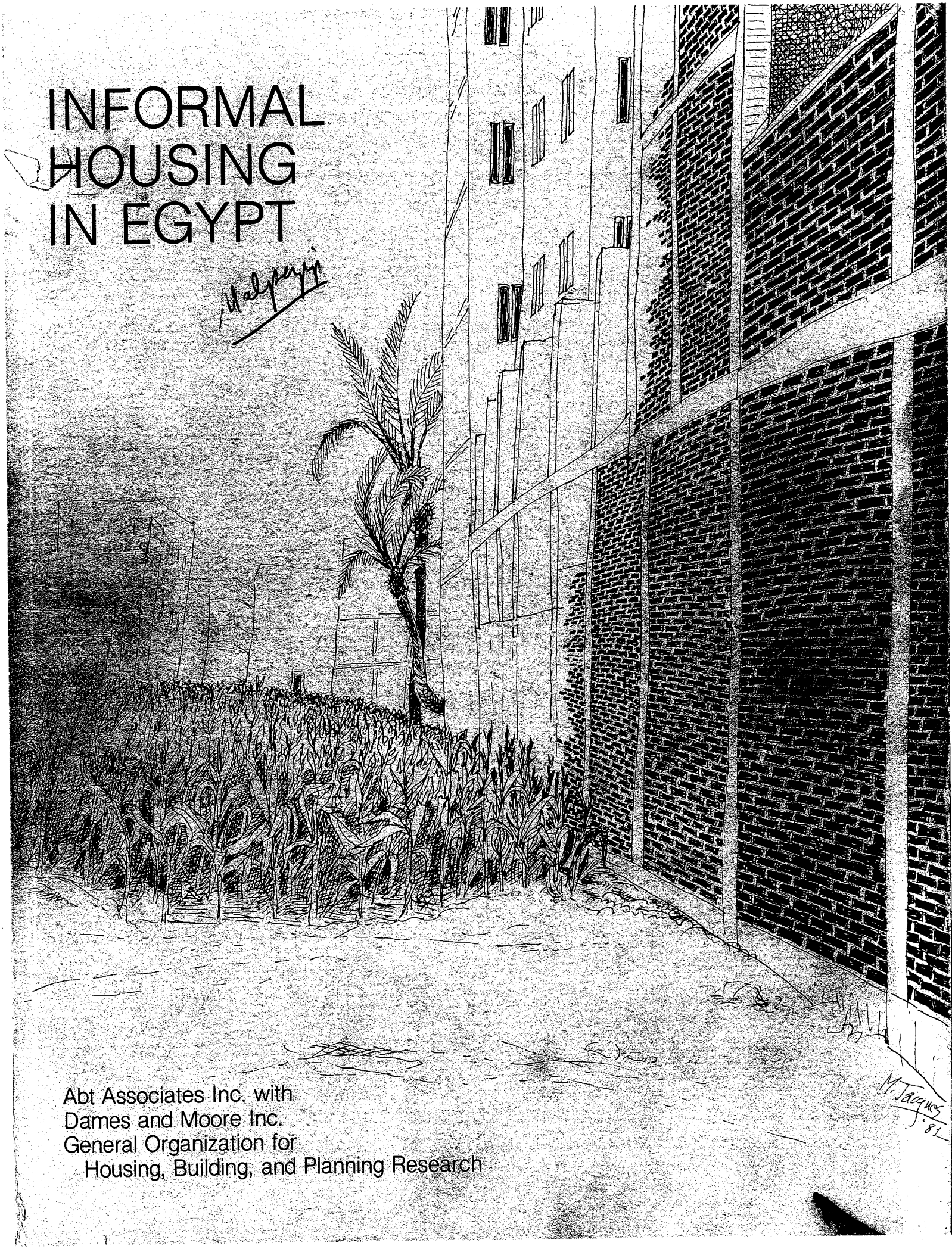
INFORMAL HOUSING IN EGYPT



Abt Associates Inc. with
Dames and Moore Inc.
General Organization for
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ABSTRACT

This is a study of informal housing in Egypt sponsored by the U.S. Agency for International Development. Informal housing is illegal housing, generally built in contravention of either zoning laws or building codes and hence unregistered. Objectives of the study were to document the role of the informal sector in quantitative and qualitative terms; to examine characteristics of the individuals who supply and occupy it, and the processes governing its supply and demand; to evaluate its major characteristics in terms of housing and neighborhood attributes and access to utilities and infrastructure; and to examine the policy implications of the findings concerning informal housing. The study focuses on Cairo and Beni Suef. Data collected for the survey included an update of the 1976 census in selected areas of Cairo and Beni Suef (a "scanning survey" of some 17,500 dwellings in the two cities combined), detailed occupant surveys (500 in Cairo and 250 in Beni Suef), and over 200 in-depth interviews with supply-side participants in the housing market.

ACKNOWLEDGEMENTS

This study was a collaborative effort of staff and consultants of three organizations--Abt Associates Inc., Dames and Moore Inc., and the General Organization for Housing, Building, and Planning Research (GOHBPR). In addition, the Arab Republic of Egypt Central Agency for Public Mobilization and Statistics (CAPMAS) played an important role in sampling, survey design, and data collection. Activities undertaken in this study were reviewed by a steering committee composed of representatives from the U.S. Agency for International Development, the A.R.E. General Office for Physical Planning, and the A.R.E. Advisory Committee for Reconstruction.

The data collection for the study was undertaken in an extraordinarily short time period, necessitating unusual organizational responsiveness and coordination. That it all worked as well as it did owes a good deal to the efforts of key members of GOHBPR, Dr. Mohamed Ramez and Dr. Hamed Fahmy; and of CAPMAS, its Director, General Haluda, and directors of key participating offices, 'Aud Mukhtar Ibrahim, Rida Sayid Ibrahim, and Ahmed Sa'ad Sheikh. Other members of CAPMAS who played important roles include Mme. Nabila Ahmed Zaki, head of the CAPMAS sampling unit, who drew samples for two of the study's surveys; and Ahmed Shawqi Khallaf and Ahmad al-Baz Mohamed who aided immeasurably in designing survey instruments and coordinating training and data collection efforts.

Special thanks are due GOHBPR interviewers for the in-depth surveys --Suzette Aziz, Dr. Atef Dabbur, Aza Eleish, Dr. Nasamat Abdel Kader, Sherif Kamel, Sherifa Medwar, Hisham Sameh, and Hamdi Shaheen. Suzette Aziz and Dr. Leila Muharram contributed significantly to managing the flow of information from various surveys. Field supervisors for the occupant survey did an admirable job of keeping the field data collection effort on schedule and well-coordinated--Raga'a Ali as-Sayid, Mohamed al-Gowhari, Lamya Hosny, Adib Mena Mikhael, Nura Fathy Abdul Rahman, Mohamed Ibrahim Mohamed, Ahmad Salah, Maha Farid, and Mahmud 'Abd al-Mawgud.

