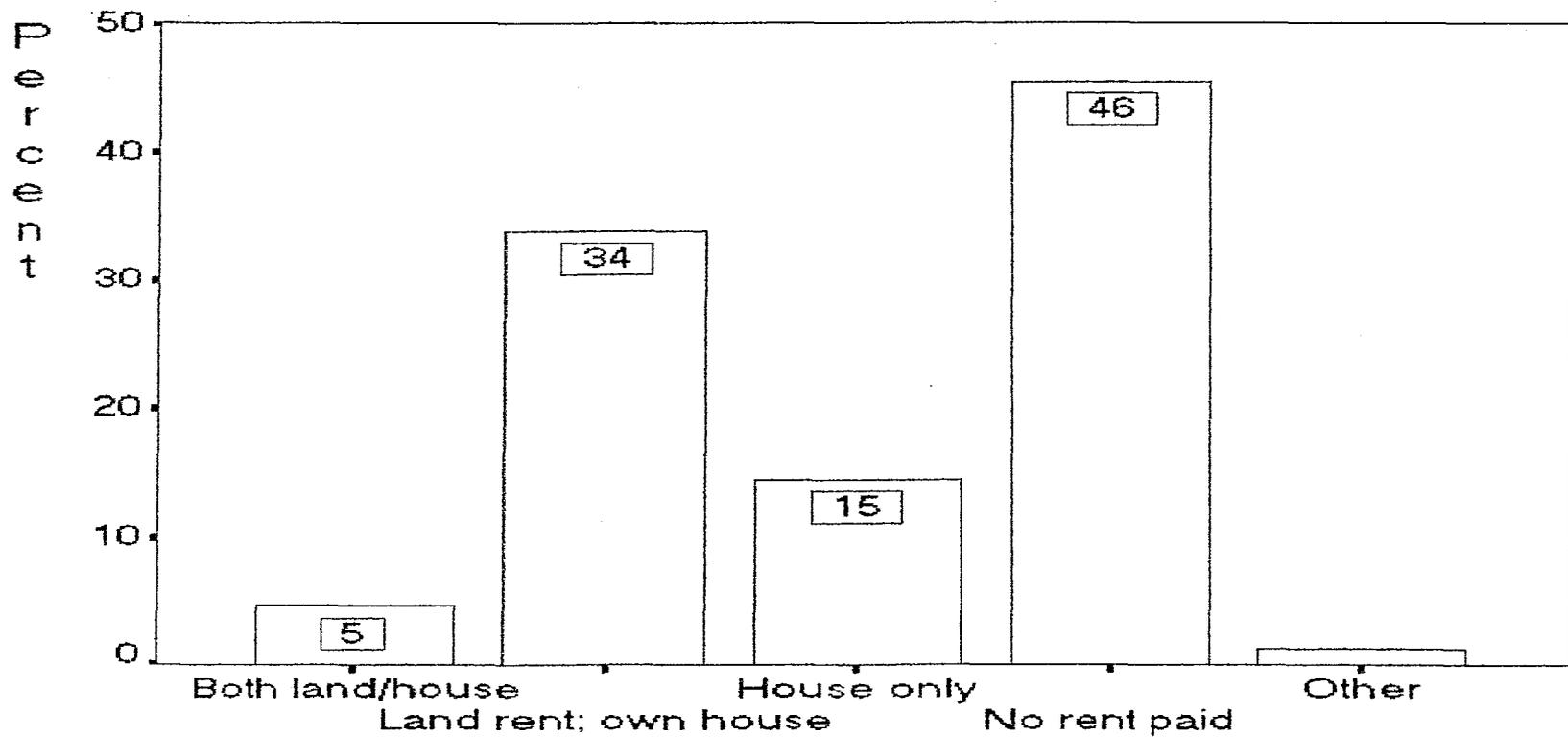
method of data collection, while at the same time making it more difficult to compare survey data with the NHA data. The greatest benefit to the house-based determination of rental status, however, is that it provides a much better picture of the actual number and location of squatter household units than the NHA data indicates.

In contrast to the relatively small percentage (13.4%) of slums which were considered squatter communities in 1987, Krongkaew (See reference in Vol. 1, p. 76), in his 1987 study of the urban poor in Thailand, found that 52.5 percent of the households surveyed in Bangkok area slums were squatters. Thus, at almost the same point in time that the NHA was identifying roughly 13 percent of the slum communities as squatter communities, Krongkaew found that slightly more than 50 percent of slum households were squatting. While Krongkaew was unclear whether all the squatter households were living exclusively in squatter communities, it seems highly unlikely that such a high degree of convergence occurred.

The use of different units of analysis, then, seems to result in very different perceptions regarding the level of squatting activity in GBA slum communities. The conventional wisdom regarding squatting has relied on the slum-level analyses of both the NHA and Pornchokchai. The 1987 Krongkaew study shows that reliance on this level of analysis precludes the possibility that squatting activity can occur in slums which are not known to be squatter communities.

Figure 8 shows summary data on the rental status of survey houses. The highest percentage of respondents (46 percent) stated that they do not

Figure 8: Rental Status of Survey Houses



Rental Status

Source: Author survey, 1992

n = 962

Note: Other = 1.4 percent; not shown due to rounding errors.

pay rent of any kind, followed by land rental (34 percent) and house rental (15 percent). While not directly comparable, due to the house rather than household unit of analysis, the high degree of squatting activity nonetheless appears to be generally consistent with the 52.5 percent level found by Krongkaew in 1987. It may also be the case that landlords for a large number of survey house residents have stopped collecting rent as a way of notifying the residents of landlord intent to terminate the living arrangement. Yap noted in 1989 (See reference in Vol. 1, p. 78) that this non-confrontational means of severing a contract-like relationship between landlord and tenant is quite common in Thailand. Yap also points out that it may take several more years before landlords actually request the slum dwellers to leave. Non-payment may thus be a form of compensation, with the interim period provided to allow slum residents time to prepare for eventual eviction (Yap, at p. 31 of source document).

While not asked as part of the questionnaire, respondents did not mention to interviewers that they would be leaving the survey house due to an eviction effort by the landlord. Furthermore, no mention was made of impending evictions by survey interviewers during de-briefing and review sessions after the completion of interviews. As noted in Volume 1, most of the interviewers are slum residents themselves, who would more than likely be aware of any impending evictions. It may well be that some -- or even most -- of the respondents who are not paying rent have been notified by their landlords that rental agreements were being terminated via the non-collection of rent noted by Yap. It would seem, however, that interviewers would have mentioned this during de-briefing sessions.

The relatively high degree of land renting activity shown in Figure 8 may indicate that respondents may feel that tenure security is adequate enough to invest in a house. This level of land rental activity may also demonstrate that at least a notable share of survey respondents have sufficient income to make such an investment.

In only eight of the 77 slum communities surveyed, or 10.4 percent of the total, did all respondents state that they do not pay rent. The total number of respondents in these slums is 125, or 28.5 percent of the 438 respondents who are not paying rent. In addition, there is at least one of the remaining 313 squatting respondents in 38 other slum communities throughout the GBA.

With respect to duration of stay, respondents who stated that they are not paying rent are also those who have lived the longest in a survey house, a survey slum, or another GBA slum (See Table 27 below). The relative new-comers to the GBA slum housing market appear to be house renters, followed by land and house renters.

TABLE 27
AVERAGE DURATION OF STAY OF RESPONDENTS, BY RENTAL STATUS
(in years)

Residence Location	Land and House Rent	Land Rent	House Rent	No Rent Payments
Survey House	11.1	22.0	9.0	22.7
Survey Slum	13.6	24.6	12.2	26.6
Other GBA Slum	13.7	26.9	14.4	29.0

Source: Author survey, 1992.

More specifically, the data show a degree of dispersion of squatting activity that was not documented by the NHA in 1987. As noted earlier, this may be due more to the NHA's use of the slum-community as a whole as the unit of analysis, rather than using the slum house as the unit of analysis, as was done as part of this study. This contention is based on the data shown in Table 28 below, which provides additional insight into the relationship between rental status and duration of time in GBA slums. The data show that more

TABLE 28

RENTAL STATUS OF SURVEY HOUSES, BY DURATION OF
RESIDENCE OF SURVEY RESPONDENTS
(in percent)

Rental Status	Five Years or Less in House	More Than Five Years in House
Both Land and House	8.9%	3.5%
Land rent only; own House	29.5	35.0
House rent only	32.1	9.1
No Rent Paid	28.1	51.0
Other	1.3	1.4
	-----	-----
Totals =	100.0%	100.0%
n =	224	712

Source: Author survey, 1992.

than half of all respondents who lived in the survey house prior to 1987, when the NHA conducted its research as part of the USAID-funded work mentioned earlier, stated that they were not paying rent. Hence, the relatively pervasive squatting activity reflected in the data indicate that it was existing in 1987 during the period of NHA research. As stated earlier, however, it could be that the different

unit of analysis used by the NHA prevented the kind of detail that is reflected in the data gathered as part of this study.

Unlike the differences in data on land ownership status at the slum and house levels of analysis discussed earlier, house-level survey data indicates a different pattern of housing growth by rental status than that based on the 1987 NHA slum-level data, as updated in 1992 by survey researchers. A summary of the house-level data collected as part of this survey effort is presented in Table 29 below.

TABLE 29
RENTAL STATUS IN SURVEY SLUM COMMUNITIES,
1987 AND 1992, BASED ON INTERVIEWS OF SURVEY RESPONDENTS

Rental Status	1987	1992	Change	
			No.	%
Both Land and House Rental	25	45	20	80.0
Land Rent Only; own house	249	315	66	26.5
House Rent Only	65	137	72	110.8
No Rent Paid	363	426	63	17.4
Other	10	13	3	30.0
Totals =	712	936	224	31.5%

Note: Distribution of responses by year is based on duration of stay in survey house, as provided by respondents.

Source: Author survey, 1992.

The NHA slum-level data indicate that land rental activity increased by 125.1 percent during the 1987-1992 period, while data collected from survey respondents -- those who live in the survey houses, and who pay rent on a monthly basis to occupy them -- indicate that this

form of rental arrangement only increased by 26.5 percent during the same period. Further, while the percentage increase in squatting was similar (and relatively small) at both the slum- and house-level of data collection, the house-level data indicate far higher rates of both land rental and land and house rental activity. Thus, while both sets of data indicate that rental activity was far more vigorous than squatting activity during the 1987-1992 period, and that land renting is currently the main form of rental arrangement in the survey slum communities, there is a discrepancy with respect to the various rates of growth among the three forms of rental arrangements.

This discrepancy in growth rates among the three forms of rental arrangements is explained, in part, by a comparison between the NHA's 1987 slum-level rental status designations and the 1992 house-level rental status designations provided by survey respondents -- again, the individuals who pay the rent on a monthly basis to occupy the survey houses. Data for both the 1987 base year and 1992, by NHA and respondent rental status designations, appear in Table 30 below.

The data show a low association between NHA slum-level and respondent house-level rental status designations (Correlation = .3091, at .0001 level of significance). Ironically, only the "No Rent Paid" (i.e., squatting) rental status category has a high level of convergence between the two designations. The bulk of NHA-designated squatters are also in the respondent-designated "No Rent Paid" category (177 of the combined total of 198 respondents, or 89.4 percent), which is a slight decline from the 1987 level of 92.1 percent (151 of 164 NHA-designated squatters), suggesting slightly greater dispersion of

TABLE 30

HOUSING CHANGE BY NHA AND RESPONDENT RENTAL STATUS, 1987 AND 1992

A. 1987 Distribution

NHA Rent Status	Respondent-based Rental Status Designation					Totals
	Land/House	Land	House	No Rent	Other	
Land/House	6	110	24	99	2	241
Land Only	17	111	30	110	7	275
House Only	1	21	7	3	0	32
No Rent Paid	1	7	4	151	1	164
Totals =	25	249	65	363	10	712

B. 1992 Distribution

NHA Rent Status	Respondent-based Rental Status Designation					Totals
	Land/House	Land	House	No Rent	Other	
Land/House	9	120	51	125	2	307
Land Only	34	162	55	121	10	382
House Only	1	23	22	3	0	49
No Rent Paid	1	10	9	177	1	198
Totals =	45	315	137	426	13	936

Source: Author survey, 1992.

squatting even though the activity itself is in relative decline. Convergence of responses in other rental status categories do not approach the high level found in the "No Rent Paid" categories.

The differences between NHA- and respondent-based data are important to note here because data presented later will show some key differences among respondent households related to rental status,

particularly with respect to housing costs, income levels, and the percentage of monthly income allocated to pay housing costs.

Rental Relationships, and Location of Landlord. One of the key objectives of this study is to determine the degree of intra-slum rental activity, i.e., if slum residents -- despite their lack of official ownership of land in survey slums -- are sub-renting to others in the slum. Tables 31 and 32 below provide an insight into the "who and where" of rent payment by residents of survey houses. Given the high rate of both survey houses occupied by one household and apparent squatting activity, the number of respondents appearing in Table 31 is relatively small (n = 212). However, the data show

TABLE 31

RENTAL RELATIONSHIP OF HOUSEHOLDS IN SURVEY HOUSES
(multiple-household survey houses only)

Relationship	No.	Percent
Rent from another Household	39	18.4%
No rent relationship	173	81.6

Source: Author survey, 1992.

the low level of formal rental relationships in survey houses. This might be expected, given the large percentage of households (91.4 percent) who are related. This finding does not preclude the possibility that significant rent-sharing might be occurring among related households, but merely documents the low level of formal rent relationships among multiple-household survey houses.

Respondents were asked whether they rent from someone who lives in the slum. The question was designed to determine whether landlords live in the same slum community, or live elsewhere, and thus the level of potential sub-renting activity within the survey slum. Of those respondents who pay rent on a regular basis, and for which complete survey data are available, nearly 62 percent stated that their landlord also lives in the survey slum, as shown in Table 32. Of course, it could also be the case that the landlord may merely be an agent collecting rent for someone living outside of the slum. It could also be the case that respondents could be paying rent to individuals who have no legal claim to the rent payments of others. In conclusion, there is a low level of formal intra-house rental relationships, and a high percentage of intra-slum rental agreements.

TABLE 32

RESIDENCE STATUS OF LANDLORD IN SURVEY SLUMS

Location of Landlord	No.	Percent
Lives in Survey Slum	309	61.7%
Lives Elsewhere	192	38.3
Totals =	501	100.0%

Note: 29 missing responses; 438 respondents not paying rent.

Source: Author survey, 1992.

Monthly Rent Payments. Table 33 provides summary data on monthly rent payments by survey house residents. While the range of rent payments in the GBA as a whole is extremely broad, at 6 to 3,000 Baht, roughly 90 percent of survey respondents who pay rent pay less than the modal

TABLE 33

MONTHLY RENTAL PAYMENT IN SURVEY HOUSES, IN BAHT

Area/Characteristic	Average	Median	Mode
GBA	493	260	1,000
BMA	498	250	200
3C Area	488	305	845
Slums Existing Prior to 1984	475	204	100
Slums New as of 1984	519	300	1,000
Registered Houses	429	200	100
Unregistered Houses	759	800	800
Land and House Rent	925	900	900
Land Rent Only	240	125	100
House Rent Only	941	900	1,000

 Source: Author survey, 1992.

value of 1,000 Baht. This circumstance of an extreme modal value underscores the diffuse nature of the rent profile. The highly skewed distribution of rents is demonstrated clearly by the large difference between median and average rents.

Rent levels are higher in the 3C area, where there is a greater number of newer slums, as well as a greater percentage of unregistered slum houses. What is clear from the data is that house registration -- and the relative tenure security that registration often confers to residents -- is not capitalized into rents. Conversely, the lower figures may imply that registered houses in older slums, which are mainly in the BMA, do not turn over, i.e., residents have occupied the houses for many years, and whatever rental agreements exist have fixed rents at a relatively low level. As such, the houses are essentially unavailable for rent, and rents charged do not reflect prevailing market rates.

