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Dowall, David E.

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David E. Dowall

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**University of California at Berkeley
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A TALE OF TWO CITIES:
A COMPARISON OF KARACHI'S INFORMAL AND FORMAL
HOUSING DELIVERY SYSTEMS

by

David E. Dowall¹

Department of City and Regional Planning
University of California at Berkeley

INTRODUCTION

Karachi is one of the fastest growing cities in the world. Between 1951 and 1988, the population of Karachi increased nearly five times, growing from 1.3 to 7.5 million persons. If present trends continue, Karachi's population will reach 13.5 million by the year 2000 (Table 1). This virtual tidal-wave of population is overwhelming the capacity of government and private institutions to plan and provide even the most basic urban services.

The pressures on Karachi's housing and land markets are enormous, and the city clearly faces a severe housing crisis. The problem does not seem to lie with the construction industry, as building materials are in good supply. Nor do excessive building standards or restrictive planning controls play a significant role. The source of the housing constraint apparently comes from the lack of serviced land for housing development and limited finance capital for housing construction and long-term mortgage financing. Public agencies, particularly the Karachi Development Authority (KDA), have not had adequate resources to develop sufficient supplies of serviced residential plots. This

is due to the consistent underpricing of allocated plots [Dowall, 1989]. The net result is the increasing irrelevance of the so-called formal sector to deliver affordable housing to low- and moderate-income households in Karachi.

The most visible manifestations of these land constraints are the numerous unauthorized housing settlements -- katchi abadis -- scattered around Karachi [Meyerink, 1983]. The phenomenal growth and development of these informal settlements is a testament to the drive and initiative of the poor, and their ability to forge affordable housing solutions.

KATCHI ABADIS PLAY A CENTRAL ROLE IN HOUSING DELIVERY

The estimated population living in katchi abadis is nearly 4,000,000 -- an increase of over 400 percent over the 14-year period (a compound annual increase of 12.2 percent). Against the backdrop of the overall population increase of Karachi of approximately 5 percent per year, these increases in katchi abadi population are startling, clearly reflecting the fact that for most low-income households, katchi abadi housing is the only alternative. For example, the average household monthly income of a katchi abadi household is Rs. 2,218.² If these households had access to long-term mortgage credit and had enough savings for a 20 percent downpayment, they could afford to purchase a Rs. 64,500 house.³ For those katchi abadi dwellers standing at the fortieth income percentile (Rs. 1542/month), the maximum purchase price, based on the same assumptions, would be Rs. 44,342. The very-low-income -- that is, those earning below the twentieth income percentile (Rs. 945/month) -- could afford to pay Rs. 27,481.

With formal-sector housing costing Rs. 91,000 on average, only the relatively well-off katchi abadi dwellers (those earning above the median Karachi

household income) can afford to purchase a formal-sector house. On the other hand, housing in katchi abadis can be purchased for an average of Rs. 23,000.

Because of the affordability of katchi abadi housing, over the past 14 years, informal-sector housing has played a critical role in providing low-income households with land. The informal land delivery system has vastly out-produced the formal sector. Karachi's katchi abadis have produced about 300,000 plots between 1974 and 1988 [Dowall, 1989]. This is far more than the number of plots the Karachi Development Authority planned (200,700), developed (55,799), or allotted (76,135) between 1974 and 1985. Karachi's informal katchi abadi housing market is remarkable in its ability to respond to the housing needs of low- and moderate-income households.

Despite the protestations of government officials and policymakers, low-cost informally-provided housing in Karachi's katchi abadis is a valuable and important component of the overall housing delivery system in Karachi. Katchi abadis have and will continue to provide the "safety net" for low- and moderate-income households seeking shelter in Karachi. From a policy perspective, it is important to understand how this sector operates and what kind of housing it provides: the important lesson for public agencies to learn from the informal sector is how to gear housing quality with affordability. Instead of concentrating on expensive residential development schemes, Karachi's public land development organizations, such as the KDA and the Karachi Municipal Corporation, should concentrate on providing low-cost serviced sites [Nientied and van der Linden, 1990] and upgrading existing katchi abadis.

The purpose of this paper is to document the kinds of housing units produced by the informal katchi abadi housing delivery system and compare and contrast it with the expensive and limited production of formal-sector housing. As the comparison illustrates, the quality of housing produced by the informal

sector is lower than the formal sector, but it is vastly more affordable. The policy relevance of the findings are important; they reveal that the informal system of housing delivery in Karachi is capable of providing substantial numbers of housing units at affordable prices. The survey data reported on in this paper are based on tabulations of the survey of social and economic characteristics of 6,280 households conducted by the Applied Economic Research Centre of Karachi University (AERC).⁴

The household survey was conducted as two separate surveys, one in katchi abadis and one in planned areas. The samples for the survey were drawn on a cluster-sample basis by 272 analysis zones and then weighted according to the estimated population of katchi abadi and planned area populations in each zone. The surveys of 6,280 households were carried out over a nine-month period from mid-1987 to early 1988. The data tabulations presented in the following tables provide statistically valid profiles for the entire metropolitan area and separately for both planned and katchi abadi areas.