Helpful comments were received from steering committee members throughout the study--Engineer Soliman Nasr Habib, Mohamed Shalata, Eglal Oghia, and Penny Hong, and from the Director of the General Office for Physical Planning, Michel Fouad. Useful comments on the draft final report were received by Peter Amato, George Hazel, Eglal Oghia, and David Painter of USAID.

Expatriate study team members all made important contributions to the study--especially Dr. Safia Mohsen, Dr. Joseph Friedman, Aziz Fathy, Dr. Clay Wescott, and Donna S. Wirt. The efforts of Dames and Moore staff and consultants were splendidly integrated by the Dames and Moore Project Director, Harry Garnett, making collaboration on report writing easy and satisfying.

Ms. Judith Katz directed the field operations for data collection efforts, supervising recruitment of interviewers, training, field procedures and logistics, and data management. Her contribution to the study for these and other activities is impressive and deserves special recognition.

Thanks are due Ann Cjakowski, Jacquie Pierce and Pam Ciulla for typing and producing various drafts of the report, to Linda Clement who coordinated graphics production, and to Michael Jacques, who did the cover drawing based on a photograph taken by Aziz Fathy. Irma Rivera-Veve and Judy Poole were continually responsive in a variety of data processing and analysis tasks.

Principal authors of the report were Stephen Mayo and Joseph Friedman of Abt Associates and Harry Garnett, Safia Mohsen, Clay Wescott, and Donna Wirt of Dames and Moore.

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SUMMARY

Housing is acknowledged as a pressing issue in Egypt, having been noted in a major policy address by President Hosny Mubbarak during November 1981 as one of seven key areas of domestic policy concern to be addressed by his administration.[1] It is widely perceived, and the President reported, that a significant housing shortage exists and that the need to accommodate population growth, replace poor quality housing, and mitigate the perceived current shortfall will tax the capacity of the housing industry for the next decade or more. Policy actions are currently underway or being contemplated which would stimulate housing production and reduce some elements of housing cost. Simultaneously, external lending agencies have underway and are planning projects to address housing sector problems.

If efforts of these groups are to succeed, they must be rooted in an understanding of the current housing situation in Egypt and of the major factors responsible for influencing housing outcomes. At the center of Egypt's housing situation, though occupying a nebulous and poorly documented role, is the informal housing sector--the subject of this study.

Informal housing in Egypt is illegal housing, built in contravention of either zoning laws (generally laws forbidding residential construction on agricultural land) or building codes. Because informal housing exists outside the law, it also exists outside the formal process of land and building registration and, hence, outside of official statistics on housing production. Thus when information is presented on either current levels of housing production or the future capacity of the housing industry, informal housing is officially ignored. Yet at the same time, it is widely believed, though undocumented, that the informal housing sector provides a significant if not the dominant share of housing currently being produced. But if its quantitative contribution to housing production is largely unknown, its qualitative aspects are even more obscure. Little, for example, is known concerning the structural soundness of informal housing, its access to basic infrastructure, or its costs. Naturally, therefore, little is known about how informal housing compares to formal private housing or to publicly supported housing.

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[1] See Al-Ahram Economist, November 23, 1981.

This is not just a study of informal housing, however. For to evaluate the advantages or disadvantages of policies designed to deal with the informal sector, one must know the features of other housing as well--those of the private "formal" or legal sector, and of the public sector. Consequently, whenever possible, the study has examined similarities and differences between informal housing and its public and private alternatives.

The geographical focus of the study is on Cairo, the largest Egyptian city, and Beni Suef, a governorate capital to the south of Cairo. The housing and land use problems in those two cities are typical of those in other Egyptian cities, with rapidly rising housing costs, perceived housing shortages, shortfalls in infrastructure, and conversion of agricultural land to urban uses. Thus the observations made in the study are of more general applicability than simply in the two cities under study.

The data utilized in the study are the products of a substantial field data collection effort, covering a wide range of sources. The 1976 census was, for example, updated through a "scanning survey" of some 13,000 dwellings in selected areas of Cairo and 4,500 dwellings in selected areas of Beui Suef. This provided information on recent changes in housing and infrastructure, and provided a sampling frame for 750 detailed household interviews (an "occupant survey") designed to provide information on the occupants (their attitudes, preferences, and demographic characteristics) and on their housing and neighborhoods (physical characteristics, access to utilities and infrastructure, and housing cost elements). In the case of both the scanning and occupant surveys, sampling techniques were designed to permit generalization to the city as a whole. Finally, data were collected in a series of over 200 in-depth interviews from persons involved in or knowledgeable about processes of housing and infrastructure supply. Topics covered included inputs to the housing production process such as land, labor, materials, and finance; the subdivision process; the role of the informal sector; and policy issues.

Among the major findings of the study are the following:

1. The bulk of housing currently being supplied in Egypt is informal housing.

   Of units built between 1970 and 1981, 84 percent in Cairo and 91 percent in Beni Suef were estimated to have been informal. These estimates accord remarkably well with those of a recent World Bank/GOHBPR study of the construction industry in Egypt which indicates (when adjusted)

that of units built between 1966 and 1976, perhaps 81 percent of urban and 89 percent of rural units were informal. It is significant that altogether different techniques were used in estimating informal building activitiy in this study and in the World Bank/GOHBPR study, lending credence to the results of each.

2. The quantitative contribution of the informal sector has been essential in maintaining parity between increases in population and increases in the housing stock.

   In Beni Suef, the housing stock has recently grown (1976-81) at about the rate of population; in Cairo, housing has grown even more rapidly than population. In each city these trends represent the continuation of housing and population trends observed between the 1966 and 1976 censuses. In each case, had it not been for the contribution of the informal sector, substantial housing shortfalls would have occurred. Instead, the housing stock has expanded not only at a rate high enough to accommodate new household formation and in-migration in each city, but also to accommodate some moves by established households simply changing their place of residence. In Cairo, the stock has recently expanded to such a degree that a vacancy rate of 5.5 percent of the occupied housing stock has been created, the majority of which is concentrated in predominately informal areas. Much of this expansion has come from vertical expansion of existing buildings, a particular feature of the informal sector. Indeed as much as half to two-thirds of all housing units added to the Cairo housing stock between 1976 and 1981 was estimated to have come about through vertical expansion.

3. Informal housing is similar in many ways to formal housing.

   Building designs, building materials, and interior amenities such as kitchens, toilets, and number of rooms are similar for many informal and formal households. In Cairo this results in roughly comparable levels of expressed satisfaction with their dwelling units by formal and informal occupants.

4. Recently built informal housing is of better structural quality than average existing housing in both Cairo and Beni Suef.