Consistent with the data above, there is a substantial difference in rent levels for survey houses occupied by HU heads for five years or less and those houses occupied for a longer period of time. The data in Table 34 show that all summary statistics of more recently-occupied survey houses are much greater than those houses occupied by long-time residents. The modal value of more recently-occupied houses is five times the level of longer-term residents. In addition, the modal value for GBA slum housing rents, at 1,000 Baht per month, is due in large part to the increase in rents during the 1987-1992 period. The higher rents charged to residents in more recently-occupied survey houses could mean that there was a significant increase in demand for GBA slum housing during the 1987-1992 period. While no effort was

TABLE 34

RENT LEVELS IN SURVEY HOUSES, BY DURATION OF OCCUPANCY OF RESPONDENT
(in Baht)

Rent Statistic	Five Years or Less in House	More than Five Years in House	GBA Totals
Average	681	411	493
Median	700	200	260
Mode	1,000	200	1,000

Source: Author survey, 1992.

made to collect data on housing vacancies in survey slums, it is quite likely that housing occupancy rates are at or very near 100 percent. Therefore, landlords are able to charge more recently-arrived slum residents high rental rates under conditions of strong demand.

With regard to length of stay in survey houses, Table 35 summarizes

data on length of stay in survey houses by heads of Household Units in both older and newer slums. Newer slums have newer residents, as might be expected, as all summary statistics are lower in newer slums than in older slums. The modal value of one year for newer slums, in particular, suggests that newer slums are a key entry point into the slum housing stock. It may be that newer houses in newer slums command higher rents than older houses in older slums.

TABLE 35

LENGTH OF STAY OF RESPONDENT IN SURVEY HOUSE, BY AGE OF SLUM
(in years)

Age of Slum	Mean	Median	Mode
Existing Prior to 1984	22	17	5 (5.4% of total)
New as of 1984	16	11	1 (10.2% of total)

Source: Author survey, 1992.

The data in Table 35 also highlight a key point mentioned in Volume 1, namely the existence of a "shadow" stock within the GBA slum housing market -- an uncounted number of slum houses which are not a part of official RTG figures on slum housing. Specifically, newer slums have only been in existence since 1984, or eight years prior to the 1992 survey period. However, HU heads have lived in the survey houses for an average of 16 years, twice that of the official existence of the survey slum. It is entirely possible that physical conditions in the immediate vicinity of survey houses in no way approximated those of an official slum prior to 1984. It is more likely, however, that the survey house was part of a community that was slum-like in appearance, and was in existence for some years prior to official designation as a

slum community. If the latter instance more closely approximated the history of the area in the immediate vicinity of the survey house, the number of people and houses located in slum-like residential areas was probably greater in prior years than official RTG figures indicate. Further, there is no reason to believe that this "shadow" housing activity, wherein people live in conditions that are in every way similar to a slum community save the official designation, is not occurring at the present time.

Electrical Service in Survey Houses. There is almost universal electrical service in survey slums, regardless of slum age, house registration status, or changwat. Only nine of the 958 respondents have no electrical service in their house. The nine slum houses where no electrical service is available are located in six different slums throughout the four-changwat study area, i.e., lack of electrical service is typically an isolated phenomenon. In addition, 10 respondents did not provide an answer to the survey question on the availability of electricity; it is not known whether a non-response in this case means a reluctance to admit the lack of service.

Table 36 provides information on the source of electricity in survey slums. Nearly four of every five survey houses is served directly by the public sector, with neighbors and landlords providing service to the remaining houses. However, landlords are often neighbors, and vice versa, so responses in the latter two categories may not reflect actual conditions. Furthermore, it is extremely likely that neighbors and landlords also receive public sector electrical service, and then in turn provide service to either neighbors and tenants.

TABLE 36

SOURCE OF ELECTRICAL SERVICE IN SURVEY SLUMS

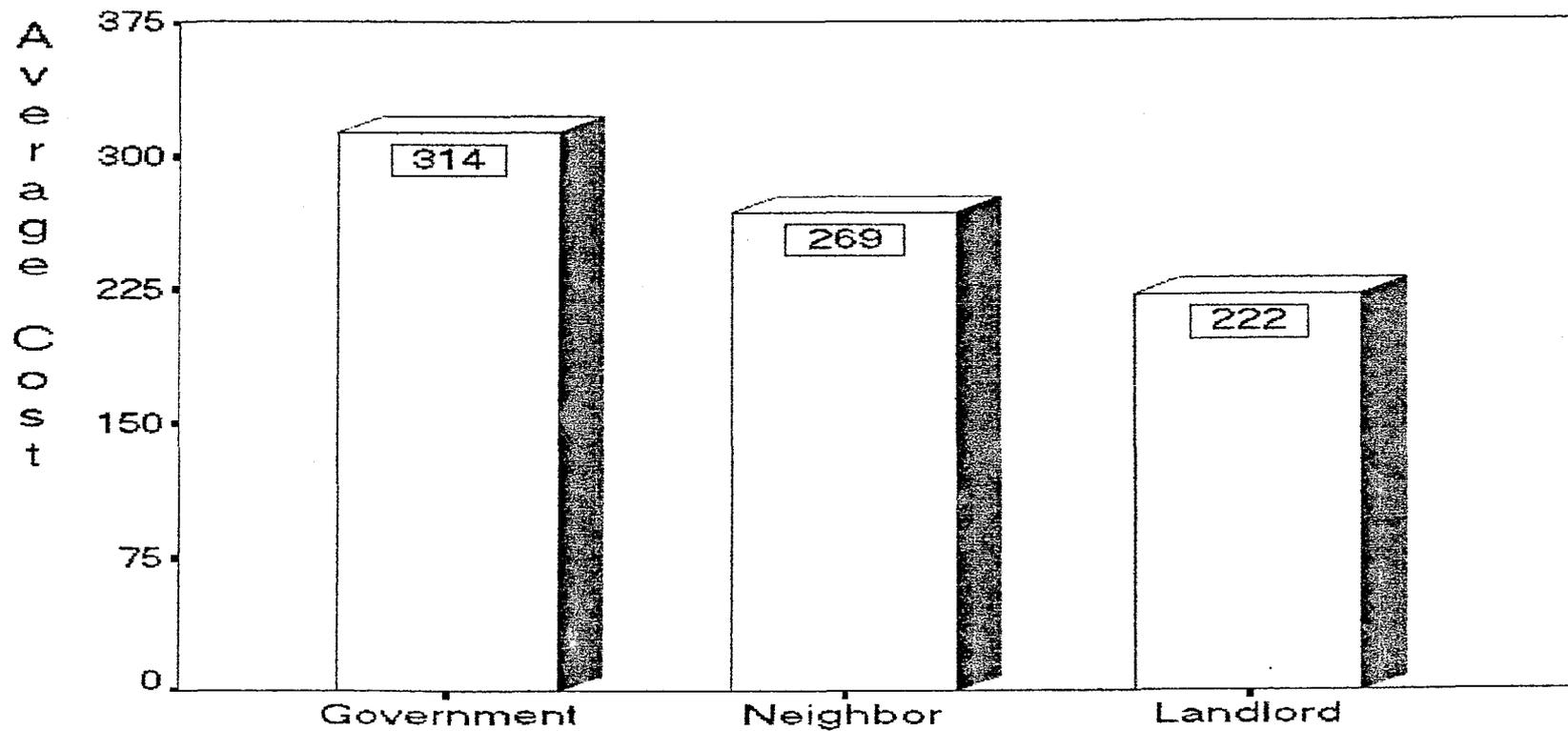
Electrical Source	Number	Percent
Government	727	79.1%
Neighbor	167	18.2
Landlord	25	2.7
Totals =	919	100.0%

 Source: Author survey, 1992.

While service is provided almost exclusively by the public sector, there is a difference with respect to service cost, as Figure 9 shows. Not only does the public sector provide the bulk of direct service, it also receives the highest fees for service. While the overall average monthly cost of electricity is 306 Baht, service provided by the Government is slightly higher, as well as 16.7 percent more than that provided by neighbors, and 41.7 percent greater than service provided by landlords. While the extent of service subsidy, use patterns, service quality, and the cost per unit of electricity by source are unknown, and could affect the analysis, it does appear that slum residents who receive direct service from the Government pay more per month, on average, than those who receive indirect service. Changing the manner of service delivery, then, could benefit GBA slum dwellers.

Solid Waste Disposal. The majority of survey houses receive some kind of solid waste (known more commonly as "garbage" or "refuse") pick-up and disposal service, as indicated in Figure 10 below. Nearly 75 percent of all survey houses are served by a government authority, a slum-based community group, or landlords or neighbors (the bulk of the

Figure 9: Electricity Cost per Month



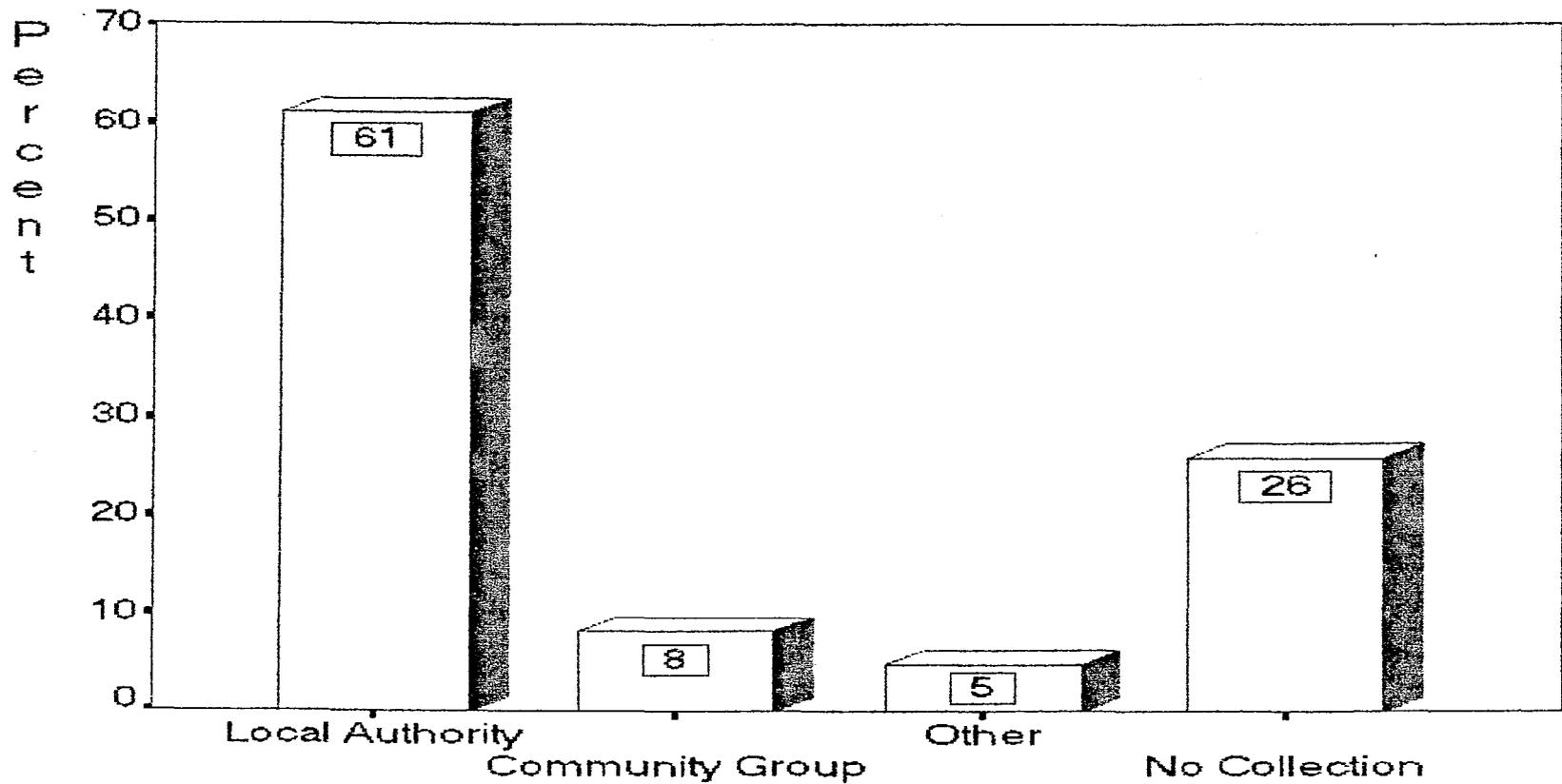
Source of Electricity

Note: Amounts in Baht.

Source: Author survey, 1992

n = 919

Figure 10: Refuse Pick-up, by Provider



Garbage Collection Institution

Source: Author survey, 1992

n = 968

"Other" responses). The remainder, or 25.9 percent of the survey houses, do not receive any form of organized refuse pick-up service. Further, while levels of service delivery and house registration are only slightly related statistically, there is a strong relationship between service delivery level and the age of the slum. Chi-square analysis of this relationship results in an extremely high value (228.4), with a level of significance of less than one chance in 200,000 that the differences in service delivery levels attributable to the age of slums are due to sampling error or other factors. Only 15.8 percent of respondents do not receive pick-up service in older slums, while in newer slums the level is 44.3 percent.

While the bulk of survey respondents receive some form of organized refuse pick-up and disposal service, only about 70 percent actually pay a fee for it, as Table 37 shows. If the total were to include those who do not receive the pick-up and disposal service, and thus do not pay a fee for it, the percentage would fall to 53.3 percent of all

TABLE 37

LEVEL OF PAYMENT FOR REFUSE COLLECTION, BY COLLECTION ENTITY

Collection Entity	Receive Payment		No payment		Totals
	No.	%	No.	%	
Local Authority	391	66.2	200	33.8	591
Community Group	78	98.7	1	1.3	79
Other	45	97.8	1	2.2	46
Totals =	514	71.8	202	28.2	716

Source: Author survey, 1992.

survey respondents. In terms of geographic spread, service delivery levels are lowest in changwat Pathum Thani, as might be expected. However, no fees are collected where pick-up and disposal service is available, so the changwat is not only poorly served in relative terms, but what service that is available is being subsidized by residents in other changwat. More generally, there is a high degree of what is essentially free service among those served by the local government authority, as the payment level is only 66.2 percent, compared to payment levels of nearly 100 percent for both community groups and other service providers. By comparison, then, the local government authority is very inefficient with respect to collections for services rendered, unlike community-based groups and others.

As Table 38 shows, the local authority is also picking up the garbage of 35 respondents who do not receive service, but rather bring their

TABLE 38

REFUSE DISPOSAL PRACTICES AMONG THOSE NOT
SERVED BY ORGANIZED SERVICE PROVIDERS

Method of Disposal	Percent of Total
Under and Around House	33.3%
Burning Near House	28.9
Public Garbage Can	14.1
Down the Toilet	2.8
Bury Near the House	2.0
In Water Well	1.2
In Canal or River	0.8
Other	16.9

	Totals = 100.0

Note: Based on 249 valid responses.
Source: Author survey, 1992.

garbage to public refuse cans located in the slum communities. While this activity is beneficial from a social and environmental perspective, and should not be discouraged, it compounds the problem of low payment levels discussed above. Other means of disposing of refuse among those respondents who do not receive pick-up service indicate that adverse living and environmental conditions within GBA slum communities are due in part to the refuse disposal practices of slum residents who do not receive pick-up and disposal service.

The overall average cost per month for service is 21.5 Baht, and ranges from roughly 20 Baht in Nontha Buri to nearly 22 Baht in the BMA. The median cost is 20 Baht wherever fees are paid, while the modal value is 10 Baht. Average monthly costs vary by service provider, however, as do the average number of service days per month, as Table 39 shows. While the average number of service days overall

TABLE 39

MONTHLY REFUSE COLLECTION COST CHARACTERISTICS, BY PROVIDER
(Costs in Baht)

Collection Entity	Average Cost	Ave. No. of Service Days	Ave. Service Cost per Day
Local Authority	22	19	1.16
Community Group	23	16	1.44
Others	14	12	1.17
Survey Total	22	19	1.16

Source: Author survey, 1992.

is 19, the median is 15 days -- every other day, roughly, over the course of a month. The modal value, however, is 30 days (i.e., every

day of the month), which is the case for 44.1 percent of respondents who receive service, suggesting widely varying levels of service from one slum to another.

The average cost per day is nearly the same for all service providers. The finding that community groups and others have higher payment levels than the local government authority, as well as slightly higher per-day service costs, suggest that the local government authority could charge higher fees without losing large numbers of customers. This, combined with an effort to increase collection rates, could permit the local authority to cover a higher percentage of service delivery costs, as well as fund improvements in both the collection and sanitary disposal of a larger volume of refuse.