PATTERNS OF KATCHI ABADIS

Katchi abadis are usually developed either by squatting on land or by the illegal subdivision of land by land developers. According to field surveys conducted by van der Linden, the population living in these katchi abadis increased from 1.6 to 3.9 million persons between 1970 and 1987 [J. van der Linden 1988]. This section describes the approximate pattern of land development in these katchi abadis and compares it with planned (formal) areas.

Based on information from the Karachi Metropolitan Corporation's Directorate of Katchi Abadis, van der Linden's surveys, and interpretation of a SPOT satellite image [Bertaud, 1989], 1987 land area in unplanned katchi abadis has been estimated. Map 1 shows the location of katchi abadis in 1987. Table 2

illustrates the distribution of katchi abadi residential areas by location for 1970 and 1987. In 1970, over 90 percent of the katchi abadis were within 10 kilometers of the city center. By 1987, the portion of katchi abadis within 10 kilometers had fallen to 50 percent -- reflecting the considerable growth of new settlements, especially illegal subdivisions, on Karachi's periphery [Nientied and van der Linden, 1990]. However, despite this pattern of decentralization, katchi abadis in 1987 were still more centralized and well-located than planned areas (50 versus 22 percent of all planned residential areas are within 10 kilometers of the city center). The centralized location of informal settlements is frequently found in many other third-world cities [Turner, 1976]. The poor prefer to trade off security of land tenure and housing quality for proximity to work. This world-wide pattern, which apparently applies in Karachi as well, may suggest why the KDA has had difficulty developing low-cost housing developments in remote North Karachi Township and in Shah Latif Town. Also, as Nientied and van der Linden point out, most KDA plots are too expensive for low-income households, especially if they must spend considerable sums of money commuting from outlying areas [1990].

A tabulation of residential land development between 1970 and 1987 for both katchi abadis and planned areas by distance is presented in Table 3. Katchi abadis accounted for 33 percent of the total increase in all residential land area between 1970 and 1987. As the table and Figure 1 vividly illustrate, in the area from 10 to 15 kilometers from the center, katchi abadi development accounted for nearly 70 percent of the land conversion activity. Market-driven katchi abadis have tended to locate closer to the city center, near jobs. Planned areas on the other hand are in more remote locations, reflecting the KDA's policy of assembling large parcels of undeveloped land.

PHYSICAL CHARACTERISTICS OF THE HOUSING STOCK

The physical characteristics of katchi abadi housing is considerably different from formal-sector housing located in planned areas, reflecting the diminished ability to pay of the lower-income households. Table 4 presents tabulations of the physical conditions of housing units for katchi abadi, planned areas, and combined areas for Karachi in 1988. As the table reveals, the size of katchi abadi units in terms of the number of rooms and plot size is considerably below levels found in planned areas. There are 3.2 rooms in the average planned-area house as compared to 2.2 rooms in katchi abadi areas. Planned area plots are approximately 50 percent larger than those in katchi abadi areas (154.2 versus 100.7 square yards).

Because of the small size of units, there is considerable overcrowding in katchi abadis -- 3.9 persons per room, significantly higher than for planned areas (2.7 persons per room). Another reason for this acute overcrowding is the fact that households in Pakistan tend to be quite large -- averaging 7.3 persons in katchi abadi and 7.0 in planned areas. Unfortunately, overcrowding in katchi abadis is increasing, as rising construction costs forces families to build smaller units. Houses built between 1968 and 1972 average 2.5 rooms, whereas new units have 2.2 rooms on average.

Most of the housing in Karachi (90 percent in katchi abadis and 70 percent in planned areas) is in the form of single detached units. In the katchi abadis, about 10 percent of households surveyed lived in small two- to four-unit buildings. In planned areas, in contrast, the rate doubles to 21 percent, and the remaining 9 percent of planned area households live in apartment blocks. The high level of single-family units in the katchi abadis reflects the tendency of households to gradually self-construct their units on small plots. The construction materials used in the katchi abadis is quite good -- plastered concrete

block walls were found in 57 percent of the surveyed units. The other 43 percent of the units had walls consisting of unplastered concrete block or mud and stone. In contrast, in planned areas 87 percent of the units had walls of plastered concrete block. Roofing materials is apparently where katchi abadi dwellers economize. Only 19 percent of the units had reinforced concrete ceilings (RCC) (the rest relied on wood beams and tin or thatch). In planned areas, 70 percent of the units had RCC roofs. Although, when first built, katchi abadi units are far below the quality standards of formal-sector housing, over time they are upgraded and improved. There is evidence of incumbent upgrading, and it is consistent with patterns reported in other international surveys [Strassmann, 1983].

Overall surveys of Karachi's housing quality indicate that conditions are gradually improving. Table 5 presents housing quality indicators for 1974, 1981, 1985, and 1988, and reveals that infrastructure delivery is substantially improving. The percentage of housing units with direct water connections has increased from 36 percent in 1974 to 67 percent in 1988. The number of houses with flush-latrines or higher-quality systems has increased from 34 percent in 1974 to 50 percent in 1985. The distribution of electricity is clearly widespread, now reaching 85 percent of Karachi's housing units. Gas connections have proliferated, with more than 50 percent of the housing units now having hookups. Thus, in broad terms, housing services are improving.⁵

But there are enormous disparities in levels of service provided to low-income katchi abadis. Whether you have access to water, electric, and gas depends on where you live. Only 50, 76, and 35 percent of katchi abadi houses surveyed have piped water, electrical power, and gas connections. In contrast, 84, 95, and 75 percent of surveyed houses in planned areas have such connections.

