THE NEED FOR A NEW APPROACH:

Analysis of the Built Environment of Informal Settlements and Public Housing Policy in Egypt

by

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SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER OF SCIENCE IN ARCHITECTURE STUDIES AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 1983

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ACKNOWLEDGEMENT

I've had so much help in the process of writing this thesis from many distinguished people that the task of writing an acknowledgement is indeed a complicated one. However, I must begin with Professor Nabeel Hamdi of the Department of Architecture, my advisor, who helped me formulate the original proposal for this work and who spared no time or effort in steering the research in the right direction throughout the academic year. This is, of course, beside the fact of his being a close and dear friend.

I am very grateful to Professor Lisa Redfield Peattie of the Department of Urban Studies and Planning, my thesis reader, who was responsible for introducing me to the complex world of planning and to the informal sector in the first place, and who monitored and corrected the process of writing the thesis from the beginning.

I feel very privileged to have the friendship and guidance of Professor Ibrahim Oweiss of Georgetown University whose ideas and work have been a major inspiration, even though he was not directly involved with the thesis.

My deepest thanks go also to Professor Eric Dluhosch of the Department of Architecture for opening his library to me and making available data that would have been extremely difficult to otherwise come by.

Nothing, however, would have been possible without the heroic efforts of my wife, her superb editorship and her ability to make sense of sometimes incomprehensible rattle. Betty Lou, thank you.

My colleagues at M.I.T. had much to do with the development of this work. Their contribution is gratefully acknowledged; Safa, Assia, Eser and Shoji.

Last but not one bit least, all the credit of this work must go to my mother, Professor Effat A. Badr of the Department of Genetics of Alexandria University without whose initial support, both financially and morally, I would not have been able to continue my work at the Institute in the first place.

TABLE OF CONTENTS

		Page
I.	ABSTRACT	
II.	INTRODUCTION	2
III.	EVOLUTION OF INFORMAL SETTLEMENTS	3
	Definition and Scope	4
	Methodology	6
	Migration	7
	Background and Income	11
	Why a Certain Location?	16
	Acquisition of Land	21
	Financing the Dwelling	31
	Building Process: Allocation of Materials	38
	Building Process: Labor	50
	Stages of Construction	55
	Design and Function	64
	Infrastructure and Facilities	72
	Informal Efforts Vs. Public Intervention	82
	Users' Needs?!	87
IV.	CONSTRAINTS AND CONTRADICTIONS	88
	Acquisition of Land/Choice of Location	90
	Building Materials	98
	Housing Construction and Delivery Systems	103
	Housing Finance	114
	Infrastructure	123

		Page
V.	NOTES	141
VI.	BIBLIOGRAPHY	146

ABSTRACT

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Submitted to the Department of Architecture on
May 6, 1983 in partial fulfillment of the requirements
for the Degree of Master of Science in Architecture Studies

Rapid urbanization in Egypt has brought on excessive demand for urban housing. The government agencies' attempt to satisfy this demand by the conventional means of public housing since the early 1960's has amounted only to less than 7% of the urban housing stock. In contrast to this, the informal sector has been efficient in providing housing for those who are caught between the public housing projects and the expensive private sector market. It is estimated that the population of the informal settlements doubles every ten years and that informal housing constitutes 75% of the urban housing stock in Egypt.

This thesis will concentrate on a documentation of the evolution of informal settlements, broken down into items and illustrated by narratives reconstructed from interviews.

Then the process documented will be compared with the public housing policies in order to identify the gaps between those policies and the role the informal sector plays, outlining the fact that broad, generalized policies are, at most, inadequate, and that future policies should pay more attention to the specific characteristics of the informal sector. Those characteristics may differ according to context. The results of this comparison can be the basis for future recommendations and can also be integrated into established housing practices.

Thesis Supervisor: Nabeel Hamdi
Title: Assistant Professor of Housing Design

INTRODUCTION

Egypt, an area of 386,000 square miles, approximately the size of California, has a population of 42 million (1980) and a growth rate annually of 2.1% Only about 10,000 square miles of the total area of the country is cultivated. Over 90% of the population is compressed into a little over 4% of the land base, mainly in the Nile Valley and the Delta basins.