Finally, one survey question focussed on whether a portion of the respondent's refuse was being picked up by individuals involved in recycling activities. As Table 40 shows, while such activity is known to exist, there are a large number of respondents who either do not

TABLE 40
RECYCLING PRESENCE IN SURVEY SLUMS

Part of Refuse Taken by Recyclers	Number	Percent
Yes	181	18.7
No	297	30.7
Don't Know	377	38.9
No Response	113	11.7
Totals =	968	100.0

Source: Author survey, 1992.

know or did not wish to respond. At first glance, the data do not appear promising. However, the 181 respondents who stated that a portion of their refuse is taken by recyclers are living in 34 slum communities in Pathum Thani, Samut Prakan, and the BMA. Some form of recycling activity thus exists in roughly 44 percent of the slum communities surveyed. This finding suggests that recycling activity is fairly widespread at the present time, even though many slum residents may not be involved in or aware of the activity. This finding also suggests that the basis for increasing the level of recycling activity in GBA slum communities appears to exist -- and with it the potential for slum residents currently active in recycling activities to share their experience and knowledge with others in and out of their own communities.

Sanitation. Respondents were asked a series of questions regarding the presence and quality of toilets and bathrooms in their houses, as well as past investments in bathroom improvements. The aim of these questions was to gain some insight into sanitation infrastructure and investment at the house level.

Table 41 presents a summary of data on the presence and type of toilet facilities used in survey slums. For those houses where complete data are available, there is an almost universal presence of toilets within respondent houses, while the bulk of respondents who do not have a toilet use the toilet of a relative or neighbor. Based on the data collected, then, there is almost universal use of indoor toilets by residents in survey slums.

TABLE 41

PRESENCE AND TYPE OF TOILET FACILITIES IN SURVEY SLUMS

Toilet in House	No.	%
Yes	946	97.9
No	20	2.3
Totals = 966		100.0

Location Used If No Toilet in House	No.	%
House of Relative	7	36.8
House of Neighbor	5	26.3
Nearby Wat	2	10.5
Nearby School	1	5.3
Nearby Factory	1	5.3
House of Landlord	1	5.3
Canal/River	1	5.3
Other	1	5.3
Totals = 19		100.0

Toilet Type	No.	%
White	580	61.6
Red	266	28.3
Other Color	94	10.0
Other	1	0.1
Totals = 941		100.0

Source: Author survey, 1992.

The color of the toilet fixture is used here as a surrogate indicator of toilet quality and cost, based on discussions with numerous slum housing experts in the GBA (See list of resource people in Vol. 1, p. iv). Red fixtures are typically the least expensive fixtures because they are made out of rough materials, and are not coated with a porcelain finish. According to the slum housing experts contacted in preparing this study, red fixtures are typically cleaned less often

than lighter-colored fixtures simply because the dark red color does not reveal to users a need for cleaning as readily as lighter colors. The implication, of course, is that cleaning time is highly related to level of sanitation, with low cleaning times related to low levels of sanitation. While this particular claim cannot be tested definitively as part of this study, the data do show that 71.6 percent of the fixtures are either white or other colors, therefore coated with porcelain, and thus more expensive than the uncoated red fixtures.

In addition to using a high percentage of higher-cost toilet fixtures, the data also indicate a high level of apparent respondent awareness of and concern for in-house sanitation, as shown by a preference for improved bathroom facilities and a willingness to pay for bathroom improvements. Table 42 below provides an insight into this apparent concern. The great majority of respondents have a slab concrete bathroom floor, contrary to an all too common view of dirt or wooden bathroom floors in slum community houses. In addition, nearly 43 percent of the respondents who have a slab concrete floor spent funds to install it. The high percentage of houses with a slab concrete

TABLE 42

PRESENCE AND INVESTMENT IN BATHROOM IMPROVEMENTS WITHIN SURVEY HOUSES

Characteristic	Yes		No		Total Cases
	No.	%	No.	%	
Presence of Slab Concrete Floor	714	76.3	226	23.7	936
Installed Slab Concrete Floor	305	42.7	409	57.3	714

Source: Author survey, 1992.

bathroom floor, coupled with the notable level of respondent investment to improve general living conditions within the survey house, is somewhat contrary to the conventional view of highly unsanitary living conditions within slum housing, as well as a low level of slum resident interest in improving those conditions.

Investment in bathroom improvements appear to be more prevalent in registered houses. Slab concrete bathroom floors are present in 78.1 percent of registered houses, a somewhat higher level than the 62.2 percent of unregistered houses with concrete bathroom floors. More importantly, however, 243 of the 305 respondents (79.3 percent) who stated that they made the investment to install a slab concrete bathroom floor live in registered houses. Thus, it appears that slum residents who perceive some level of tenure security -- in this instance, house registration -- are willing to make investments to improve in-house living and environmental conditions.

Water Service Characteristics. Information was gathered on the cost and source of water used for most household activities. Table 43 below summarizes data on the numerous sources used by slum residents to obtain water. Roughly two of every three survey houses receive water service from the Government. Roughly one-half of all survey respondents have a meter of their own, for which a use fee must be paid to the Government water service provider. The high percentage of small, home-based meters suggests that slum residents are willing to make a relatively significant investment to obtain potable water.

Nearly all of the survey houses served via a meter are registered; 145

TABLE 43

SOURCES OF WATER USED BY RESIDENTS IN SURVEY HOUSES

Source	Number	Percent
Government /1/ (Large Meter	647	67.7%
(Small Meter	150	15.7)
	497	52.0)
Neighbor	94	9.8
Well	64	6.7
Vendor	57	6.0
Canal/River	34	3.6
Landlord	27	2.8
Nearby Factory	18	1.9
Other	14	1.3
Totals = 955		100.0

/1/ A large water meter typically monitors water use in many houses; it is essentially a group water meter. A small meter monitors use in a single house.

Source: Author survey, 1992.

of the 150 houses connected to a large meter are registered (96.7 percent), while 464 of the 497 houses connected to a small meter are registered (93.4 percent). Unlike, say, the near-universal provision of electrical service to survey slum houses, regardless of house registration status, or age of slum, or any other readily comparable measure, it appears that would-be applicants for water service must have a registered house before the Government will extend service.

Table 44 presents summary statistics on water cost, and water cost per capita for those respondents paying a monthly fee for service. The high average cost relative to the median and mode is reflected in the extreme range. However, only one (1) percent of all the respondents (n = 9) pay more than 750 Baht per month. It may be that some form of water-intensive economic activity may be occurring in some survey

TABLE 44

MONTHLY WATER COSTS FOR RESIDENTS IN SURVEY HOUSES

Statistic	Cost per House	Cost per Capita per House
Mean	194.5	42.4
Median	150.0	33.3
Mode	100.0	50.0
Range	15 - 1,500	3 - 300

n = 867

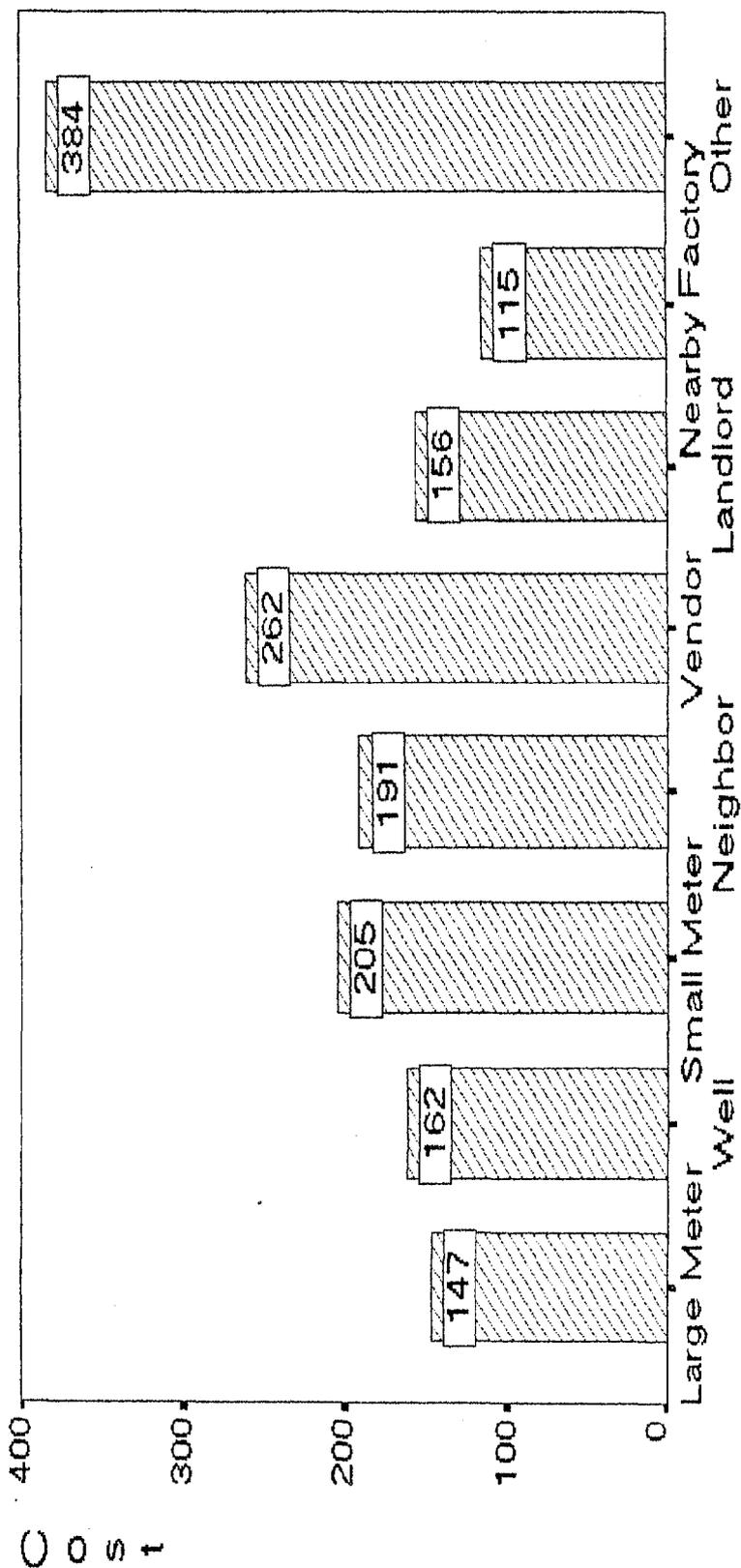
 Note: For 15 respondents, water service is included in the rent. An additional 77 respondents stated that they do not pay for water service.

Source: Author survey, 1992.

houses, for water use rates in these houses are extremely high when compared to the mean. The median value for survey houses, at 150 Baht per month, translates to a daily water bill of roughly 5 Baht per house, while the median value for per capita costs indicates that survey house residents pay about one Baht per day per person-month.

Figure 11 shows average monthly water cost by water source. Eleven of the 14 "Other" respondents are located in Rim Klong Wat Sapan, a Klong Toey slum adjacent to a animal slaughtering facility (See NHA Slum Community No. 11/18, in Table 5, at p. 32). Residents of the slum apparently have no alternative to purchasing water from the nearby slaughtering facility, at average rates which are roughly twice the overall level. Of the remaining categories, Vendors appear to charge the highest monthly rates for water, followed by water purchased via the small, home-based Government meters. Water provided through large

Figure 11: Water Cost/Month, by Source



Water Source

Note: Figures represent average cost per month, in Baht.

Source: Author survey, 1992. n = 867

meters is the most economical form of in-slum water service (i.e., excluding the "Nearby Factory" category), and occurs mostly in older slum communities.

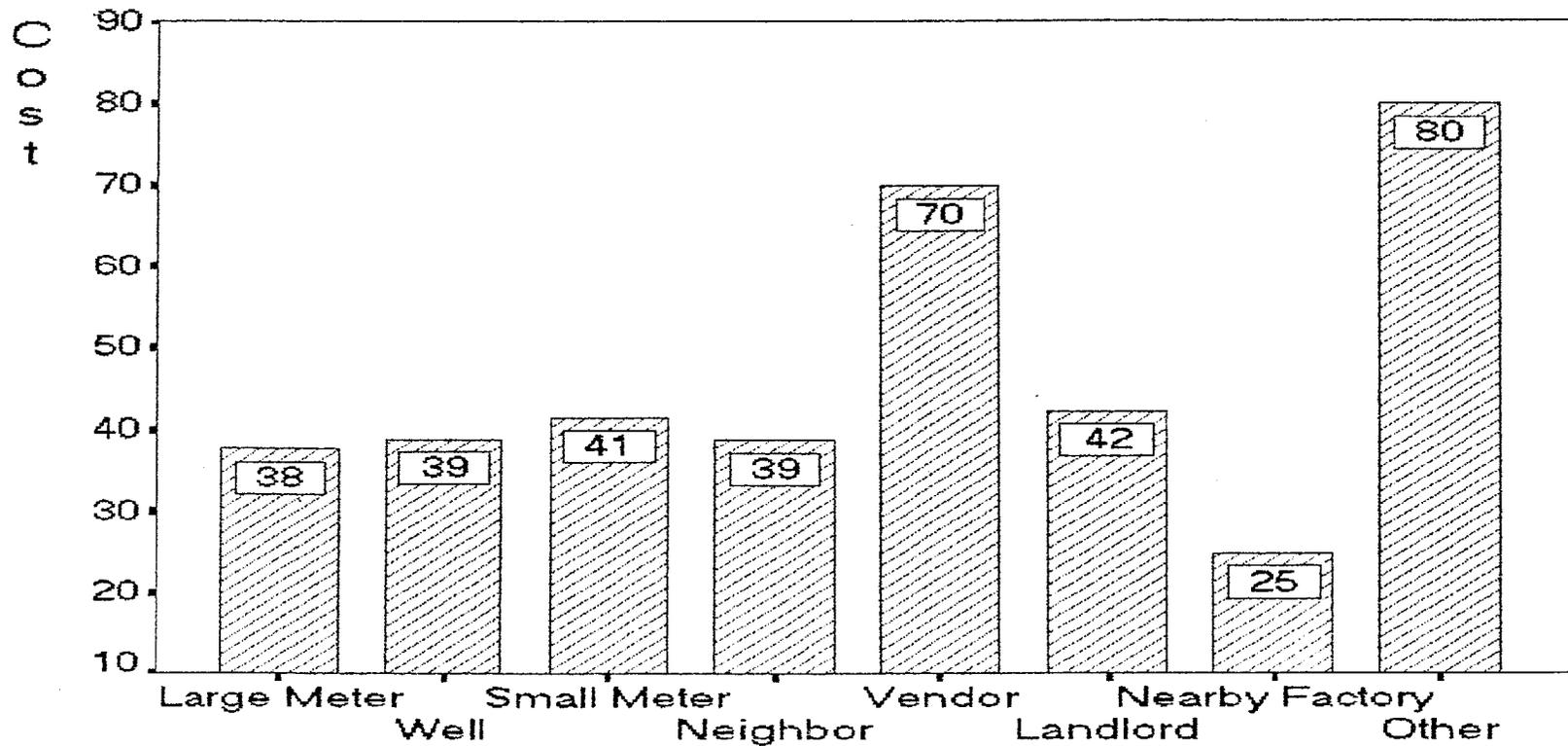
Figure 12 provides further detail on water service in survey slums by presenting summary data on per capita monthly water costs in survey houses. On a per capita basis, the cost of purchasing water from Vendors approaches that of the "Other" category, and is roughly 66-84 percent greater in cost than other forms of in-slum water service. Per capita costs for the other forms of in-slum service are very similar, in that they only vary between 38 and 42 Baht per month. With the exception of Vendors, then, different forms of in-slum service do not greatly alter per capita costs on a monthly basis.

The finding that Vendors charge higher rates than other forms of water service in survey slums is consistent with the findings of studies in slums in other developing countries. While water quality and the availability of service of Vendors relative to other water sources is not known, what is known is the following:

- 1) 55.6 percent of respondents who buy water from Vendors have lived in a GBA slum community for 20 or more years, and live in slums which have Government water service;
- 2) 70.2 percent of the respondents live in BMA slum communities, which is the changwat where Government water service is most readily available;
- 3) 71.4 percent of the respondents earn 5,000 Baht per month or less.

The survey respondents with the lowest incomes, who have lived in a GBA slum for many years, and who live where Government water service is most readily available, also have the highest monthly water bills.

Figure 12: Water Cost per Capita



Water Source

Note: Figures represent average cost/cap./month, in Baht.