Fortunately, as illustrated in Table 6, the disparity of service delivery declines with the age of the housing, as katchi abadi areas are gradually

provided with water, electricity, and gas. The probability that a twenty-year-old house is provided with electricity is 40 percent greater than for a katchi abadi house less than six years old. For gas service, the probability is 56 percent greater. For water, the increase in the probability of service provision is quite low, 6 percent, reflecting the high costs of providing trunk water infrastructure. Again, the gradual upgrading of infrastructure is consistent with evidence from other countries [Campbell, 1987].

HOUSEHOLD INCOMES IN KATCHI ABADI AND PLANNED AREAS

The most important distinction between informal katchi abadis and planned areas is that the income of residents of these two areas is vastly different, illustrating the wide access low-income households have to katchi abadis. Table 7 presents key household differences between katchi abadi and planned areas, as well as providing estimates of the overall averages for metropolitan Karachi. As the table illustrates, katchi abadi households are larger, have less workers, generate less income, and spend less than households living in planned areas. All of the differences between the two population groups are statistically significant at the .0001 level. The most important difference is that average monthly income of katchi abadi households is less than 60 percent of the planned areas' average household. Katchi abadi households devote a larger portion of income to consumption expenditures than their planned area counterparts, 85 versus 80 percent -- reflecting more economic pressure and less capacity to mobilize savings for housing or income-generating investment. These differences in income play a critical role in shaping a household's housing choices.

ACQUISITION CHARACTERISTICS OF OCCUPANTS IN KATCHI ABADI AND PLANNED AREAS

Homeownership predominates in even the poorest neighborhoods of Karachi: 87 percent of the katchi abadi dwellers and 88 percent of the residents of

planned areas own their own home (Table 8). Of those katchi abadi dwellers owning their home, 65 percent constructed, 22 percent purchased, and the remaining 13 percent inherited their home. For the residents of planned areas, 60 percent constructed, 29 percent purchased, and 11 percent inherited their homes.

In both the katchi abadis and planned areas, the high rates of self-construction reflect a lack of merchant-built, speculative housing and a paucity of financing for home purchase [Durand-Lasserve, 1990]. Only in the case of apartment flats and some bungalow projects are developers building and selling units for purchase.

For those households purchasing a completed unit (not building one themselves), over the past five years the average purchase price of housing was Rs. 59,398 (in 1988 Rs.). The variation in price between katchi abadis and planned areas is considerable. The average katchi abadi price was Rs. 22,912 -- for planned areas it was Rs. 91,316. This vast four-times difference reflects the considerable differential in housing quality: katchi abadi units are smaller (2.2 versus 3.2 rooms), are sited on smaller plots (100.7 versus 154.2 square yards), are far less likely to have a RCC roof (18.7 percent versus 69.9 percent), and have far less access to services such as water and gas (Table 4).

For purchasers in both katchi abadis and planned areas, savings played a key role in financing the house. The average amount of savings applied to purchases was Rs. 26,256 overall -- Rs. 7,434 for katchi abadis, and Rs. 42,626 for planned-area housing. In other words, savings accounted for 44 percent of the purchase price overall -- 32 and 47 percent for katchi abadis and planned-area housing respectively.

As expected, loans play a limited role in supporting the purchase of housing. Overall, loans account for about 7 percent of the purchase price. They play a more important role in financing katchi abadi housing, representing

14 percent of the average purchase price. In planned areas, loans account for 6 percent of the price.

As in most Middle-Eastern nations, remittances from overseas play a role in supporting the purchase of housing. According to the AERC survey, remittances are as important as loans for the purchase of housing in both planned and katchi abadi areas (accounting for 9 percent).

In contrast, asset sales and gifts are an important source of capital for home purchase, including jewelry, gold, and gifts and grants from relatives, and account for 45, 62, and 60 percent of the purchase price of houses in katchi abadis, planned areas, and all areas respectively.

Reflecting the lack of adequate credit, most households do not leverage themselves much. As a percent of income, housing represents 1.67 times annual income. In planned areas the ratio is about two times. In katchi abadis it is lower -- 86 percent. This significant difference is due to the diminished capacity of the low-income to mobilize savings for housing purchase and reflects the fact that many low-income households have erratic income levels and do not want to place too much of their resources in an illiquid asset such as housing.

HOUSING CONDITIONS OF LOW-INCOME HOUSEHOLDS

In this section, the housing conditions of low-income households are assessed. For purposes of the analysis, low-income households have been defined according to the overall income distribution of Karachi households; those households earning at or below the 40th percentile of the income distribution are defined as low-income. The following tables present statistics for very-low-income households in the bottom 20th, and low-income households in the 21st to 40th percentile, of the income distribution.