   Much older housing in both cities is of poor structural quality. New informal housing, while not of comparable quality to new formal housing, is nevertheless of far better average quality than older existing housing. Consequently, recently built informal housing has, on average, added to the overall quality of the housing stock in each city.

5. Informal housing is significantly less well supplied with infrastructure than formal housing.

   Most informal households first obtain their land or building with no utility connections; most formal households obtain property with utility connections. Over time these differences often become smaller, at least in Cairo, but do not disappear. This process, however, is neither inexorable nor universal. In Beni Suef, for example, the level of infrastructure provision is much lower than in Cairo, with informal households even more poorly served. Differences in access to infrastructure between formal and informal households persist over time. Also, in some case study areas in Cairo, levels of infrastructure provision were found to be surprisingly low given city-wide levels of access. This suggests that political considerations affect decisions to extend infrastructure to informal areas, and that classifying an area as informal and thus not deserving of infrastructure lines may simply be a convenient rationale for rationing scarce infrastructure resources.

6. Attempts to control the informal sector have largely not succeeded.

   Denial of infrastructure to informal areas, fines, harassment by authorities, and occasional demolition of informal buildings have not kept the informal sector from expanding greatly. Few, if any, households express any anxiety about the consequences of having failed to register land or buildings, or having failed to obtain a building permit. Informal areas continue to expand into agricultural land at a high rate (although to the degree that vertical expansion occurs this rate is lower than it might otherwise be).

7. The informal sector appears to be affected by general market conditions in much the same way as does the formal sector.

   Building costs have increased in much the same way for informal and formal sector households. For example, when informal sector contractors were asked to recall recent changes in building costs, estimated rates of change were nearly identical to those of similar changes in "official" building costs indices. Even more importantly, land costs have increased as much in informal areas as in formal areas (once having controlled for characteristics of land such as access and neighborhood features, estimated land prices are no different for formal and informal areas).

8. Housing cost increases that have occurred recently have placed an extreme burden on households wishing to become owners or renters for the first time or to change their place of residence; low income, large families have been most seriously affected by these changes.

   Because of rent control, households that have not moved recently have had stable rents. On the other hand, households that have moved into a unit within the past several years are spending twice the fraction of their income on housing as average households that have not moved recently. For households in the lowest income quartile, this has meant a doubling from about 15 percent of income to about 30 percent of income. With food consumption requiring between 60 and 70 percent of income among the poor, this places low-income households in an extremely precarious financial position. Similarly, the food requirements of large families sometimes leave them with less disposable income for housing and other goods than is the case for smaller households; cost increases jeopardize their finances in a way similar to the case of low-income households.

9. The most significant factor responsible for housing cost increases in recent years has been increases in land costs, although costs of construction materials and labor have also increased rapidly.

   Land price increases at compound annual rates of from 25 to 40 percent have not been uncommon in Cairo during the past decade. A major factor in these cost increases appears to have been the rapid increase in remittances from workers abroad which are channeled into land and housing construction at a high rate. Costs of building materials and labor have increased less rapidly (at annual rates of from 15 to 20 percent) but have nevertheless outpaced general inflation. These trends have resulted in a situation in which typical land costs exceed costs of constructing a single modest dwelling unit in most areas of Cairo. Costs of construction per se are made up of from 10 to 30 percent in construction wages and the remainder materials and profit. Thus, reductions in land costs have the potential for achieving the greatest overall reductions in housing costs, followed by reductions in materials and labor costs respectively.

These findings provide a useful background against which to consider possible changes in policies, programs, and procedures to improve the lot of low-to-moderate income households and to support the general policy objectives of the Egyptian government.

Recommendations have been made in the study concerning (1) the planning process; (2) legal and administrative procedures; (3) housing finance; and (4) the building process. These are summarized below:

I. THE PLANNING PROCESS

A. Expand technical assistance in areas such as structure design and materials usage to residents of informal areas undergoing rapid building and modification. This could be done as a component of programs such as the USAID-sponsored Helwan Home Improvement Program or the forthcoming Neighborhood Urban Services Program.

A major objective of such a program would be to attempt to avoid potential problems of structural failure of higher density buildings now being created while at the same time making efficient use of building resources.

B. Provide utilities and other infrastructure to informal housing areas already in existence while at the same time pursuing land development and servicing in vacant peripheral areas.

Present patterns of distribution of urban infrastructure are highly inequitable, with informal areas of long standing less well serviced than formal areas, and rapidly developing informal areas poorly serviced. Extension of utilities and other infrastructure to informal areas would be not only fair but also, in many cases, economically efficient. The combination of density in informal areas, proximity to main line infrastructure, and expressed willingness to pay for services by informal area residents implies that infrastructure provision and upgrading could be cost-effective with reasonably good cost recovery prospects.

Land development and servicing of fringe areas is also desirable, however, as a complement to upgrading of existing areas. Such development can help to shape patterns of urban growth, produce relatively efficient land-use patterns, and exert downward pressure on urban land values.

Choices between upgrading and land development and servicing in new areas represent a delicate balance between questions of equity and efficiency, and current and future benefits and costs. Careful consideration should be given to these issues in any central planning activities.

C. Modify current infrastructure pricing and financing policies to achieve greater cost recovery and to permit possible surpluses so generated to be used for further utility and service extensions and upgrading of existing systems.

II. LEGAL AND ADMINISTRATIVE PROCEDURES

A. Undertake a policy of far more selective and vigorous enforcement of building code provisions.

Increasing enforcement against informal housing per se appears to be unwarranted in light of the implicit housing standards represented by such housing and the fact that it appears to adequately serve the needs of most of its occupants. Enforcement activities should instead be directed more toward avoiding catastrophic health and safety failures than is now the case. Enforcement should be targeted to areas and situations likely to present the greatest potential health and safety problems such as new high-rise buildings, "excessive" vertical additions to older buildings, and buildings in poorly drained or highly polluted areas.

B. Consider returning subdivision control in agricultural areas (particularly within city cordons) to the local level.

Often it appears that residential or other development on marginal (often uncultivatable) agricultural land is economically rational, a potential source of local revenue, and involves a decision best made at the local level. Present, highly centralized subdivision control is overly complex, expensive and, in consequence, ignored.

III. HOUSING FINANCE

Actions should be taken on both the supply and demand sides of the housing market to put downward pressure on housing and land prices, particularly for low and moderate income families.

A. Among demand-side policies that should be considered are those which make direct cash payments to target group households, providing housing "in-kind" with subsidized rents (though at a different standard than current public housing), providing serviced land at a subsidized price (perhaps with a cross-subsidy from higher income groups or commercial land users), providing subsidies under the rubric of a savings mobilization plan with subsidized interest rates and either bonus payments or the granting of housing mortagages or materials loans for the successful completion of a contract savings plan, or simply granting subsidized mortgages for land and/or buildings. Emphasis in all of these demand-side policies would be on more effectively targeting implicit or explicit housing subsidies to the most needy groups or in specific geographical areas than is now the case.