Source: Author survey, 1992.

n = 867

Housing Costs. The sum of monthly payments made by respondents for rent, electricity, garbage pick-up, and water serves as a surrogate measure for all housing-related costs actually incurred by respondents in a typical month. The four housing-related cost items are thought to constitute the bulk of monthly housing costs. As such, data were not collected on the cost of cooking gas, or the cost of wood for fires which might be used for cooking. Other cost items like use of a telephone are thought to be minimal on a regular basis.

Summary data on housing costs appearing in Table 45 reflect only those cases for which complete data on all four components of the surrogate measure of housing cost. Fifty-six (56) cases were excluded because a

TABLE 45

MONTHLY HOUSING COSTS OF SURVEY RESPONDENTS, IN BAHT

Cost Item	Mean	Median	Mode	Total
Electricity	306	210	200	284,212
Garbage Pick-up	22	20	10	10,796
Water	195	150	100	168,639
Rent	493	260	1,000	246,666
Incurring Costs =	1,016	640	1,310	676,270
Actual Costs =	742	526	350	676,270

Note: Values for "Incurring Costs" are based on responses where a financial cost is incurred by respondents, whereas "Actual Costs" values reflect the actual, known cost of the item to survey respondents. For the purposes of the "Actual Costs" calculation, if no user charge or fee is incurred, a value of 0 was used in the computation. If no rent is paid, for example, a 0 was added to other cost items.

Source: Author survey, 1992.

response of "No Response" was given for one or more of the cost items, leaving a total of 912 survey houses (94.2 percent) where it is known that residents pay some form of housing-related cost on a monthly basis. For example, thirty (30) of the 56 "No Response" cases were excluded from analysis because no rent data were provided by survey respondents, while 18 cases were excluded because of lack of data on electricity cost. All but one of the 968 respondents, however, pays for at least one of the cost items, i.e., there is only one respondent who receives some of the cost items free of charge on a monthly basis.

The differences in summary values between the "Incurred" and "Actual" costs shown in the Table above essentially reflect the cost of housing to those who pay for all four cost items on a monthly basis and those who receive one or more of the cost items free of charge. This latter group is dominated by those who do not pay rent, which acts to reduce the "Actual" cost values significantly relative to the "Incurred" values. Thus, the "Actual" cost totals may better reflect housing costs on a market-wide basis than the "Incurred" cost totals, given the high percentage of those who do not pay rent, while the "Incurred" cost totals may better reflect the economic prices that are paid to occupy a house in a GBA slum community -- when payment is necessary.

As might be expected, rent is the highest housing cost item, followed by electricity, water, and garbage pick-up. The pattern which emerges is one of a wide range of costs in all survey slums. The high mean relative to the median suggests some relatively high costs for some respondents. Further, the modal values for all items except rent suggest that many respondents pay very low amounts for the cost items.

Table 46 provides an insight into the relationship of housing cost to a host of variables. Housing costs tend to be higher for slum residents who either are house renters or land and house renters, have occupied their houses for five years or less, who live outside of the BMA, who live in a relatively new slum, and who live in unregistered houses.

TABLE 46

SELECTED CHARACTERISTICS OF HOUSING COST, IN BAHT

Area/Characteristic	Mean	Median	Mode
Total, "Actual Costs"	742	526	350
GBA Sub-Area:			
- BMA	754	520	350
- "3C"	726	565	420
House Registration Status:			
- Registered	717	500	350
- Unregistered	895	920	900
Age of Slum Community:			
- Existing prior to 1984	735	510	350
- New as of 1984	754	600	200
Years Lived in Survey House:			
- Five Years or Less	877	760	510
- More than Five Years	707	500	350
Rental Status:			
- Land and House Rent	1,266	1,170	900
- Land Rent Only	762	580	650
- House Rent Only	1,332	1,250	800
- No Rent Paid	494	370	350
Sex of Household Heads:			
- All Female(s)	667	490	200
- Mixed (Female & Male)	910	669	350
- All Male(s)	720	510	350
Sex of HH Heads, per Capita:			
- All Female(s)	177	130	53
- Mixed (Female & Male)	133	97	51
- All Male(s)	147	104	72

Source: Author survey, 1992.

As might be expected, rent status appears to have the most significant effect on housing costs. While not paying rent obviously reduces the cost of housing relative to overall levels, house renters appear to have the highest average and median housing costs, followed closely by land and house renters. Those who own houses and rent land have monthly housing costs which are very similar to overall figures.

This seeming paradox of the highest housing costs in the category where only the house is rented, and not the house and land, and where renting a house costs more than owning one, seems to be explained in part by both the duration of stay and the cost of homeownership. As the Table shows, relative newcomers to the GBA slum communities (i.e., those new to the survey houses during the 1987-1992 period) have higher housing costs, due perhaps to landlord ability to charge prevailing market rates in the face of strong demand for slum housing. With squatting activity increasingly difficult, would-be slum dwellers are faced with paying prevailing rates.

As for the combination of home ownership and land renting, the funds required to both rent land and construct a house may make this form of rental arrangement increasingly unaffordable to many low-income households. As noted earlier, respondents in the homeowner/land rental status have lived an average of 22.0 years in the survey house of current residence, compared to 22.7 years for those respondents not paying rent. The cost of house construction during the interim period may, therefore, have increased to the point that the combination of house ownership and land rental is currently a greater financial burden than in prior years. By comparison, house renters are the

relative newcomers, in that respondents in this category have lived an average of 9.0 years in the survey house of current residence, followed by land and house renters at 11.1 percent.

House registration may reduce the real or perceived risk of eviction that a landlord may be able to capitalize into the rent. The clear implication here is that pursuing a policy aimed at increasing the level of house registration may reduce the cost of slum housing over time. However, it may also be the case that unregistered houses are relatively new, were more expensive to construct than in previous years, and thus command a higher rent to cover those costs. Indeed, 63 percent of all respondents living in unregistered houses have lived in the houses for less than ten years.

On a per capita basis, houses occupied exclusively by one or more households headed by a female have higher housing costs than houses occupied by Mixed or All-Male headed household(s). It may be that rate structures for electricity and water service, for example, are such that relatively high fees are charged for initial quantities, with lower rates charged after a certain threshold is reached. Houses occupied by many people could thus "spread" costs and use relatively lower-priced services once service thresholds are attained, whereas the bulk of service costs for houses occupied by relatively few people would be from the relatively higher-cost initial quantities below the price thresholds. This kind of rate structure would act against women-headed households, and other relatively small or conservation-minded households more generally, given that houses occupied solely by female-headed households have fewer people (3.78), on average, than

houses occupied by Mixed households (6.87) or houses occupied exclusively by Male-headed household(s) (4.89).

Income Characteristics. As noted at the beginning of this report, many survey researchers contend that questions regarding income are among the most sensitive to be asked by either a known or unknown survey interviewer. Questions like those regarding income, then, are most prone to high rates of non-response. However, the response rate to the income question asked as part of this survey was 97.7 percent, with only 22 of 968 respondents not responding. This high rate may be due to the fact that the question was asked at the end of the interview, pursuant to conventional practice, and merely requested the total amount earned by the people living in the survey house on a regular basis, rather than the earnings of individuals or individual households. This manner of eliciting information on income may have made it easier to respond, for it did not require multiple responses or relatively complex calculations.

While the response rate for the income question was quite high, and appears to have generated representative data, the data are for the house unit of analysis, rather than the household level of analysis, an unusual statistical form that is not readily comparable to other data. To facilitate comparative analysis, the data were re-coded by using data on the number of households per survey house, and simply dividing the number of households into the house-level monthly income to generate the desired data.

Table 47 shows summary statistics between income earned at the house

and household level, with the slight differences attributable to the many multiple-household survey houses included in the survey. (The overall average number of households per survey house, which was discussed in detail earlier, is roughly 1.49.) While the range is roughly the same, and the modal values also the same, survey household values for the mean and median incomes are understandably lower than the survey house values. While the maximum value is extremely high, only 10 percent of the residents at the house level earn more than

TABLE 47

MONTHLY INCOME CHARACTERISTICS AT THE HOUSE AND HOUSEHOLD UNITS OF ANALYSIS, IN BAHT

Income Characteristic	Survey Houses	Survey Households
Mean	7,561	5,087
Median	6,000	4,500
Mode	5,000	5,000
Minimum Income	1,000	560
Maximum Income	70,000	70,000
Total Income	7,152,497	7,152,497
	(n = 946)	(n = 1,406)

Source: Author survey, 1992.

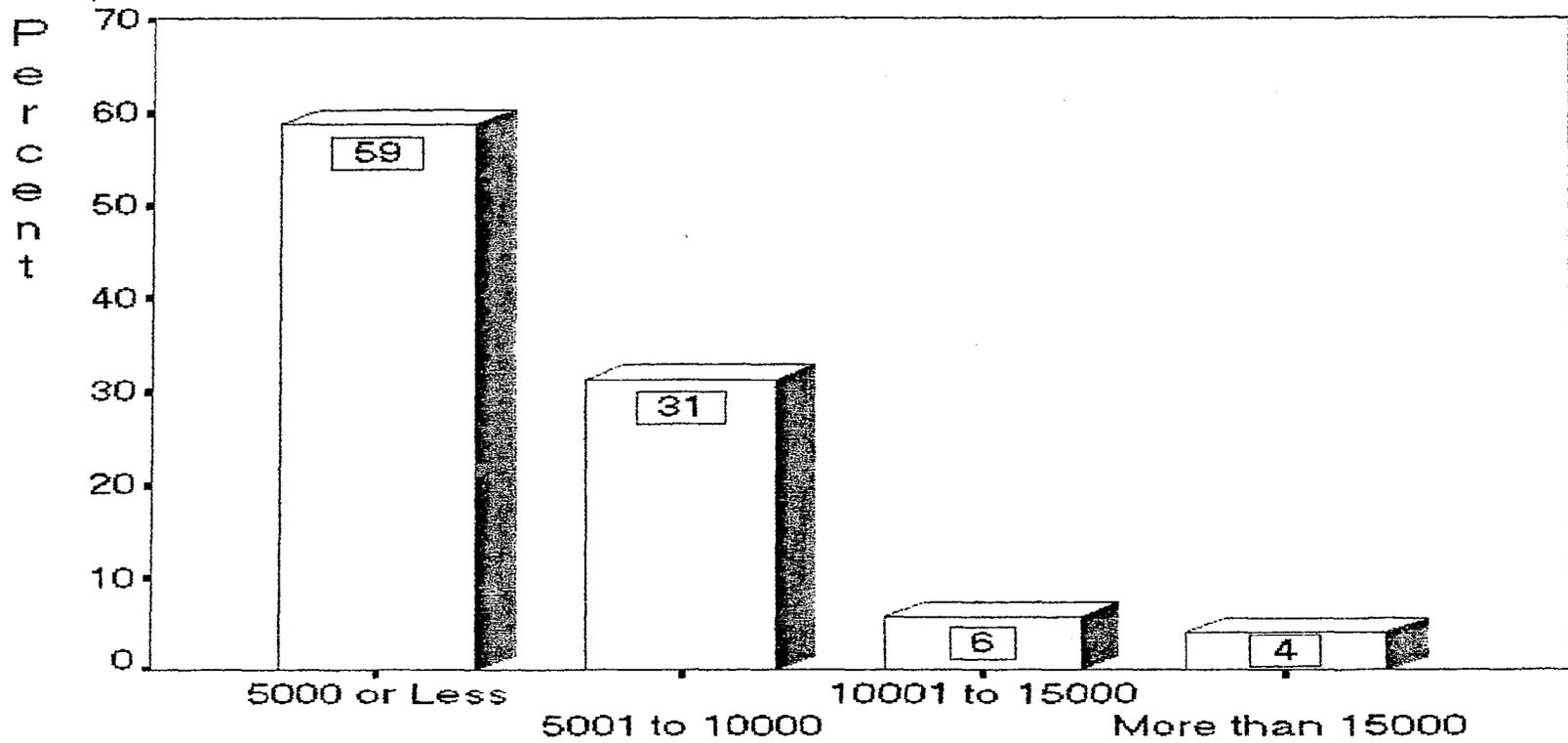
15,000 Baht a month, an amount that is considered conventionally as middle-income. Furthermore, only 10 percent of the households earned more than 10,000 Baht per month, an income considered moderate or lower-middle income. The low median values, in particular, underscore the low incomes slum dwellers typically earn on a monthly basis. Finally, survey respondents as a group earn roughly 7.15 million Baht

per month. If representative of the entire slum housing market, the larger group of GBA slum community dwellers together earn roughly 2.2 billion Baht per month (291,220 houses x 7,561 Baht/month/house); as a group their earning -- and buying -- power is substantial.

Figure 13 groups monthly household income into four categories to show the distribution of household incomes within the survey communities. Ninety-six (96) percent of survey households earn 15,000 baht or less per month, and therefore earn less than the 1992 GBA average monthly household income of 15,865 baht. Moreover, over 90 percent of the survey households earn incomes less than the 1992 GBA median income of 12,205 Baht. Thus the data indicate quite clearly that GBA slum communities are locations where low-income households can be found in great abundance.

With respect to official RTG definitions of poverty, it appears that both absolute and relative poverty can also be found in great abundance in GBA slum communities. While survey households earn an annual average of roughly 61,000 Baht, data compiled by the National Economic and Social Development Board (NESDB) indicate that the official 1992 urban-based poverty income threshold was 31,620 Baht per year (2,635 Baht/month). Based on this income threshold, only 21.6 percent of survey households fall below the official 1992 poverty income threshold. Roughly four of every five slum community households in the GBA, then, do NOT officially live in absolute poverty. Either the absolute poverty income threshold is unrealistically low in the extreme, or only the more well-off among the poor can afford to live in the GBA's slum communities, or both.

Figure 13: Household Income per Month



Household Income per Month

Note: Amounts in Baht.

Source: Author survey, 1992.

n = 1,406

Table 48 shows summary data on the relationships between average monthly house and household incomes in survey houses and a host of slum community characteristics. Ironically, households not paying rent have the highest average monthly incomes, followed by households renting both a house and land. Conversely, house renters have among the lowest average incomes; as noted above, they also have among the highest monthly housing costs. Households living in "3C" area slum

TABLE 48

RELATIONSHIP OF AVERAGE MONTHLY HOUSE AND HOUSEHOLD INCOME
WITH SELECTED SLUM COMMUNITY CHARACTERISTICS

Characteristic	Survey Houses	Survey Households
Average Income	7,561	5,087
GBA Sub-Area:		
- BMA	7,131	4,596
- "3C"	8,094	5,760
House Registration Status:		
- Registered	7,828	5,153
- Unregistered	5,928	4,611
Age of Slum Community:		
- Existing prior to 1984	7,515	4,900
- New as of 1984	7,644	5,458
Rental Status:		
- Land and House Rent	7,826	6,142
- Land Rent Only	7,718	5,721
- House Rent Only	6,188	4,840
- No Rent Paid	7,799	6,287
Years Lived in Survey House:		
- Five Years or Less	7,223	5,405
- More than Five Years	7,521	4,866
Sex of Household Head(s):		
- All-Female	6,508	5,390
- Mixed	8,262	3,259
- All-Male	7,622	5,791

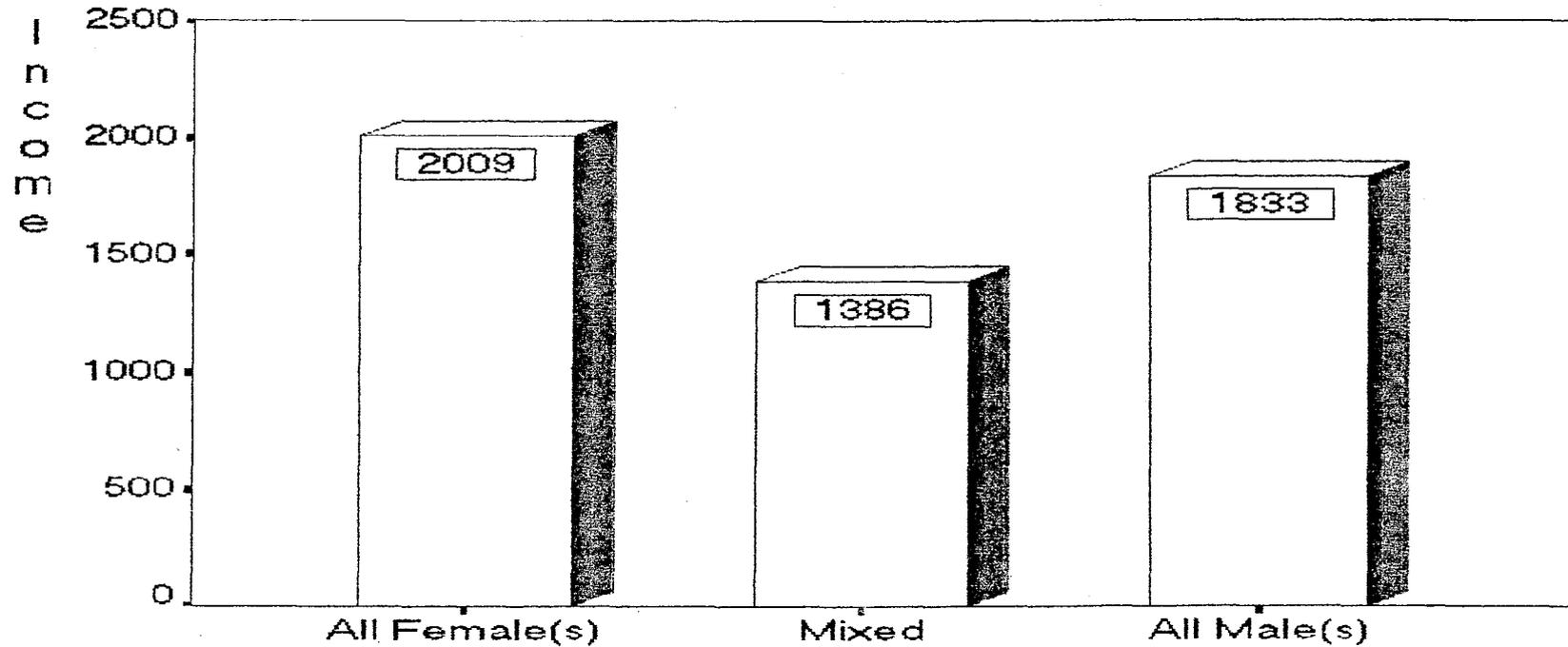
Source: Author survey, 1992.

communities earn about 20 percent more per month, on average, than households in BMA slum communities. Households living in newer slums, or staying in the survey house for five years or less, have higher monthly incomes as well. Less obvious differences in household income exist between those living in registered and unregistered houses, and those paying and not paying rent on a regular basis. Finally, survey houses occupied exclusively by one or more female-headed households earn roughly 21 percent less than Mixed households, and earn about 15 percent less than those survey houses occupied exclusively by one or more Male-headed households.