The data presented in Tables 9, 10, and 11 cover both katchi abadis and planned areas. However, it is important to point out that the actual incidence of poverty is not evenly spread between the two areas. Seventy percent of the very-low-income households and 64 percent of low-income households reside in katchi abadis, far greater than the 50 percent of all Karachi households which dwell in katchi abadis.

These households are extremely hard-pressed. As Table 9 illustrates, the average income for the bottom and second income quintile ranges from Rs. 945 to 1,542 and Rs. 987 to 1,567, for katchi abadis and planned areas respectively. While households are smaller, the per capita level of income for these low-income households is about one-half of the corresponding amount for all katchi abadi households.

The physical quality of low-income housing is significantly below the overall levels found in the katchi abadis. As Table 10 illustrates, the units and plot sizes are much smaller. Only 10 percent of katchi abadi households earning at or below the 20th income percentile have an RCC roof. Only 45 percent have plastered concrete-block walls. Only 36 percent have a water tap, and 25 percent have gas -- levels of service well below the overall averages for katchi abadis. On the other hand, electric service seems easy to get, as very-low-income groups have the same access as all katchi abadi residents. This lowest-income group is more distant from employment centers than other, more wealthy, katchi abadi dwellers. They average 38 minutes of travel to work, whereas the overall average for all katchi abadi residents is 35 minutes.

Housing conditions, distance to place of work, and water, electric, and gas service improve dramatically for low-income households earning in the second (21 to 40th) income quintile. As Table 10 indicates, the incidence of RCC roofs, plastered concrete-block walls, and the availability of water, electric, and gas

are at levels equal to all katchi abadis. For the low-income households in planned areas, housing conditions are not appreciably different from the overall levels of housing quality and service delivery found in the planned areas.

As Table 11 illustrates, low-income katchi abadi households don't appear more likely to construct their homes than other residents of katchi abadis. They are somewhat more likely to rent their homes, however. If they do rent, their monthly payment averages between Rs. 273 and 331, for lowest and next-lowest income quintile. Households at the bottom of the income distribution pay 27 percent of their monthly income for rent. Those in the second quintile devote 22 percent.

Households in planned areas spend more. The lowest quintile lays out 34 percent of income and the second quintile 28 percent. Clearly it is more of a burden for very-low- and low-income households to rent low-cost housing in planned areas.

Very-low-income households purchasing housing in katchi abadis spend an average of Rs. 15,623, about 70 percent of what is spent on average in these areas. Households earning in the second income quintile spend nearly 40 percent more, or Rs. 21,477. The bottom and next income quintile spend 1.4 and 1.2 times their annual household income to purchase housing. These ratios are considerably higher than the overall rates for katchi abadi households, suggesting that lower-income households must devote a larger portion of their income to housing.

In the planned areas, very-low-income households must put more of their income into housing. They spend Rs. 24,649 for housing, representing 2.1 times income. The second income quintile spend Rs. 31,644, or 1.7 times annual income. These rates are more consistent with overall patterns for planned-area households.

The information presented in Table 11 regarding the amount of savings and loans used to purchase housing reveals a similar pattern between the bottom income group and the overall averages for katchi abadi housing. For the second income quintile for katchi abadi households, and for the low-income planned-area households, considerably less savings is used for house purchase. Given the relatively low levels of loans used, this suggests that asset sales, grants, and gifts play an extremely important role in low-income housing finance.

The three tables presented in this section illustrate that housing conditions for the bottom 20 percent of the income distribution are significantly below other higher-income groups living in katchi abadis. Units are more likely to be overcrowded, constructed of a lower quality using less permanent materials, and have less access to water and gas service. Very-low-income households are forced to live farther from their place of employment, and they must devote a larger portion of their meager income to rent or purchase houses. Overall, these groups suffer severe economic and housing hardships, and is a pattern found in other countries such as in Haiti [Fass, 1987]. However, unlike Haiti and India, in Karachi even those at the bottom have found a way to gain access to shelter.

PUTTING THE SURVEY OF HOUSING CONDITIONS INTO PERSPECTIVE

This paper has compared and contrasted Karachi's two alternative housing delivery systems: informal katchi abadis and formal-sector planned area housing estates. The results of the comparison are striking: in katchi abadis, housing is smaller, more crowded, built in a less permanent manner, and provided with far less services than planned areas. On the other hand, this housing is highly affordable: the average katchi abadi house costs one-fourth (Rs. 23,000) what the average planned area house does (Rs. 91,000). Katchi abadi dwellers

devote far less of their income to housing (on average, houses cost 86 percent of annual income) than do their counterparts in planned areas (on average, houses cost 167 percent of annual income). The informal delivery of housing is a viable approach to housing delivery and, as a comparison of Tables 4 and 10 reveals, it works well providing housing that is affordable to those earning down to the 20th income percentile. For very-low-income households, conditions are considerably worse as they have little resources for housing consumption.