B. Supply side policies should aim at reducing prices of housing inputs and at expanding their supply. Domestic capacity for producing building materials should (as is, in fact, planned) be expanded. Technical training of construction workers should be increased. The supply of serviced land shold be increased by large-scale public or private land development.

C. Other measures should be considered to directly or indirectly control the price of land such as large-scale government land banking or expropriation of urban and fringe land and the use of tax and fiscal mechanisms for controlling land speculation and price levels. The experience of other countries with such policies should be explicitly examined for their relevance in Egypt.

D. Implementation and adequate funding of Article 15 of the 1981 Housing Law should be strongly encouraged. This provision of the law, which deals with housing cooperative funding of adding stories to existing buildings, completing unfinished buildings, or building "economy" housing would both provide an efficient solution to housing production problems and help to target needy groups.

IV. THE BUILDING PROCESS

A. Given the modest share of construction costs which go to construction wages, continued reliance on labor-intensive construction methods is warranted; in consequence, proposals for using capital-intensive pre-manufactured housing systems should be treated skeptically.

B. Materials subsidy and regulation policies should be reevaluated. Alternatives that should be considered include completely de-regulating government controlled materials or targeting materials subsidies to owners or builders willing to build in designated locations, according to standard designs, or willing to rent to stipulated target group households.

C. Public housing construction should be either de-emphasized or drastically modified in terms of its standards. There is little evidence that it is needed to fill quantitative housing goals and its high standards imply high subsidies, the likelihood of serving only a miniscule fraction of those eligible for such housing, and the virtual impossibility of cost recovery for most tenants.

D. Policies should be undertaken to specifically encourage the quantitative and qualitative expansion of the informal sector; e.g., planning and financing for provision and upgrading of infrastructure in informal areas and for the expansion or completion of informal housing buildings, and planning for the provision of infrastructure to new areas for sites and services type projects.

E. Policies should be undertaken to gradually modify the existing rent control law in order to stimulate private construction, particularly of rental housing. Provisions of the 1981 hoursing law which permit higher rates of return to landlords and payment of advance rents could be even more liberal in the returns they permit.

CHAPTER 1

Introduction

This is a study about informal housing in Egypt. Seen by some as a source of significant problems and others as a highly productive component of the housing sector, there is much that is not known about it, much that is not known about its relationship to other sectors of housing. The study is designed to provide systematic information about the role of the informal sector in the broader housing sector; the characteristics of those who supply it and occupy it; the characteristics of its dwellings and neighborhoods; and the processes governing its demand and supply. This is not just a study of informal housing, however. For to evaluate the advantages or disadvantages of policies designed to deal with the informal sector, one must know the features of other housing as well--those of the private "formal" or legal sector, and of the public sector. Consequently, whenever possible, the study examines similarities and differences between informal housing and its public and private alternatives.

The geographical focus of the study is on Cairo, the largest Egyptian city, and on Beni Suef, a governorate capital to the south of Cairo. The housing and land use problems in these two cities are typical of those in other Egyptian cities, with rapidly rising housing costs, perceived housing shortages, shortfalls in infrastructure, and conversion of agricultural land to urban uses. Thus the observations to be made in this study will be of more general applicability than simply in the two cities under study.

The data utilized in the study are the products of a substantial field data collection effort and cover a wide range of sources and topics. Three major data collection efforts were undertaken (these are described in more detail in Chapter 2). First was a "scanning survey," an enumeration of some 13,000 dwelling units in Cairo and 4,500 in Beni Suef, which provided information on general characteristics of buildings, including physical attributes and connections to infrastructure, and which also provided a sampling frame for a more detailed survey of the occupants of

those dwellings.[1] Second was a survey of 500 occupants of Greater Cairo housing units and 250 occupants of Beni Suef housing units. This occupant survey was approximately a three-quarter hour to one hour interview which obtained information on a wide variety of characteristics and attitudes of occupants; characteristics of their dwellings, buildings, and neighborhoods; and information concerning processes of acquiring land or property and of building. Finally, there was a series of over 200 in-depth interviews with persons knowledgeable about the processes of housing and infrastructure supply and about policy issues concerning the informal sector. These interviews were directed to contractors, materials suppliers, investors, owners, government officials, legislators and others. Topics covered included inputs to the housing production process such as land, labor, materials, and finance; the subdivision process; the role of the informal sector; and policy issues. A number of these in-depth interviews were geographically focused in case study areas in Cairo and Beni Suef, helping to highlight connections among different participants in the process of housing and infrastructure supply.

The study is organized as follows: Chapter 2 presents the study design, describing in detail the various data collection elements and sampling procedures. Chapter 3 provides background information on recent growth and change in population and housing in Cairo and Beni Suef. Chapter 4 defines informal housing, quantifies its role in overall housing supply, and examines factors responsible for the growth of the informal sector. Chapter 5 looks at levels of infrastructure provision, recent changes, and processes of supply in the informal sector. Chapter 6 examines land and building acquisition and the building process, looking at search processes for formal and informal land and buildings, the operation of labor and materials markets, the construction process, finance of construction, and marketing of housing. Chapter 7 evaluates housing needs and housing outcomes, first examining the relationship between aggregate demand for housing and current supply; the geographical distribution of housing vacancies; evidence of unsatisfied demand for housing such as household "doubling up" and subletting; crowding; tenure patterns and preferences; building, neighborhood service, and environmental outcomes; expressed

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[1] Matching unpublished data from the 1976 Census were also collected to enable aggregate comparisons between 1976 and 1981.

levels of satisfaction with housing and neighborhood features; perceptions of recent changes in neighborhood features and willingness to pay for improvements; and preferences for public versus private housing. Chapter 8 examines housing costs and housing finance, looking at recent trends in housing cost components (land, labor, building materials) and at factors behind these trends, costs of purchasing land or housing, and costs for renters including key money payments. The relationship between housing expenditures and household characteristics such as income, household size, and duration of residence is also examined. Chapter 9 reports on policy issues and current policy instruments for dealing with land, housing, and infrastructure problems and is based largely on in-depth interviews with government officials and legislators. Chapter 10 presents evaluations and recommendations concerning the planning process, legal and administrative procedures, housing finance, and the building process.

CHAPTER 2

Study Design

There were three major data collection efforts as part of the study: a scanning (enumeration) survey, a detailed occupant survey, and a series of in-depth interviews. These were conducted jointly by Abt Associates Inc., Dames and Moore, and the General Organization for Housing, Building, and Planning Research (GOHBPR). Major assistance was provived by the Central Agency for Mobilization and Statistics (CAPMAS). Each of the three study components is described in the following sections.