At the household level, however, there is somewhat greater parity between All-Female and All-Male headed household units, even though All-Female headed household units still earn less than All-Male headed household units. The narrowing of the discrepancy can be attributed to the slightly higher number of households in survey houses with All-Male household head(s) (1.32, vs. 1.21 for All-Female headed household units). In similar fashion, the very low average monthly household income in Mixed household units can also be attributed to the relatively high number of households per survey house (2.54).

Figure 14 shows data on income per capita in household units headed exclusively by one or more female- or male-headed households, as well as Mixed households. On a per capita basis, household units with All-Female headed households have higher incomes than survey houses occupied by Mixed or All-Male headed households. The differences in per capita income can be attributed to the differences in the number of persons among the three categories. All-Female headed household

Figure 14: Per Capita Monthly Income,
by Sex of Household Head(s)



Sex of Household Head(s)

Note: Amounts in Baht.

Source: Author survey, 1992. n = 946

units average 3.78 persons per house, while Mixed household units have 6.87 persons and All-Male headed household units have 4.89 persons.

The finding that household units whose households are headed solely by women earn less income per month, on average, than male-headed households is confirmatory of the conventional wisdom derived from earlier studies in Thailand and many other countries. What seems new as part of this study is the investigation of earned income in relation to not only the sex of the household head, but also in relation to the number and size of households in survey houses. The incorporation of household size and composition into the analysis of gender-based income disparities thus yields a slightly different understanding of those disparities.

Relationship of Housing Costs to Income. Simply knowing only housing costs, or only income levels, is not enough to understand the value and cost of housing to housing consumers. Relating cost to income is one means of understanding what people pay for housing on a regular basis; this measure of housing affordability is now a part of most housing market studies. In many of the more developed countries, a conventional standard of (assumed) affordability is the allocation of 25-35 percent of gross monthly income to housing costs, while in many developing countries the percentage is somewhat less.

Summary statistics on the percentage of monthly income household units devote to housing costs appear in Table 49 below, and indicate that residents of survey houses devote a smaller share of monthly income to housing costs than the 25-35 percent standard mentioned above. The

median values, in particular, for all HUs and only those paying rent are substantially less than the 25-35 percent standard. Among those household units who do pay rent, however, the average percentage of income devoted to housing costs is 17.3 percent, while the modal value

TABLE 49

HOUSING COSTS AS A PERCENTAGE OF MONTHLY INCOME

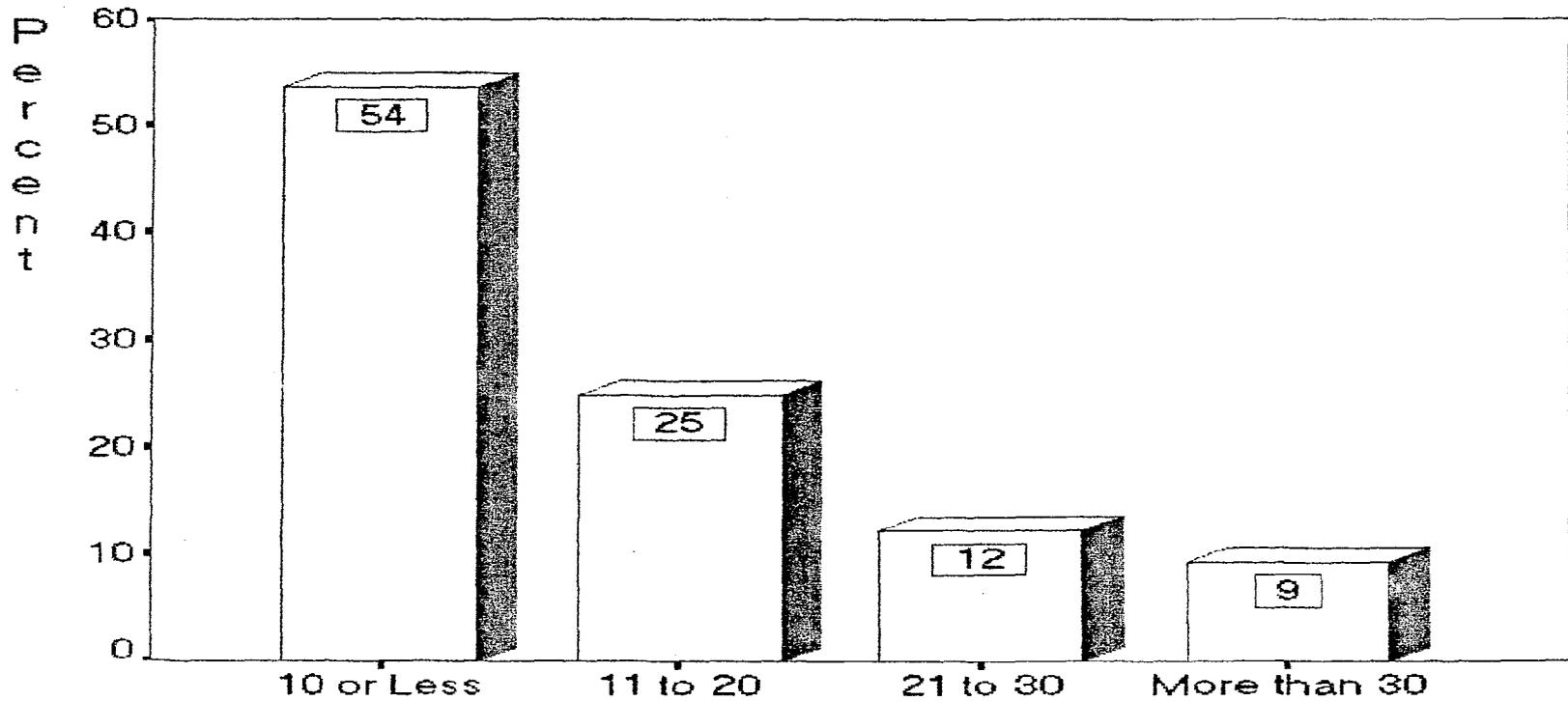
Statistic	Total (n = 891)	Rent-Payers Only (n = 465)
Mean	13.5%	17.3%
Median	9.1	14.1
Mode	6.0 (n=12)	20.0 (n=6)
Minimum %	0.0 (n=1)	1.8 (n=1)
Maximum %	75.0 (n=1)	71.7 (n=1)

Source: Author survey, 1992.

is 20 percent, which approach the amount that households devote to own a low-cost condominium in Greater Bangkok. Low-cost condo owners devote roughly 16 percent of monthly income for the mortgage payment alone (See Vol. 1, pp. 24-26), while additional housing-related costs (eg., water and electricity bills) could well increase the percentage to the 20-25 percent range. Therefore, those survey household units who are paying rent appear to devote a slightly smaller percentage of monthly income to housing costs than relatively higher-income households who own low-cost condominiums.

Figures 15 and 16 below provide additional insight into affordability issues by grouping household units by the percentage spent on housing (and housing-related) costs to income at the survey house level of

Figure 15: Relationship of Housing Costs to Income

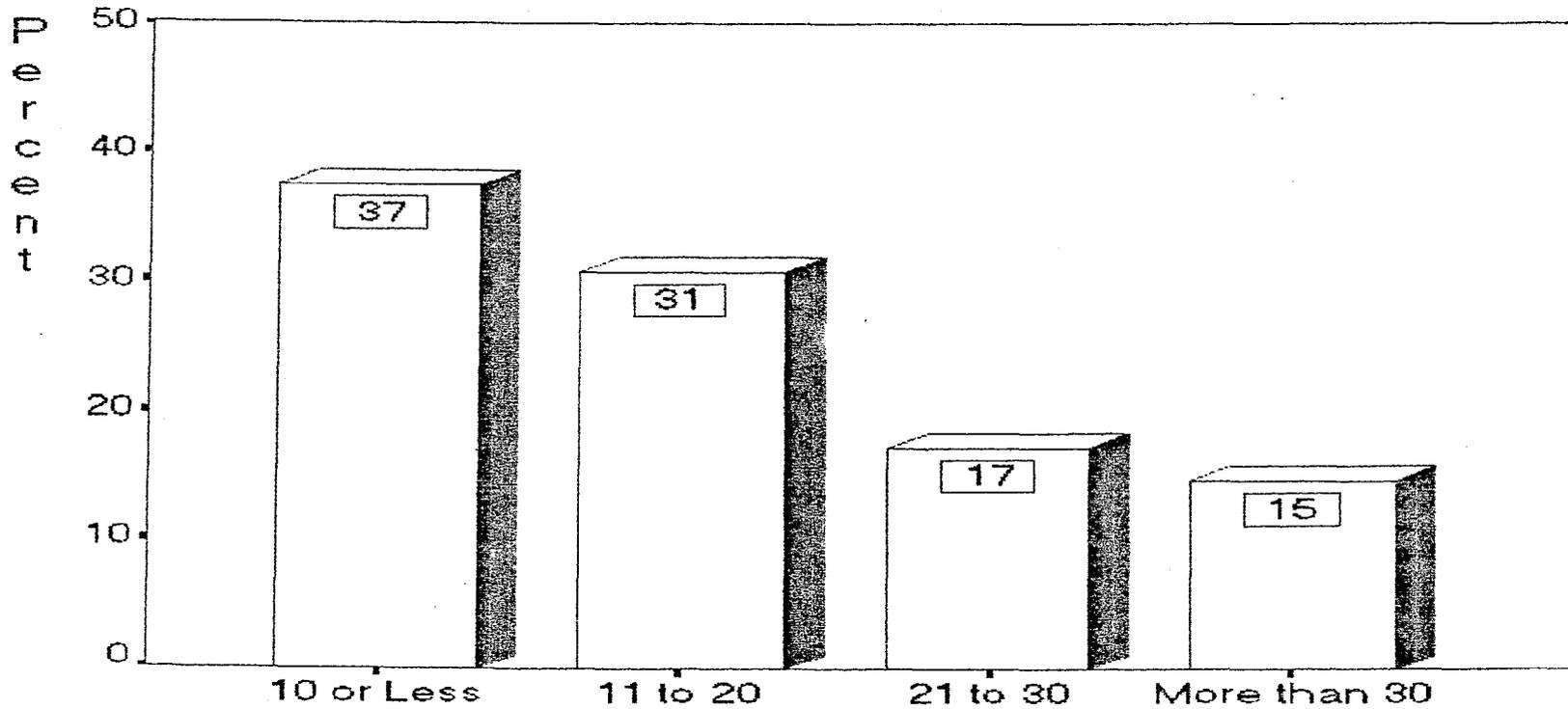


Housing Costs as a Percent of Income

Source: Author survey, 1992.

n = 891

Figure 16: Relationship of Housing Costs to Income Among Rent-Payers



Housing Costs as a Percent of Income

Source: Author survey, 1992.

n = 465

analysis. Figure 15 summarizes data for all survey houses where complete data are available, while Figure 16 summarizes data for only those household units which pay rent. As noted in the earlier discussion on the composition of housing costs, rent was the largest housing-related cost per month when rent is paid, while electricity is typically the highest cost housing expense when no rent is paid.

As indicated in Figure 15, roughly 54 percent of all household units allocate 10 percent or less of their monthly incomes to pay for the housing costs, another 25 percent of household units devote 11 to 20 percent of income, while the remaining 21 percent of household units allocate 21 percent or more of monthly income for housing costs.

This distribution is altered markedly when only those household units paying rent are examined, as Figure 16 shows. Instead of 54 percent of household units devoting 10 percent or less of income for housing, the share decreases to 37 percent, while the share of household units paying 11 to 20 percent of income for housing increases from 25 to 31 percent. In addition, the percentage of those rent-paying household units who pay 21 percent or more of income on housing increases from 21 to 32 percent. Thus, even when the focus is solely on rent-paying household units, as it is in Figure 16, the conventional standard of devoting 25-35 percent of income for housing is high when compared to percentage levels currently found in GBA slum communities.

Table 50 shows summary data on the average percentage of income devoted to housing costs for a host of slum community characteristics. As might be expected, the largest discrepancy between characteristics

TABLE 50

SELECTED CHARACTERISTICS OF HOUSING COSTS AS A PERCENTAGE
OF MONTHLY INCOME

Characteristic	Average Percentage
-----	-----
Overall Average	13.5%
GBA Sub-Area:	
- BMA	14.0
- "3C"	13.1
Housing Registration Status:	
- Registered	12.9
- Unregistered	17.0
Age of Slum Community:	
- Existing Prior to 1984	13.3
- New as of 1984	13.9
Rent Status:	
- Land and House Rent	20.0
- Land Rent Only	13.0
- House Rent Only	26.0
- No Rent Paid	9.3
Years Living in Survey House:	
- Five Years or Less	16.6
- More than Five Years	12.4
Sex of Household Head(s):	
- All-Female	14.2
- Mixed	14.8
- All-Male	13.1

Source: Author survey, 1992.

is for rent status. Both house renters and land and house renters devote 20 percent, or more, of monthly income to pay for housing costs, the highest of all characteristics noted. Again, these two groups of respondents are the relative newcomers to GBA slum community housing. The percentage differences for the house registration and occupancy characteristics are both notable and consistent with previous discussion (i.e., most of the unregistered housing is occupied by relative newcomers).

The slum community age, community sub-area location, and sex of the household head(s) characteristics exhibit less extreme percentage differences than the other characteristics. Community age was shown earlier to be somewhat insignificant with respect to the time the head of the household unit had lived in the slum community, which would have more of a bearing on housing costs than any official Government recognition of a given community as a slum. Also, the discrepancy in percentages by GBA sub-area location owe more to slightly higher incomes in the 3C area than higher housing costs in the BMA. With respect to gender-based differences in the percentages of income devoted to housing costs, Mixed household units have higher average housing costs relative to All-Female and All-Male household units due largely to the greater number of people per household unit.

In summary, the share of income devoted to housing costs does not vary widely with respect to most characteristics examined. Non-payment of rent, however, does have a considerable downward effect on the cost percentage, while house renting, in particular, has a significant upward effect on the percentage.