In contrast, the planned formal sector provides much higher-quality housing, but it does so at much higher prices. The enormous differential between formal- and informal-provided housing raises fundamental policy questions regarding the appropriateness of governmental programs aimed at expanding formal housing production to assist the poor. While well-intentioned, it has been and will continue to be a failure. It is simply too expensive. For example, the least expensive housing project now on the market is Surjani Town. There, the lowest-cost house sells for approximately Rs. 42,400, about double the average of informally provided housing built in katchi abadis [Maymac Housing Services, Ltd., 1988].

Given the clear inability of the KDA and other formal-sector institutions to provide affordable housing, policymakers should consider adopting a new alternative two-pronged strategy of regularizing and expanding informal-housing production and upgrading existing katchi abadi areas.

The regularization of the informal land and housing development process should concentrate on ameliorating the negative effects of informal shelter delivery and enhancing the capacity of the sector to provide affordable housing. This would center on providing title to land, ensuring that the layouts of plots is sufficiently organized to allow for the provision of essential services, and ensuring that informal settlements are sited in areas which are adjacent to

existing or planned infrastructure and away from environmentally sensitive areas. Such approaches have been adopted in Indonesia [Clarke, 1985].⁶

Regularizing the informal land and housing development process will rechannel new urban development, but it will not address older existing areas. Therefore, a collateral policy initiative is to upgrade existing katchi abadis. Table 12 provides estimates of upgrading requirements in Karachi for water, electric, and gas service. As is quite clear, the bulk of improvements in upgrading is required in the katchi abadis. Obviously, such investments will be expensive in the aggregate. However, some form of cost recovery could easily be introduced. The cost of water-service provision illustrates the potential feasibility of cost recovery. According to estimates of the Karachi Municipal Corporation, the per capita cost of water provision to katchi abadis is approximately Rs. 920 (in 1988 Rs.). Thus, if all of the households lacking water in the katchi abadis were provided with service, the total cost of upgrading would be on the order of Rs. 1.8 billion. At 15 percent interest, amortized over 10 years, the monthly charge per household works out to be Rs. 107. This is less than 5 percent of the average katchi abadi household income.

The katchi abadi housing delivery system may not reach the high-quality levels found in the planned areas, but it is far more efficient and demand-responsive. Government policies to regularize and expand new informal settlement activities and upgrade existing areas could be highly effective for responding to Karachi's housing crisis.

NOTES

¹The author would like to thank Raymond Struyk of the Urban Institute and an anonymous reviewer for comments on a previous version of this paper.

²At the time of this study in 1988, the Pakistani Rupee traded at 18.1 to the U.S. Dollar.

³This price assumes that 25 percent of income goes to mortgage payments for a 15-year mortgage, with an effective interest rate of 10 percent per year.

⁴The author would like to thank Dr. Hafiz Pasha, Director of the Applied Economic Research Center, for his cooperation and assistance. The survey was conducted as part of the UNCHS- and UNDP-funded project to prepare the Karachi Master Plan.

⁵However, these gross measures of service mask the actual levels of performance. The city's electrical generating system is at capacity and quite susceptible to breakdowns which result in frequent power-outages. During the peak-demand summer months, daily power outages covering most of Karachi are routine. The water system is vastly overextended, and most neighborhoods receive water for less than six hours per day during the summer. Water quality is far from acceptable, as the infiltration of sewerage is widespread. These problems affect both planned and katchi abadis.

⁶A caution needs to be raised: a potential problem posed by this strategy is that initiatives to make the informal sector regular may undermine the very aspects of the delivery system which are so desirable -- its low costs, flexibility, and incremental nature. What will happen to the informal housing sector if land development and building control regulations are substantially lowered? Will our recommendations "kill off" informal settlements by subjecting them to intense competition from a deregulated formal sector? Will initiatives to provide informal settlements with title instruments drive up land values and reduce affordability? Can guided land development operate without raising land costs and lowering affordability? This is an area requiring more research and experimentation.

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Table 1

Karachi's Population Growth, 1838-1988

<u>Year</u>	<u>Population</u>
1838	14,000
1870	56,000
1890	98,000
1911	152,000
1921	217,000
1931	301,000
1941	436,000
1951	1,290,000
1961	2,140,000
1972	3,302,820
1981	4,726,647
1987	7,443,663

SOURCES: Salim Chishti and Shakila Rehman, "Population Dynamics of Karachi," Draft Working Paper, Master Plan and Environmental Control Department, KDA, 1988; Karachi Metropolitan Transportation Study, 1988.

Table 2

Distribution of Katchi Abadi Residential Areas,
1970 and 1987, by Distance to CBD

<u>Distance to CBD, Km</u>	<u>1970 Acres</u>	<u>Percent Distance</u>	<u>1987</u>	<u>Percent Distance</u>	<u>Change 1970-87</u>	<u>Percent Distance</u>
0-5	2,700	41.5	2,800	21.5	100	1.5
5.1	3,100	47.7	3,800	29.2	700	10.8
10.1-15	400	6.2	5,100	39.2	4,700	72.3
Over 15	300	4.6	1,300	10.2	1,000	15.4
Total	6,500	100.0	13,000	100.0	6,500	100.0

SOURCE: J. van der Linden, "Low-Income Housing Markets in Karachi: 1988 Conspectus," Tech Note 20; UNCHS Karachi Master Plan 1986-2000, Strengthening of Planning Process, PADCO, August 1988.