2.1 Scanning Survey

The scanning survey was the first stage of a two-stage probability sample of dwelling units in Greater Cairo and in the city and principal villages surrounding Beni Suef. The survey was designed to:

- Identify aggregate characteristics of housing and infrastructure in each sampled enumeration district;
- Serve as a sampling frame for the detailed occupant survey; and
- Update aggregate 1976 Census information (which was also obtained) for the same enumeration districts in order to permit recent changes in housing and infrastructure to be assessed.

The sample was a cluster sample of 50 CAPMAS census enumeration districts in Greater Cairo and 20 in Beni Suef. For this survey, Greater Cairo was defined to include contiguous urbanized parts of Cairo, Giza, and Qalyubiya governorates and the principal cities, "markaz," in rural hinterlands of Giza and Qalyubiya. In Beni Suef, 10 enumeration districts in the city of Beni Suef and 10 in the villages within the markaz of Beni Suef were chosen. In each city, it was felt that the inclusion of more rural non-contiguous areas would provide a useful contrast to the urbanized contiguous areas. Enumeration districts in each city were randomly chosen, where the probability of being chosen was proportional to the 1976 enumeration district population of dwelling units.[1] The total first stage sampling frame in Greater Cairo was 7,368 enumeration districts; in 1976,

[1] Probabilities of selection were approximately equal for all enumeration districts since CAPMAS procedure is to define enumeration districts in terms of contiguous areas of approximately 200 dwelling units.

these contained 1,585,666 dwelling units. In Beni Suef, the frame comprised 254 enumeration districts, which in 1976 had 70,080 dwelling units. Sample areas in each city are listed in Table 2-1 and, for Cairo, are illustrated in Figure 2-1.

Each enumeration district was visited by a team of trained enumerators from CAPMAS who visited every building in the district, noting characteristics of buildings and infrastructure connections. In Cairo, this enumeration produced a sample of 12,986 dwelling units in 3386 buildings; in Beni Suef, 4452 dwelling units in 3131 buildings.

Data from the survey have been compared to data from other surveys such as 1976 Census data, and appear to produce good estimates of population parameters for sample variables. Appendix 7 presents a brief discussion of sampling issues and compares sample and population estimates for selected variables. Geographical distribution of the sample is broad, although it is likely that there is some undersampling of rapidly growing peripheral areas that had either small populations in 1976 or which did not then constitute enumeration districts. On the other hand, as indicated in the next chapter, the estimated population growth rate from the scanning survey (based on 1976/1981 comparisons) is the same as published Cairo growth rates for the past 15 years, indicating that growing areas are not likely to have been badly undersampled. Another possible sampling bias appears to be in the "City of the Dead," a cemetery area which has been inhabited for some years by urban squatters. The 1976 CAPMAS sampling frame appears to underrepresent the City of the Dead, although this could not be definitively confirmed; thus the sort of informal housing present there may be underrepresented. Aggregate data from both the 1981 scanning survey and the 1976 enumeration district census were coded for machine entry, cleaned, and merged with household data from the occupant survey.

2.2 Occupant Survey

The occupant survey was a simple random sample from the 1981 scanning survey frame. Conducted in May and June of 1981, the survey was designed to collect information on:

Table 2-1

Sample Enumeration Districts

Greater Cairo

	Qism	Shiakha
1.	at-Tebin	Medinat as-Solb
2.	Helwan	al-Masakin al-Iq'sadiya
3.	Ma'adi	as-Sori'at ash-Sharqiya
4.	Ma'adi	al-Bassatin al'Garbiya
5.	Masr al-Qadima	al-Khonha and al-Inaba
6.	Masr al-Qadima	Ein as-Sira
7.	al-Khalifa	al-'Abagiya
8.	as-Sayeda Zeinab	Hada'iq Zeinha
9.	as-Sayeda Zeinab	as-Seba'in
10.	Kasr an-Nil	az-Zamalek al-Bahriya
11.	Bulaq	al-Adawiya
12.	al-Azbakia	al-Kolali
13.	al-Muski	Darb al-Geneina
14.	ad-Darb al-Ahmar ad-	al-Me'garbelin
15.	al-Gamaliya	ad-Darassa
16.	Bab ash-Sha'ariya	Bab ash-Sha'ariya
17.	az-Zahir	as-Sakakini
18.	Shubra	at-Teriya al-Bolakiya
19.	Rod al-Farag	'Ibn ar-Rashid
20.	Rod al-Farag	al-Mibayada
21.	as-Sahel	Borham
22.	as-Sahel	Sherif
23.	as-Sahel	al-'Amaria
24.	ash-Sharabiya	az-Zawia al-Hamra Masakin
25.	ash-Sharabiya	al-'Izab
26.	ash-Sharabiya	ash-Sharabiya
27.	Hada'iq el-Quba	Hada'iq al-Quba
28.	al-Wayli	al-Abassiya al-Bahariya
29.	Medinat Nasr	al-Muntaza ash-Sharkiya
30.	an-Nozha	Cairo Airport
31.	Masr al-Gadida	al-Bustan
32.	az-Zeitun	az-Zeitun ash-Sharkiya
33.	az-Zeitun	Massakin al-'Amiriya
34.	al-Matariya	Ezbat en-Nakhl
35.	al-Matariya	al-'Garb
36.	al-Matariya	az-Zahra
37.	al-Matariya	al-Marg al-Kabliya
38.	Shubra al-Kheima	Bahtim
39.	Shubra al-Kheima	Bigam
40.	al-Khanka	al-Khanka
41.	al-Ahram	Manshe'it al-Bakari
42.	Bulaq ad-Dakrur	al-'Amraniva al-'Garbiya
43.	Bulaq ad-Dakrur	Bulaq ad-Dakrur
44.	Bulaq ad-Dakrur	'Ard al-Luw'a
45.	al-Giza	Harat Rabi'a
46.	ad-Dokki	ad-Dokki
47.	al-'Aquza	Mit Okba

Table 2-1 (continued)

Greater Cairo (continued)

48.	Imbaba	'Abd an-Na'im (as-Sa'adiya)
49.	Imbaba	al-Munira
50.	al-Badrashin	al-Badrashin

Beni Suef

Urban

al-'Gamrawi
al-Gezira al-'Garbiya
ar-Ro'gba, al-Gubali
Mokbil
Mulid an-Nabi
al-Mirma, al-'Izab
Gomlat al-Medina

Rural

Manqarish
Beni Harun
Halabiya
Be'ad an-Naddara
Balwiya
al-Hakamnu
Termant al-'Garbiya
'Ahwa
Barut
Ikhnassiya al-Khudra