During the past thirty years, Egypt has been transformed from a predominantly rural, agriculturally based society to one that is increasingly urban. The proportion of the population living in the rural areas is decreasing as the urban areas draw an ever increasing percentage of the population. In 1907, the urban population represented 19% of the total population; in 1947, 33%; in 1976, 44% and the projection for the year 2000 is 55%. The greater Cairo region alone account for 18% of the total population of the country, some 7.5 million persons.

The two most important factors in the Egyptian urban growth are:

a) natural increase, responsible for two-thirds of the urban growth during the period 1966-1976.
b) rural to urban migration, responsible for one-third of the urban growth.

Agriculture accounts for one-third of the national income and comprises some 50% of the labor force. Industrial production accounts for one-quarter of the national income, but that percentage is projected to surpass agriculture as the largest sector in terms of its contribution to the gross national product.

EVOLUTION OF INFORMAL SETTLEMENTS

Definition and Scope
Methodology
Migration
Background and Income
Why a Certain Location?
Acquisition of Land
Financing the Dwelling
Building Process: Allocation of Materials
Building Process: Labor
Stages of Construction
Design and Function
Infrastructure and Facilities
Informal Efforts Vs. Public Intervention
Users' Needs?!

EVOLUTION OF INFORMAL SETTLEMENTS

Definition and Scope

The informal settlement is considered here as the development on the outskirts of large cities without full legal authorization generally because of location on agricultural land or squatting on government land accompanied by the absence of a building permit, improper land subdivision and the absence of public utilities. The informal settlement population is dynamic, generally doubling within ten years.

Informal building can be defined as building taking place outside the formal construction industry; carried out by tradesmen/entrepreneurs with little or no regular staff using a labor team or in conjunction with self-help. It has provided the majority of accomodation in Egypt (75%) outside middle and upper middle income areas of major cities. Informal building advantages are that it has the flexibility and ability to respond to small scale incremental demands and suits the low-income client's sporadic ability to pay. Informal construction is cheaper, generally 30-50% less than formal sector construction.

In this chapter, we will attempt to analyze the different factors affecting growth and change of the informal settlement. These factors are:

Migration

Background and Income

Why a Certain Location?

Acquisition of Land

Financing the Dwelling

Building Process: Allocation of Materials

Building Process: Labor

Stages of Construction

Design and Function

Infrastructure and Facilities

Informal Efforts versus Public Intervention

Users' Needs?!

The methodology for approaching these factors is explained in the following section.

Methodology

The process is constructed from work done in the settlement of Sidi Bishr in Alexandria, Egypt during the summer of 1982 with Nabeel Hamdi and from data from other informal settlements in Cairo and in Ismailia, Egypt.

It is based on:

- personal observations
- interviews with residents
- the literature on informal settlements in Egypt

To illustrate, photographs, floor plans and quotations from personal narratives will be used. At the beginning of each chapter, narratives, abstracted from the interviews, are included to lend a sense of reality to the process described.

What is described here is a linear process, the description of which, for purposes of completeness, includes all phases of the process. In any given settlement, all phases are simultaneously represented. The time lag between phases varies widely from individual to individual depending on factors such as:

- location of the settlement
- economic and social circumstances of the settlement
- financial situation of the immigrant and how well he does after his arrival at the settlement.

The physical characteristics of the dwellings are a manifestation of the social and economic status of the inhabitants.

MIGRATION

"I first came to this area when I was ten from my village in Upper Egypt. My maternal uncles supported me after my father's death (he was a farmer), but when I reached the age of ten, my mother was anxious for me to find work. I had several uncles in this area who were bakers and I started with them as a delivery boy."

(Abdullah)

"I decided to live here because my uncles and brother lived here and my first objective was to obtain a job suited to my abilities."

(Hossam)

"By selling my wife's jewelry, I was able to put together a small amount towards setting myself up as a vegetable seller in my village. This venture, too, proved unprofitable, so after six months, I was totally frustrated and bored. I decided to try my luck in the most comfortable city offering the best job opportunities."

(Ahmed)

"I was born and brought up in a neighboring village. My father was a farmer. I was forced to leave because of the constant quarrels between his wives and those of his brothers."

(Osman)

MIGRATION

This thesis will not deal comprehensively with migration, its reasons and patterns. However, I would like to present here certain aspects that show its impact on the growth of urban areas in Egypt.