Table 3

Residential Land Conversion.
Katchi Abadi and Planned Areas 1970-1987

<u>Distance to CBD, Km</u>	<u>Residential Land Conversion, Acres</u>		<u>Katchi Abadis as a percent of Total</u>
	<u>1970-87 Katchi Abadis</u>	<u>1970-87 Planned Areas</u>	
0-5	100	641	13.5
5.1-10	700	2,716	20.5
10.1-15	4,700	2,219	67.9
Over 15	1,000	7,604	11.6
Total	6,500	13,180	33.0

SOURCE: Karachi Land and Housing Market Study, 1989.

Table 4

Physical Characteristics of Housing in Katchi Abadis and Planned Areas.
1988

	<u>Katchi</u> <u>Abadis</u>	<u>Planned</u> <u>Areas</u>	<u>All</u> <u>Areas</u>
Number of rooms in house	2.2	3.2	2.7*
Persons/room	3.9	2.7	3.3
Age of house (years)	14.9	16.3	15.6
Plot size (sq. yards)	100.7	154.2	126.9*
Percent of units single-family detached	88.2	69.6	79.0*
Percent of units one story	90.4	69.5	80.1*
Percent of houses with RCC ⁺ roof	18.7	69.9	43.8*
Percent of houses with concrete/plastered walls	57.4	86.6	71.7*
Percent of houses with water	50.3	83.6	66.6*
Percent of houses with electric	75.8	94.8	85.1*
Percent of houses with gas	35.1	75.3	54.8*
Average distance to work (minutes one-way)	34.5	30.8	32.7*

*Differences statistically significant at the .0001 level.

+Reinforced Concrete Ceiling.

SOURCE: Tabulations of AERC Survey, 1989.

Table 5

Karachi Housing Infrastructure Quality Indicators.
1974-1988

<u>Indicator</u>	<u>1974 Survey</u>	<u>1981 Census</u>	<u>1985 Estimate</u>	<u>1988 Survey</u>
Percent of units with water connection	36	46	50	67
Percent of units with flush latrines*	34	48	50	n.a.
Percent of units with electric connections	52	68	70	85
Percent of units with gas connections	16	36	38	55

* This refers to units hooked up to a cesspit, not necessarily to the sewerage treatment system.

SOURCES: Master Plan and Environmental Control Department, KDA, 1985.
AERC Survey, 1988.

Table 6

Relationship Between Age of House and Housing Quality
and Level of Services -- Katchi Abadis

<u>Quality Measure</u>	<u>Age of House</u>			
	<u>0-5</u>	<u>6-10</u>	<u>11-15</u>	<u>16-20</u>
Percent with water	48.1	48.7	57.4	50.9
Percent with electric	63.0	71.5	81.2	87.5
Percent with gas	27.7	28.2	39.3	43.1

SOURCE: Tabulations of AERC Survey, 1989.

Table 7

Characteristics of Households in Katchi Abadis and Planned Areas,
1988

	<u>Katchi</u> <u>Abadis</u>	<u>Planned</u> <u>Areas</u>	<u>All</u> <u>Areas</u>
Household size	7.3	7.0	7.2*
Workers per household	1.4	1.6	1.5*
Average household income (Rs./month)	2,218	3,759	2,969*
Average household expenditures (Rs./month)	1,878	3,005	2,432*

*Differences statistically significant at the .0001 level.

Table 8

Acquisition Characteristics of Katchi Abadis and Planned Area Houses,
1988

	<u>Katchi</u> <u>Abadis</u>	<u>Planned</u> <u>Area</u>	<u>All</u> <u>Areas</u>
Percent of units owner-constructed	64.5	59.5	62.2
Percent of units owner-purchased	22.0	28.8	25.1
Percent of units rented	13.5	11.7	12.7
Average house purchase price ^a (1988 Rs.)	22,912	91,316	59,398*
Savings used to purchase house ^a (1988 Rs.)	7,434	42,626	26,255*
Loan amount used to purchase house ^a (1988 Rs.)	3,121	5,425	4,348*
Average plot price, owner-constructed ^b (1988 Rs.)	1,488	4,288	2,847*

^a For housing units purchased since 1983.

^b For plots purchased since 1983.

*Differences statistically significant at the .0001 level.

SOURCE: Tabulations of AERC Survey, 1989.

Table 9

Characteristics of Low-Income Households
in Katchi Abadis and Planned Areas, 1988

	<u>Katchi Abadis</u>		<u>Planned Areas</u>	
	<u>Bottom</u> <u>20 Percent*</u>	<u>2nd</u> <u>20 Percent</u>	<u>Bottom</u> <u>20 Percent*</u>	<u>2nd</u> <u>20 Percent</u>
Household size	5.8	6.7	5.5	6.4
Workers per household	0.9	1.2	0.8	1.1
Average household income (Rs./month)	945	1,542	987	1,567
Average household expenditures (Rs./month)	1,017	1,489	1,033	1,526

*Lowest income quintile.

SOURCE: Tabulations of AERC Survey, 1989.