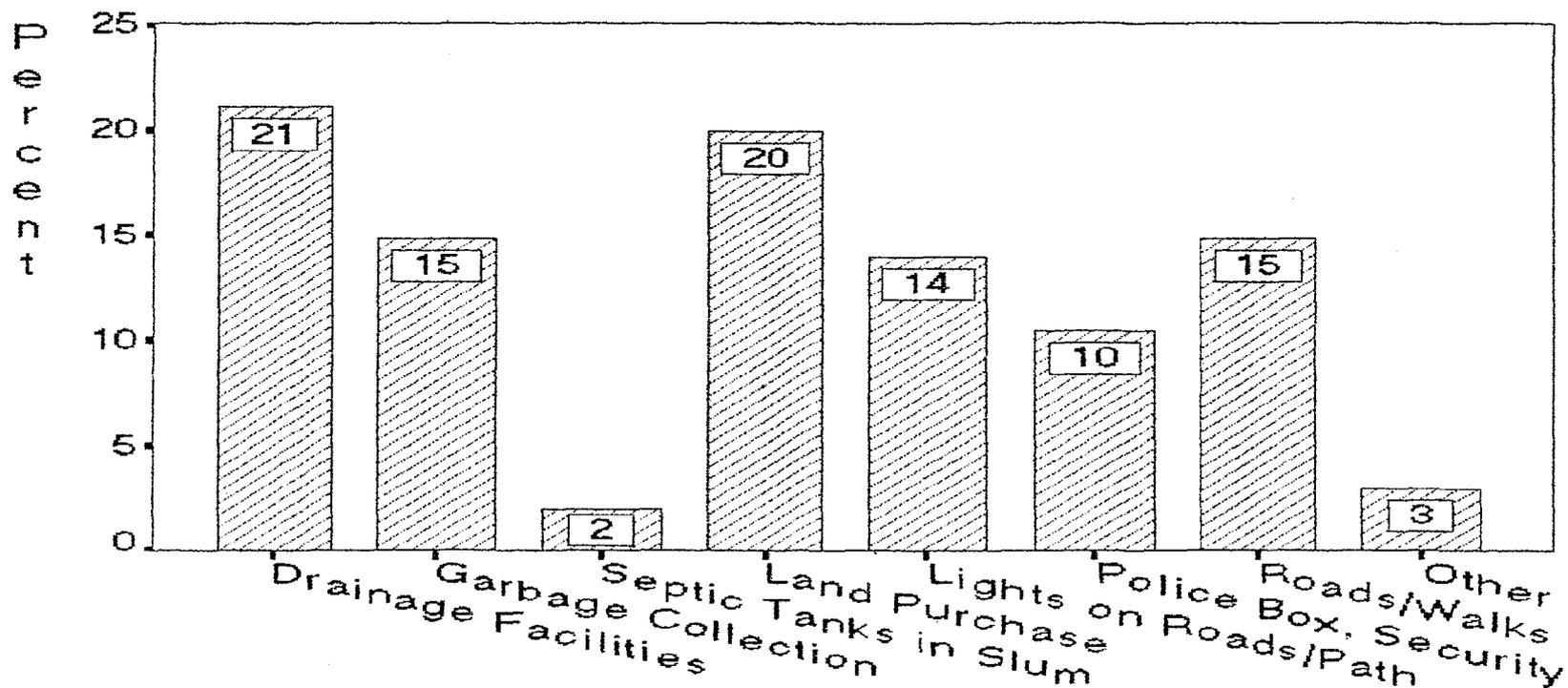
Willingness to Pay for Slum Community Improvements. Respondents were asked to rank three of seven community facilities/services that they would be willing to pay for on a monthly basis, and were also encouraged to add to the list provided if other items were preferred. The amount would be equal to their monthly water expenses, and would be for provision or improvement of community facilities/services. Water expenses are used here as a realistic basis for generating a quantitative measure of willingness to pay because expenses are almost

universally incurred by survey respondents, are incurred on a monthly basis, and typically do not constitute the main housing-related cost.

Based on the earlier analysis of water service and costs, the average monthly payment for water service of all kinds in the survey slums is 194.50 Baht. This amount is roughly equivalent to 2.6 percent of the average HU income of 7,561 Baht per month. In addition, the median value is 150 Baht, while the modal, or most frequent, value is 100 Baht. The median value is equivalent to 2.5 percent of the median HU income of 6,000 Baht per month. The three income values will serve as the basis for the costs estimates made below.

Figures 17, 18, and 19 summarize the results of the survey question regarding willingness to pay, and show the first, second, and third priorities of payment, respectively. Figure 17, which shows the results of those facilities/services which respondents are most willing to pay for on a monthly basis, indicates that respondents desire improved drainage facilities (21 percent of total responses) over other items. In light of the fact that many slum communities are located on low-lying land with poor drainage characteristics, and that waste products are often disposed of via drainage facilities, it is quite easy to understand why respondents are willing to pay for improved drainage facilities. Because drainage facilities often serve this dual role, the low response for community-wide septic tanks, at only two percent, could indicate that septic tanks are considered redundant when, in fact, tanks dispose of and treat waste, while drainage facilities only dispose of waste.

Figure 17: Willingness to Pay for Slum Improvements - First Priority



Willingness to Pay - First Priority

Source: Author survey, 1992. n = 939

The second-leading response, at 20 percent of the total, was payment for the purchase of the land occupied by a slum community. Given the tenuous nature of tenure security in some GBA slum communities, a willingness to enter into a land purchase agreement of some kind is also quite understandable. Security-oriented responses (lights on roads and paths; police call box and security guards) together represent about 24 percent of total responses, which suggests that security issues are quite important to slum community residents. Among the "Other" responses, which represent about three percent of the total, a demand for community telephones dominated, followed by a fire protection service of some kind and cleaning of adjacent canals.

Chi-square analysis at the .000005 level of significance indicates a difference in responses which are related to house registration status, slum age, and duration of stay in the survey house. Among HUs living in unregistered houses, HUs living in newer slums (i.e., those in official existence only since 1984), and HUs living in the survey house for five years or less, land purchase agreements appear as the top priority response. The response rate for land purchase among HUs living in unregistered housing, for example, was 39.4 percent, more than double the rate of the second priority response of 18.9 percent for drainage facilities. By comparison, HUs living in registered houses, HUs living in older slums, and HUs living in survey houses for more than five years all consider drainage facilities as the top priority in their communities. The variegation of responses is thus considerable, and is associated strongly with slum community type. What this finding suggests is the need for multi-faceted, rather than uniform, policy responses to slum community needs. A uniform policy

response may thus be highly effective in many slums, while at the same time highly inappropriate in other slums.

When the top priority response is related to HU income level, the pattern that emerges is fairly clear, as can be seen in Table 51.

TABLE 51

SELECTED CHARACTERISTICS OF THE TOP PRIORITY CHOICE, BY INCOME GROUP

Income Group	Priority of Land Purchase	First Priority, If Not Land Purchase
0 - 5,000 per Month	First (@25.4%)	--
5,0001 - 10,000	Second (@16.9%)	Drainage (@23.2%)
10,001 - 15,000	Fourth (@13.3%)	Lights (@22.4%)
15,001 - 20,000	Third (@14.6%)	Lights (@34.1%)
More than 20,000	Fourth (@4.2%)	Refuse Disposal (@37.5%)

Source: Author survey, 1992.

Again, Chi-square analysis at the .000005 level of significance indicates that among the lowest income group -- which is also the largest group, in terms of the number of HUs -- land purchase is the top priority. As income rises above 5,000 Baht per month, land purchase ceases to be a top priority, and generally declines as a priority as HU income increases.

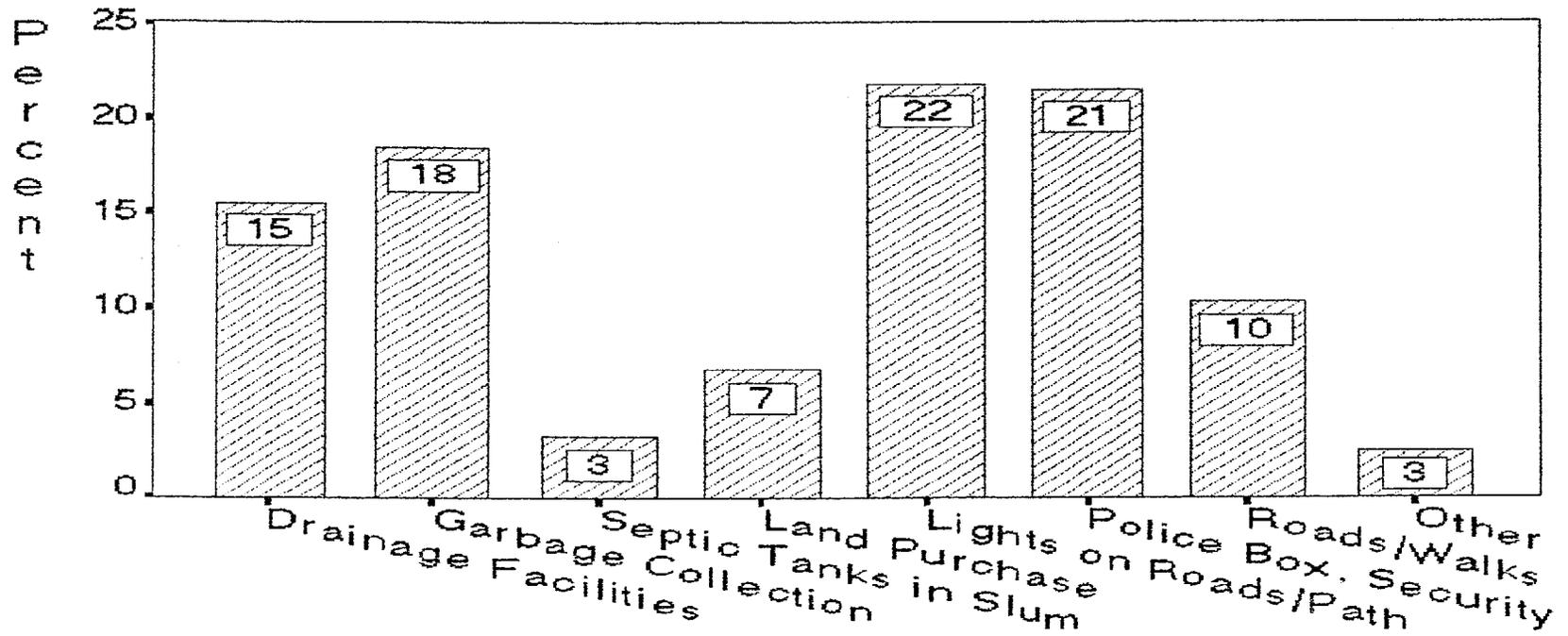
Unlike the differences in responses for the characteristics noted above, there is no statistical significance that can be attached to the very minor differences among houses occupied exclusively by all-female heads of household(s), Mixed households, and all-male heads

of household(s). These HU types appear to have similar views with respect to the willingness to pay for slum community improvements.

Figure 18 shows the second priority choice among all respondents, and indicates that the focus of concern is now on security-oriented items (lights on road/paths; police call box and security guards), which together account for 43 percent of all responses. Garbage collection increases to 18 percent, up from the first priority response rate of 15 percent, while septic tanks also increases slightly from the first priority response rate of two percent. Land purchase declines more than any other category, from 20 percent to 7 percent.

The distribution pattern for Figure 19 is roughly the same as that of Figure 18, with the exception of the shift from lights on roads/paths to the roads/walks themselves. The only other notable change is the further decline of land purchase from 7 percent as a second priority response to 4 percent as a third priority response. The two responses most closely associated with community-wide environmental improvement, drainage and garbage collection, seem to be consistently high concerns at all three levels of priority, unlike the other items reviewed.

Figure 18: Willingness to Pay for Slum Improvements - Second Priority

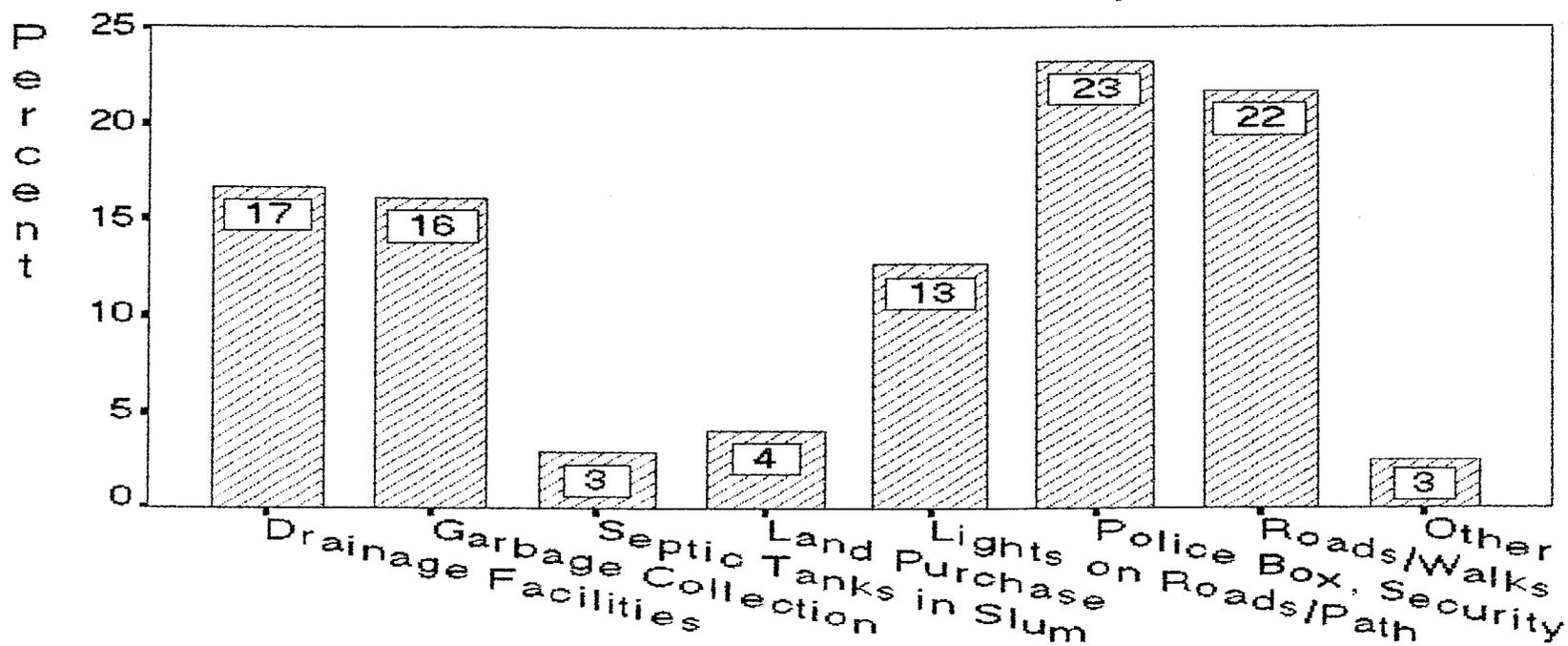


Willingness to Pay - Second Priority

Note: 25 Respondents did not provide a second priority choice.

Source: Author survey, 1992. n = 917

Figure 19: Willingness to Pay for Slum Improvements - Third Priority



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Willingness to Pay - Third Priority

Note: 66 Respondents did not provide a third choice.

Source: Author survey, 1992.

n = 876

SECTION FOUR: URBAN TRENDS, AND KEY FINDINGS AND IMPLICATIONS

This report, conceived originally as more of a baseline study than a policy document, has nonetheless generated a series of findings with implications for urban management in general, and urban housing policy in particular. As such, this final section is divided into three sub-sections: 1) A discussion of selected urban sector trends at the international, regional, and national levels to place data findings in context; 2) A discussion of key data findings and implications; and 3) Cost estimates of possible program responses to respondent willingness to pay for key community improvements so that RHUDO/USAID/Asia has some financial parameters for possible future programmatic activity.

Urban Sector Trends

Three recent news items, all directly related to the data presented in the previous sections of this report, together serve as an excellent and contemporary context for the discussion of current urban sector trends in Thailand, and particularly the GBA. The news items are:

- * Global context: According to the UN Population Fund's 1993 annual report, which was released in early July, the world's population is now growing faster than previously thought. An estimated 90 million people -- equivalent to another Mexico -- are now added to the world's population every year. Nearly 95 percent of this growth is in developing countries.

The UN agency also noted that the world is now in the midst of the greatest mass migration in all of recorded history. One of the chief population movements noted in the report was the shift of population from rural to urban areas, especially in developing countries.