Population Growth in Urban Areas

- In 1907, the urban population represented 19% of the total population. In 1947, 33%; in 1976, 44%; and the projection for the year 2000 is 55% or more.[1]

Growth of Urban Areas Population in Egypt[2]
(Census Years 1907-1976)

Year	Urban Population	Average Annual Rate of Increase	% of Total Population	Total Population	Total Population Annual Rate of Increase
1907	2,125,000		19	11,183,000	
1917	2,640,600	3.5	21	12,670,300	1.01
1927	3,715,840	3.5	26	14,013,276	1.01
1937	4,382,083	1.7	28	15,811,084	1.21
1947	6,202,316	3.5	33	18,805,826	1.76
1960	9,651,097	3.5	37	25,771,497	2.45
1966	12,036,787	3.8	40	29,724,099	2.41
1976	16,036,403	3.0	44	36,626,204	2.11

- The table illustrates that the annual rate of increase for the urban areas' population is always significantly greater than that for the total population.

- The table also illustrates the rapid increase in the urban areas' share of the total population.

- The two most important factors accounting for this growth are:

  - natural increase: responsible for 2/3 of the urban growth during the period 1966-1976.[3]

  - rural to urban migration, accounting for 1/3 of urban growth.

Reason for Migration

- The opportunity for employment is the single most important reason for migration. A 1962 study showed that of migrants coming to Cairo, almost 40% were unemployed before coming.[4]

Effect of Migration
on the Urban Population

Migration has a significant effect on the structure of the urban population:

- It increases the proportion of the young. Migrants tend to fall into the age group 15-29, thereby increasing the number of persons in the labor force and of reproductive age.[5]

- Migration increases the proportion of the illiterate and the unskilled. Recent migrants to Cairo show:

  - a lesser percentage had basic literacy skills (17.7%) than for the country as a whole (25%).[6]

  - a low degree of skill; some 60% are completely unskilled.[7]

BACKGROUND AND INCOME

"I grew up in a traditional farmer's house in a village in Upper Egypt. One of my brothers and I are trained drivers and mechanics. I graduated from primary school and one of my brothers can read and write. The other is illiterate and works as a laborer.

While my salary is LE 20 a month plus free transport and medical attention, my younger brother (the laborer) collects only enough daily in wages to support his own needs. On occasion, he is able to contribute about LE 5 to the household."

(Ali)

"My wife and I live in our own house in Ismailia with our four children, but we are originally from Upper Egypt. I reached my final year in secondary school, but was unable to pass the certificate exam. My wife is illiterate.

As a policeman, I earn about LE 26 a month. In addition, my wife earns about LE 2 a month selling beans and taamia.

For food, we spend about LE 13.5 a month. Other expenses are LE 4 for the children's education and LE 1.3 for electricity."

(Mokhtar)

"I buy and sell fruit from a shop in my house. My son is an unskilled laborer who takes up any available work. Our combined income is about LE 40 a month.

From this we spend about 80 piasters a day on food and once a week, we spend LE 2.25 on meat. Twice a year, we buy clothes."