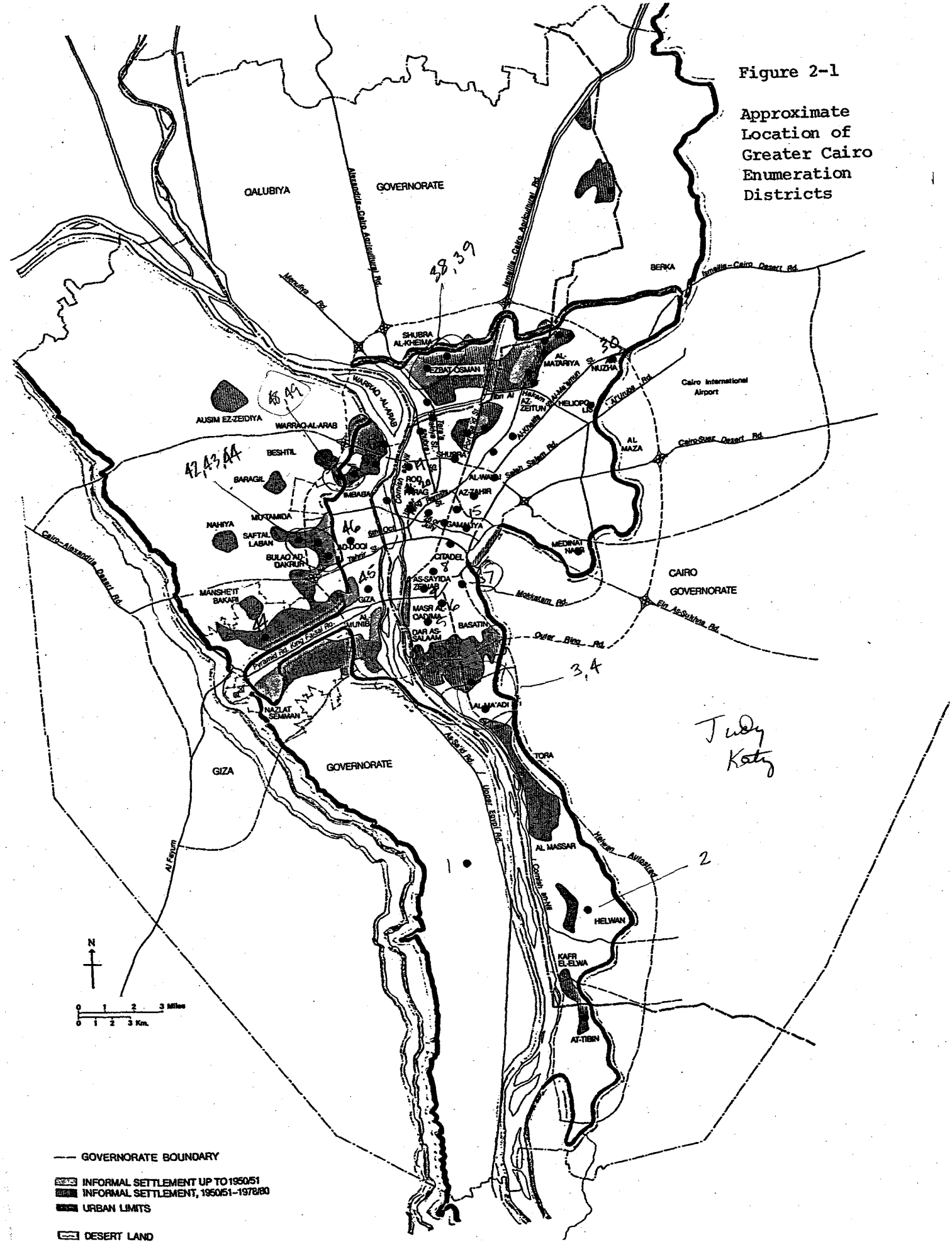

Figure 2-1

Approximate Location of Greater Cairo Enumeration Districts

A. Household Characteristics

- Income;
- Expenditures;
- Consumer Durables;
- Housing Finance;
- Demographic Characteristics;
- Mobility and Migration;
- Attitudes and Preferences Regarding Housing and Infrastructure;
- Informal Housing Sector Attitudes and Behavior;

B. Housing Characteristics

- Building Characteristics;
- Unit Characteristics;
- Access to Infrastructure/Services;
- Housing Costs/Cost Elements;
- Process of Land and Building Acquisition;
- Construction Processes.

In all, data were collected on up to 420 data elements for each household and dwelling unit. In Cairo, 500 households were sampled; in Beni Suef, 250 households. Of Beni Suef households, 130 were in Beni Suef city and 120 in nearby villages. A copy of the survey instrument (in English translation) is included as Appendix 6.

In addition to the data provided from occupant surveys themselves, data constituting "community observations" were obtained when survey team leaders visited enumeration districts to forewarn community leaders prior to full team visits. These community observations included data on area density, who was responsible for land partition or subdivision, predominant social or economic classes, and the presence or absence of a variety of community facilities such as mosques, schools, churches, etc.

Rates of refusal were extremely low for the survey, as were instances of no-one being home when interviewers arrived (interviews were scheduled for early evening hours to have the greatest chance of interviewing heads of household). When instances occurred of either "refusal" or "not at home," households in adjacent units were interviewed in place of previously identified households. Distributions of variables from the occupant survey appear to match quite closely those of comparable variables from the scanning survey (floors per building, units per building, building age, etc.), indicating that the random sampling procedure worked well.

Data for 500 Cairo households and 250 Beni Suef households were coded, machine entered, and cleaned during July and August of 1981. While

response rates to individual survey questions are generally high, there are of course "missing values" for many variables. Thus empirical results presented below are sometimes based on less than full survey populations.

2.3 In-Depth Interviews

Approximately 215 in-depth interviews were conducted with persons involved in the supply of housing and infrastructure, or involved in research or policy-making with regard to such topics. These interviews, conducted from March through July 1981, were designed to collect information on the supply processes for formal and informal housing and infrastructure and covering the following areas:

- Legal and illegal subdivision of land;
- Physical infrastructure;
- Building materials;
- Labor;
- Construction;
- Social and other services;
- Finance;
- Marketing;
- Policy issues.

A copy of the checklist of questions for in-depth interviews is included as Appendix 5.

Interviews, which were conducted primarily in Arabic, ranged in length from roughly three-quarters of an hour to two hours. Types of respondents and their approximate percentage distribution included:

	Percent of Respondents
• Government officials;	24
• Legislators;	2
• Financial institutions;	4
• Research organizations;	7
• Consultants;	7
• Owners;	4
• Owner/contractors;	3
• Investors/subdividers;	4
• Contractors;	11

	Percent of Respondents
• Subcontractors;	18
• Manufacturers;	5
• Distributors.	10

While most interviews were geographically dispersed, a number were concentrated among different supply-side participants in areas where informal housing development has recently been active. In Greater Cairo, these interviews focused on Shubra al-Kheima and Dar as-Salaam; in Beni Suef on a number of areas within and around Beni Suef city. Case studies of informal development of housing and infrastructure in these areas were complemented by another location specific analysis in Giza (Kafr el-Gabal). In the latter, the roles of families in the development of a largely informal settlement were investigated, and networks through which construction business were carried out were identified.