- * Regional context: In a mid-September interview, the Executive Secretary of the UN's Economic and Social Commission for Asia and the Pacific (ESCAP) stated

that despite the rapid economic growth of the recent past, Asia still has over 800 million people living in absolute poverty. Many of these people, together with others, are moving to the region's cities in search of a better life.

By the year 2020, according to ESCAP, Asia will have four billion people, up from the current 2.8 billion. The region's urban population alone will increase to roughly 2.4 billion people during the interim period, a 160 percent increase. There will also be a net loss of population in Asia's rural areas in the coming years.

- * Local context: In mid-August, the World Health Organization and the U.S. Centers for Disease Control and Prevention announced that a new strain of cholera sweeping the Indian sub-continent had spread to Bangkok. Cholera, transmitted primarily through contaminated water and poor sanitation, can be effectively prevented through access to clean water and adequate sewage treatment.

Less than two percent of the GBA population is connected to a sewage treatment system; none of the GBA's many slum communities are served by such a system. Conditions thus seem amenable for a cholera outbreak in Bangkok.

The increasingly local -- and alarming -- context formed by the news items also underscores the many and interrelated problems associated with rapid urban development, which range from population growth, to poverty, to housing, urban services provision, and environmental degradation.

Given the context noted above, what are the prospects for reducing urban poverty in Thailand, which are directly related to improving the GBA's many slum communities? It is becoming increasingly apparent that the greatest irony of urban development in Thailand and the other dynamic Asian economies is the rapid generation of wealth amidst pervasive poverty. Only in Hong Kong and Singapore has poverty alleviation -- in the form of education, health, housing, and other public goods and services -- been a key development objective

rigorously and consistently pursued over time. Only recently has South Korea taken bolder steps to combat urban poverty, with Taiwan lagging behind its northeastern Asian neighbor. What, then, are the foreseeable prospects for reducing urban poverty in Thailand?

During the 1987-1992 period, which coincides precisely with the time frame of this study, Thailand's agricultural sector grew by only about three percent per year, whereas more urban-based sectors like industry and services increased at annual rates of approximately 10.1 and 8.0 percent, respectively, over the same period. Furthermore, the relative decline of the agricultural sector will continue, given official RTG projections of an annual average growth rate of less than three percent in the coming years. By comparison, urban-based sectors are projected to increase by at least 2-3 times that rate on an annual basis. The result will be greater urban-rural income disparities, and a correspondingly greater incentive for people to migrate to urban areas throughout Thailand, which would be consistent with the current global trend mentioned above.

In Thailand, it may be too early to see any significant geographic impact related to the rapidly accelerating income disparities of the last few years. Moreover, as noted earlier, this study did not find a major, recent influx of in-migration from areas outside the GBA. However, these income disparities will more than likely lead to in-migration, which will only exacerbate existing urban services and housing markets oriented largely to lower-income households. This study has clearly shown that the GBA's many slum communities, like other habitats of poverty, cater to such households.

The recent drought in rural areas, in part due to deforestation over an extended period of time, led many farmers to forego a second crop of rice, which will undoubtedly reduce their annual earnings. This, combined with growing competition for water between urban and rural users, could result in less water at higher prices in rural areas in the near future, forcing many farmers to seek other forms of employment. While many of these new employment opportunities will not be located exclusively in the GBA, they will more than likely be located in the cities of Thailand, which could result in growing demands for urban services and housing markets throughout the country. Improving both the quality of services and the absorptive capacity of those markets, particularly for lower-income households, will thus be a key challenge to policy-makers.

In a related vein, to combat the well-publicized "brain drain" problem in RTG agencies and enterprises, the Anand Administration instituted a 23 percent increase in public sector salaries, effective 1 April 1992. Combined with income tax cuts, which act to increase disposable income, the increase in public sector salaries may well have the perverse effect of undermining to a significant degree the RTG's effort to reduce geographic, absolute, and relative income disparities. The recent labor and tax policy changes will widen prevailing income disparities simply because most salaried workers live in urban areas, while most non-salaried workers in and out of urban areas did not receive a similar percentage increase in wages. The effort to reduce income disparities, incidentally, represents one of the three main objectives of the RTG's Seventh Plan, Thailand's key development policy document for the 1992-1996 period.

Dr. Chalongphob Sussangkarn, the Thailand Development Research Institute's chief economist, recently proposed a negative income tax to "eradicate poverty for all by the year 2000." /1/ The revenue generated by this tax would be given directly to those families with incomes below the official poverty line. Currently, the poverty line is 20,705 baht per year for rural-based families, and 31,620 baht per year for urban-based families. Dr. Chalongphob estimates that even at this low level of income, 20-25 percent of all Thais (roughly 11-12 million people) are currently living below the poverty line.

While the negative income tax proposal is a laudable attempt to reduce the level of absolute poverty, it will do little to reduce relative poverty, i.e., the current trend of greater income inequality over time. No action has been taken on the negative income tax proposal, even though Dr. Chalongphob has warned that the same percentage of Thais will be living below the poverty line in the year 2000 if no action is taken. This warning suggests that more Thais will be living in poverty in the near future compared to the current high level, and that income inequality will increase indefinitely.

In 1992, Thailand's GDP per capita was roughly 45,300 baht (\$1,812). Dr. Chalongphob estimates that GDP per capita will increase to roughly 116,200 baht (\$4,650) by the end of the century. GDP per capita is thus estimated to increase at an annual average rate of 12.5 percent during the 1992-2000 period, only slightly less than the 12.7 percent

/1/ Bangkok Post Weekly Review. "B30b negative tax can end poverty by 2000". Bangkok: Bangkok Post Publishing Co., Ltd., Vol. 4, No. 52 (25 December 1992), p. 5.

annual average rate of the 1985-1992 period. Assuming that such an extremely rapid increase in economic growth can be sustained, the corresponding persistence of high -- and increasing -- levels of both absolute and relative poverty indicates that current growth and poverty alleviation policies will not be sufficient to improve the living conditions of millions of Thais. It appears, then, that not only will poverty alleviation not occur, but poverty will increase over time. Within Thai urban areas like the GBA, this will mean that habitats of poverty like slum communities are likely to not only persist, but grow rather noticeably.

The Downside of Down-marketing: Inequitable Housing Subsidies. A major finding of the 1987 PADCO study was the "down-marketing" activity within the formal sector housing market which occurred during much of the 1980s. Housing was built at increasingly lower prices, and a greater percentage of GBA households were able to purchase this lower-cost product, particularly in light of generally rising incomes and greater availability of housing finance. However, there was a downside to this down-marketing activity, in terms of the increasingly inequitable housing subsidies accorded to homeowners in relation to public sector funds devoted to slum improvement/relocation efforts.

In 1990, the country's 482,789 home-owners who were servicing a mortgage loan were able to deduct from their taxable incomes the interest payments on those loans, up to a maximum of 20,000 Baht./2/

/2/ Government Housing Bank (GHB). An Extensive Survey of Thailand's Housing Sector. Bangkok: GHB. Paper prepared for the World Bank Asian Conference on Housing Indicators, Bangkok, Thailand, 20-22 November 1991, p. 37.

Assuming that all mortgages were held individually, and assuming that a low tax rate of ten percent was applied to all mortgage-holders, a substantial housing subsidy was provided to home-owners in 1990, in terms of income tax revenue foregone by the RTG via mortgage interest deductions. This subsidy amounted to 965,580,000 Baht, or roughly \$38.6 million.

During the Sixth Plan period (1987-1991), the budget of the National Housing Authority (NHA) averaged 261.4 million Baht per year./3/ While this total included the wages and benefits for NHA employees, as well as equipment, supplies, and other administrative costs, it was also the main source of funding for low-cost housing and slum community improvement efforts throughout Thailand. Within the BMA, where the NHA no longer has a large budgetary presence, the Bangkok Metropolitan Administration's Department of Social Welfare (DSW) has primary responsibility for slum community improvement. The DSW's 1990 budget expenditure for slum improvement activities was 388.6 million Baht./4/ Thus, in 1990, for example, the combined NHA and DSW budgets devoted to projects in Thailand's slum communities -- including employee salaries and other forms of administrative overhead which do not directly benefit slum dwellers -- totaled 650 million Baht, roughly 33 percent less than the housing subsidy provided to largely middle- and upper-income mortgage-holders.

By the end of 1992 there were roughly 700,000 mortgage-holders in

/3/ Ibid., at p. 36.

/4/ Bangkok Metropolitan Administration (BMA). Statistical Profile of the BMA 1990. Bangkok: Department of Policy and Planning, BMA, 1991, p. 24.

Thailand, or an annual increase of about 20 percent per year over the 1990 total./5/ Assuming the ten percent tax rate and the tax deduction of up to 20,000 Baht per mortgage-holder, the conservative 1992 estimate of 700,000 mortgage-holders would generate up to 1.4 billion Baht (\$56 million) in housing subsidies to, again, mostly middle- and upper-income households. By comparison, the NHA's budget did not increase in a commensurate manner during the 1990-1992 period, while the budget for the BMA's DSW actually declined from 388.6 million Baht in 1990 to 337.1 million Baht in 1991./6/

Recent actions by the Bank of Thailand and the RTG's Finance Ministry will more than likely increase the mortgage interest deductions beyond the current 20,000 Baht maximum, and also initiate a policy to exempt from taxes the interest on savings intended for house purchases./7/ In addition, there has never been a limit imposed on the number of income tax deductions which individuals can take for mortgage interest payments, with the result that some individuals are receiving housing subsidies for houses they do not occupy, i.e., for speculative houses or vacation homes.

/5/ The 700,000 figure was derived by increasing the year-end 1990 figure of 482,789 mortgage-holders by roughly 20 percent per year for both 1991 and 1992. The 20 percent figure was derived from the 21.6 percent increase in the number of registered, developer-built houses in only the Greater Bangkok area during the 1990-1991 period, which is based on the assumption that mortgages were obtained to purchase developer-built houses. The 20 percent figure was then applied to both the 1991 and 1992 calendar years to generate the estimate of 695,216 mortgage-holders, which was then rounded to 700,000.

/6/ See Footnote 4.

/7/ Bangkok Post Weekly Review. "Tax incentives to help boost housing funds." Bangkok: Bangkok Post Publishing Co., Ltd., Vol. 5, No. 4 (22 January 1993), p. 11.

While these measures may provide a boost to the housing industry and an incentive to people considering a housing purchase, they will also have the effect of increasing the housing subsidy provided to middle- and upper-income households. This form of housing subsidy, of course, is not available to slum dwellers. The subsidy will also further erode the tax revenue base, which is a key source of funds for slum community and other urban facilities improvements.

One measure that could reduce the widening gap between the housing subsidies provided to largely middle- and upper-income households, and the subsidies to lower-income households which are inherent in the NHA and BMA budgets, would be the adoption of a "parity policy" between income tax deductions to the former and NHA/BMA budget allocations largely intended for the latter. Such a policy would mandate, for example, that the amount of foregone income tax related to mortgage deductions in a given year be matched by NHA/BMA budget allocations for slum communities in the following year. The NHA/BMA budgets for activities in slum communities would be, in effect, indexed to the housing subsidy provided to mortgage-holders via the income tax deductions. The adoption of a parity policy would, at a minimum, stabilize the current level of inequitable subsidies provided by the RTG to middle- and higher-income households, but would not improve conditions resulting from current policies.

Seventh Plan Estimates of Demand for GBA Slum Housing. As part of the preparation of the Seventh Plan, the World Bank-IBRD provided funding to the NHA and the Chulalongkorn University Social Research Institute (CUSRI) to investigate housing market trends in the BMR. A key aim of

this research work was to provide a quantitative basis for estimating the demand for housing by different income groups, which could serve as a basis for both policy and budget allocations. The NHA-CUSRI data estimate for 1996 appears in Table 52 below, together with official NHA data for earlier years.

TABLE 52

COMPARATIVE GROWTH OF SLUM HOUSING STOCK AND REST OF HOUSING STOCK,
GREATER BANGKOK, 1974-1996

Year	Slum Housing Stock			Rest of Housing Stock	
	No. of Houses	% of Total	Annual % Increase	No. of Houses	Annual % Increase
1974	139,326	23.8	---	445,837	---
1984	160,145	16.7	1.4%	799,630	6.0%
1987	173,770	13.8	2.8	1,082,612	10.6
1992	235,030	13.9	6.2	1,454,210	6.1
1996	426,039	18.9	12.6	1,830,710	4.7

Sources:

Slum Housing: 1974-1992, See: Vol. 1, Table 15, p. 53. The 1996 figure is a housing demand projection prepared by the Chulalongkorn University Social Research Institute (CUSRI) for the NHA and the National Economic and Social Development Board (NESDB). See: NESDB, Seventh NESDB Plan (1992-1996). Bangkok: NESDB, 1992, at p. 111.

Total GBA Housing: Planning and Development Collaborative International (PADCO). Bangkok Land and Housing Market Assessment. Washington, DC: PADCO, 1990, Table 2-8, p. 27. The 1988 figures shown in Table 2-8 were based on data collected in 1987, and are considered as 1987 data for the purposes of this report. The 1992 figure is based on housing registration data collected by the Office of the Managing Director, Government Housing Bank. The 1996 figure is from the NESDB document referenced above.

The data hardly suggest a decline of the slum housing stock during the Seventh Plan period. During the Sixth Plan period, the slum housing

stock grew at rate roughly equal to the overall housing stock growth rate, but during the Seventh Plan period the slum housing stock is projected to increase at a rate twice that of the Sixth Plan period, and nearly three times that of the rest of the GBA housing stock. Based on the NHA-CUSRI data, the rate of increase in the slum housing stock roughly doubles during each time interval noted in the Table.

While local and national government eviction and relocation activities may preclude attainment of the slum housing demand projection included as part of the Table above, it is nonetheless useful to note that an income-based analysis yields a finding that many low-income households will be: 1) Apparently unable to afford the "down-market", low-cost housing built by the commercial private sector; and 2) Seeking -- if not actually building -- housing in the GBA's many slum communities, which, again, is a major source of housing for low-income households in the GBA.

Key Findings and Implications

Given the trends, inequities, and prospects noted above, what are the key findings of this study, and what are the implications for housing policy in general, and potential RHUDO/ASIA activities in particular?

The key finding of this study, of course, is the apparent reversal of the trend of relative decline in the GBA slum housing stock noted by prior researchers for the period 1974-1987. During the 1987-1992 period, the number of houses in GBA slum communities grew in both absolute and relative terms when compared to the entire GBA housing

stock. Furthermore, based on housing demand research for the Seventh Plan period (1992-1996) conducted by the NHA and others, this new trend of absolute and relative growth of the slum housing stock may well continue into the near future.

While there are many reasons for the emergence of this new trend, a massive influx of in-migrants from outside the GBA is not one of them. While some in-migration has occurred, it appears instead that rapid conversion of peripheral areas within the GBA to urban uses -- one aspect of the recent economic boom -- has resulted in the movement of people from mostly wooden houses (baan mai) in what were largely rural areas to nearby slum communities, often in the same changwat. In addition, it is also the case that the urban re-development process, wherein urban land occupied (in all or part) by non-slum low-cost housing like baan mai is converted to other uses (eg., condominiums, offices, shops, etc.). Again, people living in the wooden houses may choose to move to a nearby slum community.

A review of the survey data also seem to indicate that the circulation of survey house residents within houses of the same slum and among other GBA slums over time is caused by not only eviction, but also by household changes (eg., job opportunities, marriage, or birth of children). So GBA slums are growing in at least three ways: in-migration from outside the GBA; movement of people from non-slum segments of the GBA housing stock; and (net) natural growth of the existing population within GBA slums, which can result in additional housing demand within the same or another slum.

With the potential for slum housing growth to continue -- or even accelerate -- in the foreseeable future, even in light of continued economic growth and rising incomes for many, some questions must be raised regarding the policies which facilitated the down-marketing activity of the recent past. Simply stated, this activity has not effectively increased the housing options of the urban poor, who continue to view slum communities as housing opportunity sites. The lesson for the RTG, other countries, and the donor community is that the world-renown RTG policies which facilitated the down-marketing activity do not appear to be a means of incorporating the poor into commercial private (i.e., formal) sector housing markets. If the living environments of the urban poor are to improve, the RTG and the donor community need to consider seriously a greater degree of intervention in the urban development process -- particularly with respect to low-cost housing -- than the facilitative, enabling strategies that were first embraced in Thailand and many other countries during the early-mid 1980s.