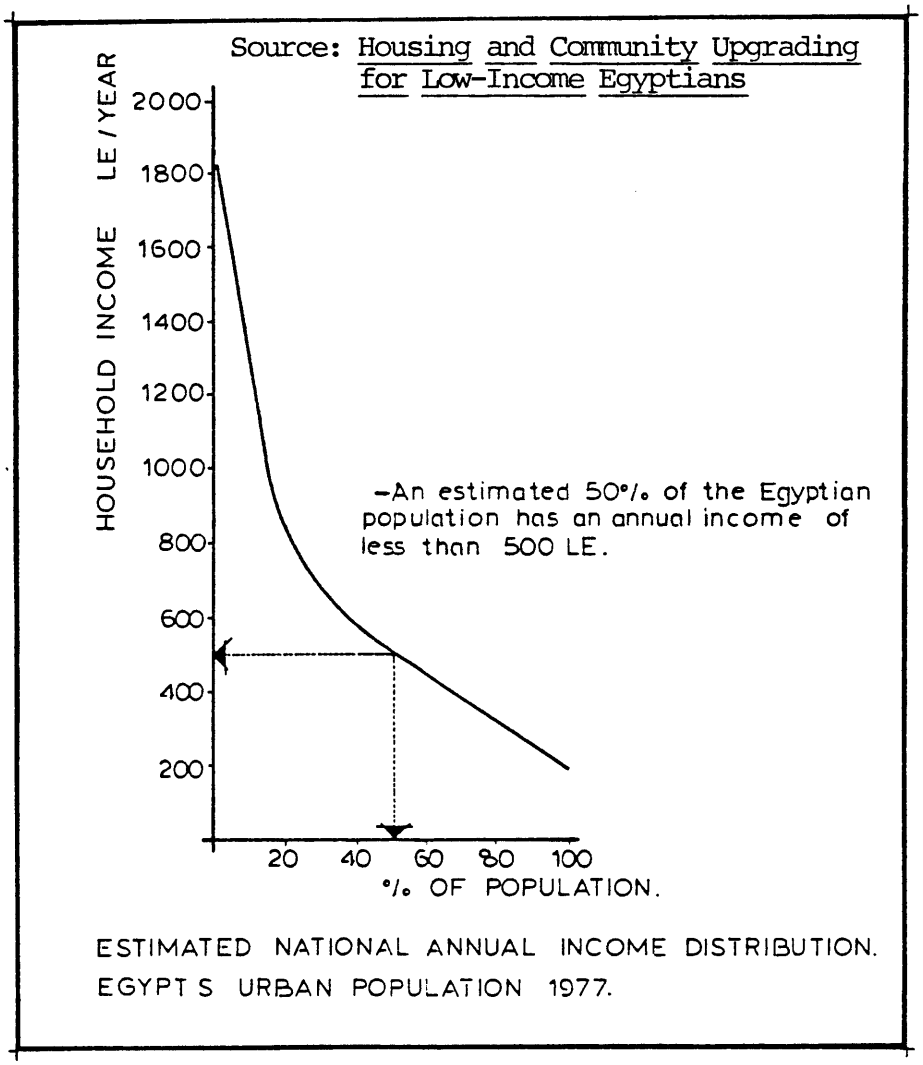
(Osman)

"I used to help my father on our rented farm. I have had two years of schooling and recently was able to get a permanent job as a stores guard with the Arab Contractors Company and now earn LE 20 a month; LE 15, salary and LE 5, bonus."

(Ismail)

BACKGROUND AND INCOME

The figure quoted as the monthly income by residents of informal settlements clearly indicates a certain sector of the Egyptian society: those with an income generally below LE 500 per year. The following is an attempt to illustrate the significance of this sector within the Egyptian society and to look more closely at its employment patterns and expenditures.



Significance

- The graph represents the annual income distribution of Egypt's urban population in 1977 from which we can deduce:

  - those with incomes of LE 300 or less represent 34% of the Egyptian population.

  - those with incomes under LE 500 annually represent some 51% of the population.

Employment Patterns

- This level of income indicates such occupations as day laborers in construction, sales, services; apprentices; and low skill employment in industry, commerce, government, services and construction; clerks, elementary school teachers.

- The high degree of illiteracy, about 43% of Egyptian men and 71% of Egyptian women influences the occupation and income.[8]

- Many households (40%) (1974-1975) have more than one wage earner and multiple job holding is extremely common.[9]

Spending Patterns

What can these people expect in terms of lifestyle and affordability?

- the wife will raise poultry to save on food costs and the family will rarely buy meat.

- clothing will generally be bought twice a year, summer and winter.

- children will attend school, but will also be expected to contribute early to the family income. They can expect to go on for further education if their grades are good.

- the household with a median income of LE 550 will spend on different items the following percentages of their income: [10]

Expenditure Category	Percentage (1974-1975)
Food	54.3
Clothing	13.6
Housing	
Shelter	9.6
Fuel	4.1
Transportation	2.1
Home Furnishings	2.6
Tobacco, Alcohol	5.5
Personal Care Products	2.1
Education	1.5
Health	1.4
Miscellaneous	3.2
	100.0

- The table illustrates selected expenditure patterns per income. It indicates that those with an income under LE 500 tend to spend proportionately more of that income on housing than those in higher income brackets.

Expenditure Patterns by Income

Annual Income (LE)	% of Income Spent on: Housing	Medical	Transport	Education
100-150	16.0	0.7	0.0	0.0
150-200	12.3	1.2	1.0	0.2
200-300	10.6	1.4	1.3	0.8
300-400	10.5	1.4	2.1	1.3
400-500	9.9	1.4	2.3	1.3
500-600	9.4	1.5	2.3	1.2
600-800	8.9	1.8	2.4	1.8
800-1000	9.1	1.9	3.1	1.9
1000-2000	8.8	2.0	5.9	3.9
2000+	6.5	2.5	6.5	3.8

- At all levels, the percentage spent on housing is very low in comparison with the percentage spent in the United States.