Descriptions of the Shubra al-Kheima and Dar as-Salaam case study areas and their recent development are included in Appendix 2; other case study information on these areas has been incorporated into the main text. Appendix 3 is a self-standing case study of the Kafr el-Gabal community, with particular emphasis on families involved in supplying informal housing.

Throughout the study, reference are sometimes made to specific interviews by designating a letter and numerical code (e.g., H.5, J.1). These refer to a list of transcribed interview summaries furnished to AID as part of the study documentation.

CHAPTER 3

Growth and Change in Cairo and Beni Suef

Assessing the potential role of the informal housing sector in meeting the needs of the population requires an understanding of the past and current changes in population and housing, their major dimensions, and their underlying determinants. Both Cairo and Beni Suef are growing cities, their population changes being influenced not only by rates of natural population increase of above two percent per year, but also by net in-migration.[1]

Past rates of growth in each city have been fairly constant. From 1947 to 1960, the continuous annual population growth in Greater Cairo was 3.9 percent; from 1960 to 1976, 3.8 percent (Wheaton, 1980, p. 2). This has resulted in roughly a tripling of population from 1947 to 1976 --from about 2.6 million to about 8 million. In Beni Suef, rates of population increase have been lower. From 1966 to 1976, the population of Beni Suef city grew at an annual rate of 3.1 percent.

Despite considerable population growth in each city, it is estimated that housing construction has kept pace with recent population changes. CAPMAS figures, for example, indicate that in Egypt as a whole, the number of urban "families" increased at an annual rate of 3.6 percent between 1966 and 1976, while during the same period the number of urban dwelling units increased at an annual rate of 3.95 percent per year (Wheaton, 1980, p. 50 and GOHBPR, Appendix 8, p. 3).[2] Over the same period, dwelling units in Cairo and urbanized Giza were also estimated to have increased more rapidly than the number of families there (Wheaton, 1980, p. 50).

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[1] The role of migration and other demographic factors in influencing aggregate housing demand is discussed in Chapter 7.

[2] For the urban areas of 24 governorates for which CAPMAS data are available for both 1966 and 1976, 18 experienced more rapid growth in dwelling units than population. Among these 18 were Cairo, Qalyubiya, and Beni Suef where rates of change of dwelling units exceeded population growth rates by 1.9, 1.5, and 1.8 percent per year between 1966 and 1976. In Giza, population growth rates exceeded dwelling unit growth rates by one percent per year over the same period.

Since 1976, it appears that parity has been maintained between population and housing growth in Beni Suef and that housing construction has outstripped population growth in Greater Cairo. Comparison of scanning survey data for Cairo and corresponding Census data in 1976 indicates that between 1976 and 1981 the number of dwelling units grew at an average annual rate of 5.9 percent, whereas the number of occupied dwelling units grew at a rate identical to the rate of Cairo's recent population growth--3.9 percent. In Beni Suef, corresponding figures were 2.1 percent and 2.4 percent respectively.[1] In Cairo, this rapid increase in dwelling units has resulted in a vacancy rate of 5.5 percent of the occupied housing stock and a number of units under construction equal to 4.3 percent of the occupied stock.[2] In Beni Suef, vacancies are estimated to be approximately 3.0 percent of the occupied housing stock; units under construction, 1.9 percent of the occupied housing stock.

The composition of housing stock growth is especially revealing of current trends in Greater Cairo. For example, most of the recent growth in Cairo occurred in the form of additional "apartments" rather than "separate rooms." The annual growth rate of the former (1976 to 1981) was approximately 6.5 percent while that of the latter was only 1.4 percent, resulting in a decrease in the percentage of separate rooms relative to all dwelling units from roughly 16 percent to 13 percent. In Beni Suef city, the increase in separate rooms proportionally exceeded the increase in apartments, resulting in an increase in the percentage of separate rooms in the housing stock from roughly 8 to 11 percent.

The most striking trend, however, is the vertical expansion of the Cairo housing stock that has occurred within the past decade, and especially within the past five years. Table 3-1, for example, compares features of the 1976 and 1981 housing stocks in the 50 CAPMAS enumeration districts sampled for the scanning and occupant surveys. The table indicates a number of salient characteristics of recent housing change:

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[1] These figures for Beni Suef represent an average of city and surrounding village growth rates of 3.9 percent and zero percent per year respectively.

[2] Ninety-five percent confidence intervals for city-wide (Greater Cairo) vacancy rates are 3.8 percent to 7.2 percent. Ninety-five percent confidence intervals for Greater Cairo ratios of units under construction to occupied units are 2.9 percent to 5.7 percent.

Table 3-1

Changes in Buildings, Dwellings, and Floors in Cairo Sample Enumeration Districts (1976-1981)

	1976	1981	Average Annual Percentage Change
Buildings	3,050	3,386	2.2%
Dwelling Units	10,047	12,986	5.9
Occupied Dwelling Units	9,902	11,823	3.9
Floors	6,381	8,299	6.0
Dwelling Units Per Floor	1.58	1.57	0.0
Floors Per Building	2.09	2.45	3.4
Dwelling Units Per Building	3.30	3.84	3.3

Source: Scanning survey (1981), unpublished CAPMAS census data (1976).

1. Both dwelling units and occupied dwelling units increased at more rapid rates than did the total number of buildings;

2. The number of floors per building and dwelling units per building each increased by roughly 20 percent (3.4 percent and 3.3 percent annually);

3. The number of dwelling units per floor remained constant.

These changes could be consistent with either of two alternative hypotheses of recent housing change: (1) newly built buildings contained a substantially larger number of dwelling units and a greater number of floors than those in the existing stock, or (2) a considerable degree of vertical expansion of the existing housing stock has occurred.

Data from the occupant survey were used to evaluate these hypotheses. Average numbers of dwelling units and floors per building and dwelling units per floor were estimated for buildings estimated to have been constructed during four periods--before 1960, 1960 to 1970, 1971 to 1976, and after 1976.[1] Table 3-2 presents the results from that survey.[2] As the table indicates, the average numbers of floors per building and dwelling units per building for buildings built after 1976 are lower than those of all preceding

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[1] In the occupant survey households were asked directly to estimate the age of their building. Responses to this question on the occupant survey corresponded well with CAPMAS enumerators' estimates of building age as part of the scanning survey. For example, a regression of the estimated number of dwellings built between 1976 and 1981 obtained by subtracting enumerated 1976 units from enumerated 1981 units on the number of units estimated to be built during the same period based on occupant survey responses resulted in a regression slope statistically indistinguishable from 1.0; e.g., the estimated rate of addition of units to the stock between 1976 and 1981 is the same based on either the scanning or the occupant survey.