Table 10

Physical Characteristics of Housing Occupied by Low-Income Households
in Katchi Abadis and Planned Areas, 1988

	<u>Katchi Abadis</u>		<u>Planned Areas</u>	
	<u>Bottom</u> 20 <u>Percent*</u>	<u>2nd</u> 20 <u>Percent</u>	<u>Bottom</u> 20 <u>Percent*</u>	<u>2nd</u> 20 <u>Percent</u>
Number of rooms in house	1.8	2.0	2.2	2.4
Persons/room	3.9	4.0	3.0	3.2
Age of house (years)	12.9	13.9	17.1	17.4
Plot size (sq. yards)	90.3	95.8	101.7	105.7
Percent of units single-family detached	86.3	85.8	71.9	76.5
Percent of units one story	94.1	92.9	88.7	87.8
Percent of houses with RCC roof	10.4	18.7	39.2	50.6
Percent of houses with concrete/plastered walls	44.9	58.5	68.4	78.7
Percent of houses with water	36.1	49.2	66.5	77.2
Percent of houses with electric	66.5	77.6	84.6	92.9
Percent of houses with gas	24.9	34.3	52.4	62.6
Average distance to work (minutes one-way)	38.3	33.1	28.1	30.7

*Lowest income quintile.

SOURCE: Tabulations of AERC Survey, 1989.

Table 11

Acquisition Characteristics of Housing Occupied by Low-Income Households
in Katchi Abadis and Planned Areas,
1988

	<u>Katchi Abadis</u>		<u>Planned Areas</u>	
	<u>Bottom</u> 20 <u>Percent*</u>	<u>2nd</u> 20 <u>Percent</u>	<u>Bottom</u> 20 <u>Percent*</u>	<u>2nd</u> 20 <u>Percent</u>
Percent of units owner-constructed	64.9	65.9	55.9	60.2
Percent of units owner-purchased	19.8	23.5	24.8	29.1
Percent of units rented	15.3	10.6	19.3	10.7
<u>1988 Rs:</u>				
Average monthly rent	273	331	347	434
Average house purchase price ^a	15,623	21,477	24,649	31,644
Savings used to purchase house ^a	4,913	4,881	4,182	7,456
Loan amount used to purchase house ^a	2,262	3,669	0	1,992
Average plot price, owner-constructed ^b	836	1,121	728	2,173

*Lowest income quintile.

^aFor housing units purchased since 1983.

^bFor plots purchased since 1983.

SOURCE: Tabulations of AERC Survey, 1989.

Table 12

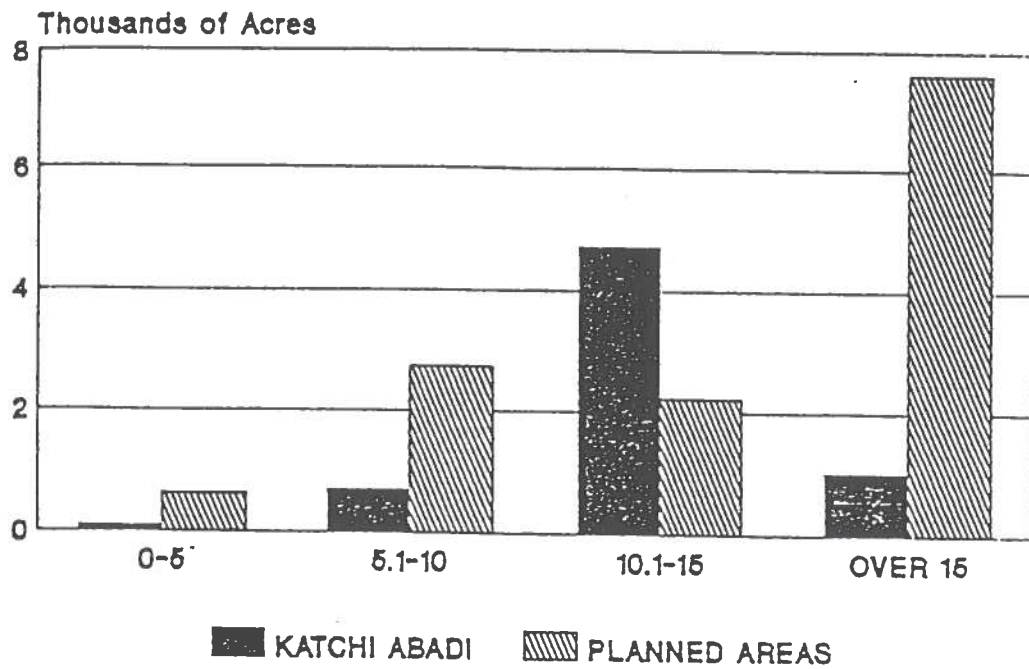
Estimates of Units Still Lacking Adequate Infrastructure,
by Katchi Abadis and Planned Areas, 1988

	<u>Katchi</u> <u>Abadis</u>	<u>Planned</u> <u>Areas</u>	<u>All</u> <u>Areas</u>
Housing units without water tap	267,061	84,829	351,890
Housing units without electric	130,037	26,897	156,934
Housing units without gas	348,737	127,760	476,497

SOURCES: KDA Master Plan and Environmental Control Department, and Tabulations of the AERC Survey, 1989.