For those slums which were in existence in 1987, the rate of housing growth in the BMA was similar to the 3C area during the 1987-1992 period. However, the slum housing stock -- like other segments of the GBA housing stock -- is nonetheless shifting outward from the center of the urban region due to the growth of slums in the 3C area. In a sense, then, the poor are also moving to the suburbs. In this regard, a more detailed survey of 3C area slum housing activity is needed to more accurately assess 3C changes over time. As noted in Volume 1, part of the problem of interpreting recent changes in the 3C area was the lack of current data .

As noted earlier, official housing counts in GBA slums often rely on housing registration data. This study has shown that the number of houses in slums is actually greater than official registration figures would indicate. Thus, a "shadow stock" of unregistered housing exists in slums beyond the official view. If the "shadow" is incorporated into housing count efforts, which was attempted in this study, a more accurate picture of the size of the slum housing stock will emerge.

Another feature of the shadow stock is the study finding that survey respondents have lived an average of 16.4 years in slums which have only been in official existence since 1984 (i.e., the so-called newer slums). While it is entirely possible that slums developed around what were once free-standing (survey) houses, it seems more likely that at any point in time there are a number of slum-like communities in the GBA which are indistinguishable from officially-recognized slums. The shadow stock thus enlarges yet again if the slum-like communities are included in the overall slum housing stock.

Squatting activity in survey slums is now both pervasive and in relative decline. The slums designated by the NHA as rental slums contained a number of squatters, while NHA-designated squatter slums also contained a number of renters. This finding does not mean that rapid changes in rental status occurred during the 1987-1992 period, for 85 percent of the survey respondents were living in the same houses in 1987 when the NHA conducted its studies.

What emerges from the data, then, is a complex mix of different forms of rental arrangements within slums, rather than the uniform rental

status designation accorded to slums by the NHA. While this manner of designation makes for easier classification of slums by rental status, it unduly simplifies what is more often a highly variegated range of rental arrangements. This diversity within a given slum makes it much harder to tailor assistance interventions, for land renters who own their house, for example, may have different views and needs than an adjacent squatter. An important facet of any initial investigation at the slum community level by RHUDO/ASIA, then, must be a review of the kinds of rental arrangements present, and how they might affect the design and implementation of an intervention effort.

While squatting in survey slums is pervasive, housing growth during the 1987-1992 period occurred mostly on privately-held land, and usually under some form of rental arrangement. This commercialization of the slum housing market is generally consistent with the recent increase in land and housing market activity in the GBA. Consistent with the growing importance of market activity in all aspects of life in the GBA, job opportunities were cited as the main reason for moving to the survey slum. This was particularly the case among respondents who have lived in the survey house for five years or less. It is no longer the case that family and friends are the main reason for moving to slums; it thus appears that a largely social reason for moving has been replaced by a largely economic reason.

While the average number of households per house in slum communities is higher than the number in non-slum houses, the composition of those households is quite different. While over 90 percent of respondents stated that house residents were related by blood or marriage, the

number of conventionally-defined households (i.e., husband and wife, with or without children) account for just over one-third of all survey slum households. This percentage rises to more than two-thirds of all households living in the BMR, which seems to suggest that it is difficult to maintain such households in a GBA slum community. Again, intervention efforts must recognize the vastly different demographic structure of slums when compared to the larger population. This is particularly true of household units composed of exclusively female-headed households. These kinds of household units have very different household sizes, incomes, and housing arrangements when compared to other types of household units.

If it was ever unclear before, this study has demonstrated that the overwhelming majority of slum households are earning incomes which are far below prevailing levels, and thus must be considered to be living in habitats of poverty. While only roughly one in five households is living under the official RTG poverty income threshold, the vast majority of households are living in what is often called "relative" poverty. This latter measure reflects income disparity, which is growing rapidly in Thailand, with no effective means of reducing current disparities being considered seriously at the present time.

One of the curses, it seems, of being poor is that the non-poor view them as "too poor" to pay for community improvements and services. Given the current urban sector policy emphasis on cost-recovery for projects oriented to the poor, the "too poor" view is often used as a justification for inaction, simply because being "too poor" precludes the possibility of repayment and, therefore, programmatic activity.

Survey respondents have provided an ample basis for claiming that being "too poor" does not also mean being unwilling -- and unable -- to pay for community improvements and services. Respondents have, for example, demonstrated that they are willing to pay slightly higher rates for a garbage collection service that is less frequent than the Government service, and pay higher fees to a water vendor when other, less costly options are readily available. Moreover, respondents have invested scarce capital to purchase small, house-based meters to obtain Government water service, when, again, less costly options are readily available. Respondents have also invested funds to make bathroom improvements, despite the generally pervasive threat of eviction.

Whether these and other examples from the data indicate a form of irrational economic behavior is not known. What is known, however, is that slum residents -- like all people -- make choices aimed at improving prevailing conditions, and allocate available funds to make appropriate investments. What is clear from this allocation process is that those who many view as "too poor" will invest capital to improve their lives in some way, even if the allocation seems economically irrational to others. What the "too poor" lack, then, is not a willingness to invest, but a relative lack of income, which therefore makes an appropriate investment choice extremely critical. It is this need for understanding what "appropriate" means that often eludes those who wish to intervene positively in slum communities.

Despite very low incomes, then, survey respondents are providing some insight into what is an appropriate intervention by expressing a

willingness to pay on a monthly basis for specific community-wide improvements that they have identified. Respondents seem more than willing to increase monthly housing costs by a small percentage in exchange for these selected improvements. Given the above discussion, however, it would be folly to not engage in additional slum-level study prior to any proposed action.

Cost Estimates for Key Community Improvements

Section Three included a discussion of responses to the survey question seeking a priority ranking of the willingness to pay for selected community-wide improvements; the responses are summarized in Figures 17-19 as well. Briefly, willingness to pay was determined by estimating the median amount that household units pay per month for water service. That total is 150 Baht, which translates to about 100 Baht per month per household (150 Baht/house / 1.49 households/house). Survey respondents identified drainage facilities (21 percent) and land purchase agreements (20 percent) as the two community-wide improvements identified as first priority responses. This sub-section will focus on the costs of these two key improvements, as well as financing and institutional arrangements that RHUDO/USAID, in conjunction with RTG agencies and -- possibly -- other bilateral or multilateral donors, could adopt to implement identified improvements.

Drainage Facilities. As noted earlier, many GBA slum communities are located on poorly-draining land, which is a major reason why slum residents often identify drainage facilities, or, say, improved roads, walkways, and paths, as priority needs. In addition to stormwater

runoff, drainage facilities often serve a second function: removing household wastewater. Improved drainage facilities can thus make a major difference in both improving the functional use of slums during stormy conditions, and improving environmental and public health conditions both within and adjacent to slum communities.

For several years now, the BMA and various RTG agencies have been initiating and evaluating a number of comprehensive wastewater collection and treatment proposals, both with and without combined stormwater drainage facilities, in light of both the chronic flooding problems and severe water pollution problems in the GBA. To date, however, no proposals have been adopted and built to serve GBA residents. Furthermore, no proposals are likely to be adopted in the foreseeable future due to the high cost of constructing the needed facilities. Given the current and foreseeable lack of effective and comprehensive drainage and wastewater treatment systems, slum dwellers must rely on more modest means of disposing of stormwater runoff and household wastewater. These means of disposal are apparently not as sufficient as previously thought, given the aforementioned new form of cholera that is now present in Bangkok.

In light of the above, what would be the cost of building the means to dispose of runoff and wastewater in the GBA's many slum communities? The only reliable cost estimate for a similar system is derived from the Orangi Pilot Project in Karachi, Pakistan. Orangi is a squatter settlement of more than 600,000 people which had severe sewerage and water pollution problems until project residents helped build a sewage collection and disposal system during the 1980s. The cost of the

system for each household was roughly US\$50, excluding the cost of trunk sewers./8/ The Orangi project is now viewed by many in and out of the donor community as a model of effective, low-cost environmental improvement.

Survey data indicate that each survey slum house contains an average of 1.49 households. Applying this number to the Orangi project costs of US\$50 per household yields a product of US\$74.50 per house. This cost per house is inflated, and applied to all of the GBA's 1,660 estimated slum communities, based on the following assumptions:

- 1) Construction costs in the GBA are higher than those in Karachi in much the same manner that GNP per capita is higher in Thailand than in Pakistan -- US\$1,420 vs. US\$380 for the two countries, respectively, according to the World Bank's 1992 World Development Report (p. 218). Therefore, the cost of a roughly similar system in GBA slum communities might be about US\$280 per house ($\$74.50 \times (\$1,420/\$380)$);
- 2) Costs are, on balance, equal throughout all 1,660 GBA slum communities; and
- 3) The average number of houses in each community is 175.4, based on survey data.

The average cost of runoff and wastewater drainage improvements for the average GBA slum community is estimated to be US\$49,112 ($\$280/\text{house} \times 175.4 \text{ houses/slum}$). The total cost of providing the drainage improvements to all of the GBA's 1,660 slums is thus US\$81,525,920 ($1,660 \text{ slums} \times \$49,112/\text{slum}$). Returning to the house level, the cost would be 7,000 Baht ($\$280 \times 25 \text{ Baht}/\1).

/8/ World Bank. World Development Report 1992. Washington, DC: World Bank, 1992, pp. 108-109.

Assuming that residents in each slum community house were charged a 7,000 Baht fee to pay for improvements, at an interest rate of 15 percent per year, it would take household units 5.9 years (71 months) to pay off the fee if they paid 150 Baht per month, an amount equal to the median amount paid for monthly water service. Resident-based organizations in slum communities, where they exist, in conjunction with the NHA, other RTG agencies, the BMA, and/or non-governmental organizations (NGOs) active in slum communities, could be responsible for assigning and collecting fees and coordinating construction work.

The total cost for runoff and wastewater drainage improvements in all GBA slum communities, at roughly US\$81.5 million, seems high. By comparison, current trends indicate that more than twice that amount -- about US\$179.4 million -- will be spent for advertising new housing and real estate projects in the GBA in 1993 alone.^{/9/} The amount spent to encourage largely middle- and higher-income GBA households to buy new houses in 1993 could thus be more than 100 percent greater than what amounts to a market-rate loan to low-income households so that they can improve their living environments. In all likelihood, RHUDO/USAID would not be able to fully fund the amount needed to complete the project. It could, however, serve as a catalyst in forming a consortium of public, private, and NGO sector entities, both Thai and non-Thai, which would be able to provide loan funds to slum

^{/9/} According to the Bangkok Post Weekly Review, Vol. 5, No. 22 (28 May 1993), p. 15, advertising for housing and real estate projects during the first quarter of 1993 (1 Jan - 1 April), not including spending on radio advertisements, was US\$44.84 million. If spending continues at a similar pace throughout the remainder of the year, up to US\$179,360,000 could be spent on advertising for housing and real estate projects.

residents via slum community organizations or other intermediaries, so that residents can undertake what they perceive to be a necessary improvement in their living environment. This activity could also have positive impacts on public health and environmental conditions.

Land Purchase Agreements. As is often the case, eviction and relocation wipe out any benefits accruing to slum residents who invest in drainage or other community facilities improvements. The lack of tenure security is often cited as the main reason for slum resident non-investment or under-investment, but such behavior is completely understandable given limited incomes and the perceived threat and actual reality of eviction. In this regard, Indonesia's Kampung Improvement Program (KIP) offers some evidence of slum resident investment in the wake of improved tenure security conditions.

Survey residents identified a land purchase agreement as one means of securing ownership of land, which might then usher in investment in various house and slum improvements. While this may be true, the rapid escalation of GBA land prices in the recent past, coupled with the prime locations of many slum communities, results in an estimated US\$2.9 billion cost to fund what could be a community land mortgage loan (or revolving loan fund). The cost of land purchase agreements is based on the following set of assumptions:

- 1,660 slums in the GBA in 1992;
- 175.4 houses per slum community;

- Gross land area/house = 50 sq. m.;
- Land area/slum = 8,770 sq. m.;
- Land cost = \$200/sq. m.;
- Land cost/slum = \$1,760,000;

- Total land cost for 1,660 slums = \$2,921,600,000.

It becomes increasingly difficult to fund land purchase agreements on a comprehensive basis using land costs above the amount used here, and land costs in many slum communities are higher than US\$200 per square meter. Land purchases in conjunction with land sharing and land readjustment schemes, which are now being seriously considered in the GBA, might also be an option. At standard mortgage terms (eg., no down payment, 20-year term, 15 percent annual interest rate), the monthly payment to service the land purchase loan instrument would be 579,387 Baht per slum, whereas slum residents would only be able to pay collectively 26,310 Baht per slum, given the monthly payment of 150 Baht per house. The shortfall of roughly 550,000 Baht per month per slum is extremely high, particularly on a market-wide basis.

At first glance, a market-wide, respondent-identified slum community improvement effort like a land purchase agreement does not seem to be viable due to cost. When compared to other costs for GBA projects and RTG national budget allocations, however, the nearly US\$3 billion price of market-wide land purchases is not wholly unreasonable. For example, the land purchase cost of nearly US\$3 billion would be:

- 73 percent of the RTG budget funds which have not been disbursed in the last 3-4 years for a variety of reasons;/10/
- 68 percent of the proposed 107 billion Baht Nong Ngao Hao airport; and
- 40-48 percent of the 150-180 billion Baht cost of the recently proposed BMA subway project.

/10/ Sricharatchanya, Paisal. "Govt in multi-pronged drive to boost confidence". Bangkok Post Weekly Review, Vol. 5, No. 27 (2 July 1993), p. 1. More than 100 billion Baht (approx. US\$4 billion) worth of undisbursed RTG funds have accumulated in the last 3-4 years due to a host of problems, ranging from numerous changes of government to bureaucratic in-fighting over projects of dubious merit.

While there are two easily accessible sources of funding available for use in making land purchases, there would be considerable political and social opposition to the notion of essentially creating a slum community investment fund to purchase slum land -- even though slum residents could be required to pay the monthly fee of 150 Baht per house to defray administration and related expenses. The two sources are: 1) An annual amount equal to one percent of the RTC's foreign exchange reserves, which totalled US\$22 billion in 1992, up 19.6 percent over 1991; and 2) A one percent linkage fee for Board of Investment (BOI) promotional privileges.

The two funding sources alone would generate a sufficient amount on an annual basis to conduct land purchases on a wide scale. For example, an annual amount equal to one percent of RTC foreign reserves is currently US\$220 million. In addition, during the first ten months of 1992, the BOI approved 310 projects for promotional privileges, with total project values of roughly 268 billion baht, up 87 percent over the same period of 1991. If annualized, the figure would be about 322 billion Baht (US\$12.88 billion). A one percent linkage fee applied to this total would result in the generation of US\$128.8 million in 1992 alone. In 1992 alone, then, these two sources of funding would have generated roughly US\$350 million.

This total is not insignificant, for it would be roughly equivalent to the land purchase price of 200 slum communities. In 8-10 years, assuming funding source revenue generation and land prices remained in approximate equilibrium, all slum communities currently existing in the GBA could be purchased by residents, who would, again, pay back a

small portion of the purchase cost to cover administrative and related expenses. While considerable thought would have to be given to the design of appropriate institutional arrangements, the collection of fees, and resident retention policies, etc., it is clear that funds can be found for land purchases.

While the above scenario is highly unlikely, given the trends and prospects noted at the beginning of this section, the calculations made are intended to illustrate that such a scenario is not inconceivable, and well within the resources of the RTG to fund. The GBA has been the locale of significant wealth generation in recent years, but much of that wealth has bypassed the urban poor, many of whom live in the GBA's many slum communities. The purpose of establishing a funding mechanism composed of both an annual amount equal to one percent of foreign reserves, and a one percent linkage fee paid by recipients of BOI promotional privileges, is merely to show how much wealth is actually being generated in the GBA, and how it could be linked to slum community improvement via land purchase agreements. Firms seeking BOI privileges, for example, often locate in the GBA, and locate in part to employ low-cost workers who often live in slums adjacent to or nearby BOI-promoted properties. The "link" between BOI-promoted activities and the GBA slum housing market, then, is quite clear.

In conclusion, tapping just two funding sources which are highly related to the GBA economy, and linking those funds directly to slum residents who have expressed a willingness to invest in their communities, is essentially a broad form of human capital investment.

Improving the existing, ambient living and environmental conditions in GBA slum communities would, in turn, improve overall public health and worker productivity, and thus add significantly to wealth generation in future years.