[2] Characteristics of buildings were estimated by weighting each household observation in the occupant survey by the reciprocal of the estimated number of units in the household's building--where such a weight is equal to the probability that a household in a particular building would be randomly chosen in the occupant survey. Were this not done, households in buildings with many units (whose buildings had a greater chance of being randomly selected than households in buildings with few units) would be given too much importance in determining outcomes. As the table indicates, this weighting produces average building characteristics that are quite close to the enumeration district averages presented in Table 3-1, indicating that the occupant survey sampling procedure worked well.

Table 3-2

Average Characteristics of Buildings Constructed in Different Periods (Greater Cairo)

	Estimated Year of Construction				
	Before 1970	1960-1970	1971-1976	After 1976	Average
Dwelling Units Per Floor	1.43	1.56	1.64	1.28	1.48
Floors Per Building	2.78	2.72	2.45	2.25	2.65
Dwelling Units Per Building	3.99	4.25	4.01	2.87	3.93

Source: Weighted occupant survey.

periods. Dwelling units per floor in post-1976 buildings are also lower than those of pre-1976 buildings.[1] These data strongly suggest that the increase in floors per building and dwelling units per building is the result of vertical expansion of existing buildings rather than a recent shift toward higher density new buildings.

Further confirmation of the role of modifications to the existing stock can be gotten from the occupant survey. Interviewers estimated the age of building "additions" as part of that survey. Analysis of those data indicated that 37 percent of all residential buildings in Greater Cairo had had additions at some time in the past, but that 28 percent of the total had additions between 1971 and 1981, and 21 percent of the total had additions since 1976--indicating an enormous upsurge in the rate of building additions within the past five years.[2]

Additional insight into the nature of housing stock changes is provided by renters in the occupant survey, who were asked whether or not the number of dwelling units in their building had changed over time and, if so, how the change had occurred. Table 3-3 presents the survey results. The table indicates similar patterns of change in the rental housing stock in Cairo and Beni Suef, with, respectively, 28 and 18 percent of renters having observed increases in the numbers of units and only one and zero percent having observed decreases. Expansions that did occur are dominated by additions of apartments (86 percent and 94 percent of additions perceived in Cairo and Beni Suef respectively), rather than by additions of separate rooms or sub-division of apartments. Indeed, the impression that subdividing is unimportant is reinforced by the slow rate of change in separate rooms between 1976 and 1981 and the stability over time in the number of dwelling units per building.

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[1] That recently built buildings have fewer dwellings and floors than existing buildings is almost certainly the result of the incremental building process typical in Egypt; recent buildings are simply observed at an earlier stage of development than older buildings. It is likely that ultimate densities of post-1976 buildings will at least equal and probably exceed those of pre-1976 buildings.

[2] Scanning survey and 1976 census data indicate that there is a strong negative relationship between building height in 1976 and the change in building height from 1976 to 1981. In enumeration districts having roughly two floors per building in 1976, between .75 floors and one floor were added on average by 1981; for enumeration districts with from 4 to 5 floors per building in 1976, only about 0.1 floors per building were added during the same period.

Table 3-3

Perceived Changes in Numbers of Units by Renters in Their Building (Percent)

"Have there been any changes in the number of dwelling units in this building since you moved in?"

	Cairo	Beni Suef
No change/don't know	71%	81%
Increase	28	18
Decrease	1	0

"What were those changes?"

	Cairo	Beni Suef
Building one or more apartments	86%	94%
Building one or more rooms	4	0
Dividing some apartments into smaller ones	1	0
Dividing some apartments into separate rooms	2	0
Other	7	6

Source: Weighted occupant survey.

Within the past five years, vertical expansion of existing buildings has possibly been even more important than new construction in adding units to Cairo's housing stock. Approximate estimates of the comparative role of new construction and vertical expansion can be gotten based on a number of parametric assumptions applied to scanning and occupant survey data. On the basis of such a parametric analysis, it seems likely that units added from the existing stock (primarily through vertical expansion) have comprised from roughly half to two-thirds of the additions to Cairo's housing stock within the past five years.[1]

The trends observed in this section, principally rapid expansion of the housing stock and an important if not dominant role for adding units from the existing stock, are consistent with a large flow of resources into the housing sector, a concomitant increase in land prices, and a shift toward more land intensive urban development. This is discussed at greater length in Chapter 6. It is worth noting here, however, that the ability of the housing sector to meet demand by modification

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[1]There were estimated to be 1,585,666 dwelling units in the enumeration districts comprising the sampling universe from which the scanning survey sample was drawn. Applying the estimated 1976-81 growth rate for all (occupied and unoccupied) dwelling units produces an estimate of 2,049,513 dwelling units in Greater Cairo in 1981. Buildings in 1976 and 1981 may be estimated by dividing estimated dwelling units by estimated dwelling units per building from the 1976 and 1981 surveys (3.30 and 3.84 respectively) to get 480,505 and 533,727 buildings respectively. Multiplying the net change in buildings, 53,222, by the occupant survey estimate of 2.87 dwelling units per building for buildings constructed between 1976 and 1981 gives an estimate of 152,747 units added by new construction during those years. (This requires an assumption that the number of units per building is the same in new occupied and unoccupied buildings. Since the occupant survey is conducted only in buildings that are at least partially occupied, the sample is skewed toward characteristics of occupied buildings.) This represents 33 percent of the estimated net change in dwelling units, the other 67 percent being made up of additions from the existing stock--primarily vertical expansion. If, alternatively, it is assumed that units per building for unoccupied buildings are twice the average for occupied buildings (5.74--perhaps because larger buildings are more expensive and hence take longer to complete or more likely to be held from the market by speculators) and that unoccupied buildings comprise 20 percent of all new buildings (strictly an assumption since only aggregated scanning survey data rather than building level data were coded), then .2 x 53,222 = 10,644 new unoccupied buildings, 42,578 x 2.87 = 122,199 units for a total of 183,296 units--39.5 percent of the estimated 1976-1981 change. Assuming new unoccupied buildings to have ten units each would raise the percentage added through new construction to 49 percent; additions to the existing stock would comprise the other 51 percent.

to the existing stock demonstrates an important area of flexibility in adapting to market conditions. In considering strategies to support expansion of housing resources or their redirection to low and moderate income households it may be preferable to harness existing trends toward vertical expansion than to rely on strategies based on development patterns that are less well supported by the current marketplace.[1]

[1] In many cases such vertical expansion is well within the technical and structural capacity of the informal sector, most often involving nothing more than adding an additional story to a one,- two-, or three-story structure.