FIGURE 1

RESIDENTIAL LAND CONVERSION, 1970-1987
KATCHI ABADI AND PLANNED AREAS



KARACHI LAND & HOUSING MARKET STUDY, '89

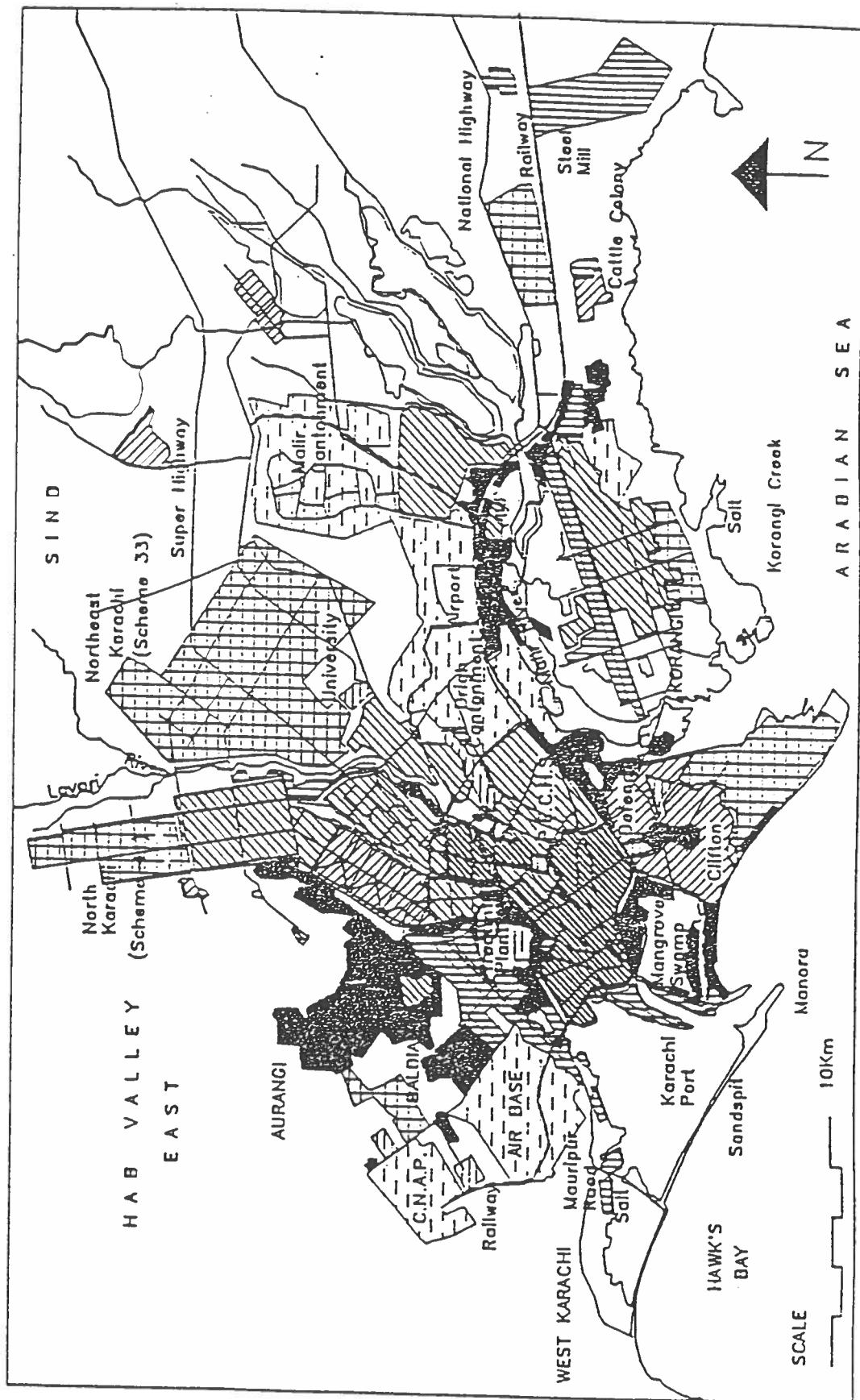
KARACHI, PAKISTAN

KARACHI, PAKISTAN

KARACHI		LAND USE		AREA (HA)	%	AREA (HA)	%	AREA (HA)	%
	KATCHI ABADI	5722	5.65		INDUSTRIES	5370	5.30		AGRICULTURE
	HIGH DENSITY	2740	2.71		DEVELOPED LAND	9965	9.84		OTHER
	MEDIUM DENSITY	8607	8.50		SERVICE/UTIL. GOVERNMT/INST.	1009	1.00		
	LOW DENSITY	3584	3.54		DEFENSE	9125	9.01		
								TOTAL	
								URBAN AREA	101256 100.00

Map derived from "SPOT"
satellite image of Jan. 1987

Map derived from "SPOT" satellite image of Jan. 1991



Map Traced from Satellite Image Panchromatic Photographic Print