Despite the fact that they are in the lowest income category and that household expenditures practically equal income, these people do manage to save, in various ways, and to invest their time and resources in housing.

WHY A CERTAIN LOCATION?

"I see only two advantages in living where I do: I own my own house and it is close to where I work. In fact, I chose this particular area because it was close to the army camp where I work."

(Osman)

"The site of my house is conveniently close to the town center and we can either walk or take a bus for two piasters or spend five piasters on a taxi and the trip takes only ten minutes."

(Abdel-Salaam)

"The distance from my house to where I work does not bother me. What is important is the availability of transport."

(Ali)

"The area is very far from public services like drinking water, the market, schools and sewers and there is no electricity. I believe that in this part of town, it is possible for anyone to rent a house at a rate suited to his income; as low as LE 1.00 per month." (He was renting before he built his present house.)

(Ismail)

"I didn't like this area in the beginning because of the bad health conditions. But the land was still cheap and I could pay in installments."

(Naguib)

"I moved here because I have relatives here and the land is very cheap. I bought a good piece for LE 4 a square meter, but bad lots were available at half that price. The land is cheap because there are no pipes or sewer lines or electricity in the houses."

(Gabr)

WHY A CERTAIN LOCATION?

A very important aspect of the informal settlement is its location. The intention of this part is to outline the different factors influencing the choice of location, the general characteristics of these areas, and the factors not included when a choice is made.

FACTORS INFLUENCING CHOICE OF LOCATION

The informal owner's choice of a site is influenced by:

- Cost of land: in interviews conducted with informal owners, most felt this to be the deciding factor in their choice of site.

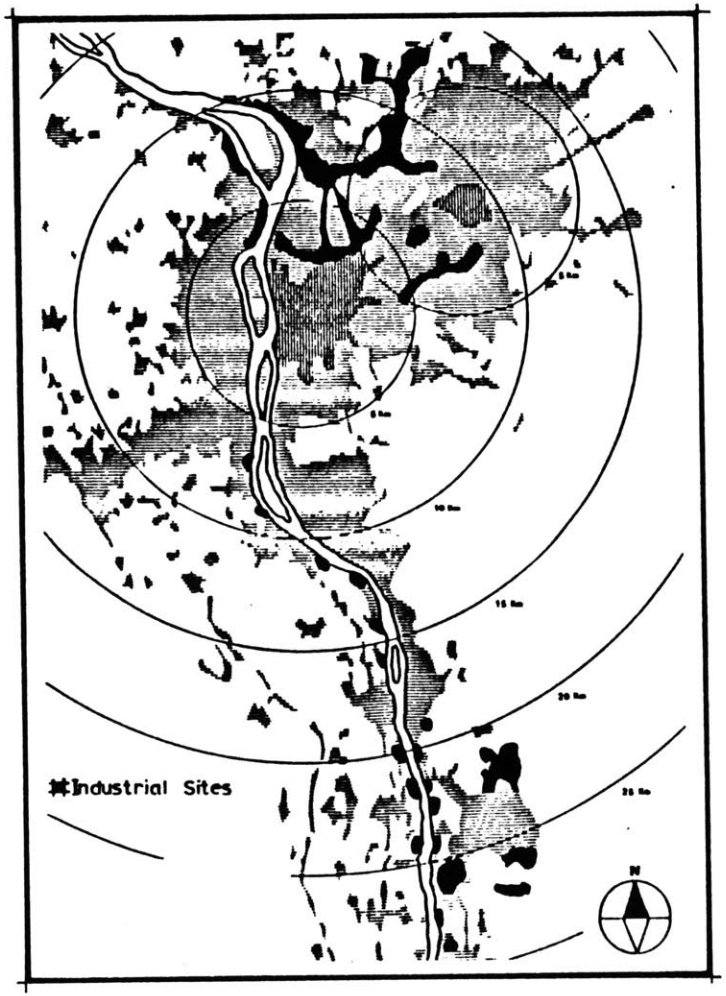
- Access to employment: also mentioned as very important in choice of location. The diagram following shows the location of major industrial areas and of informal settlements situated near them.[11]

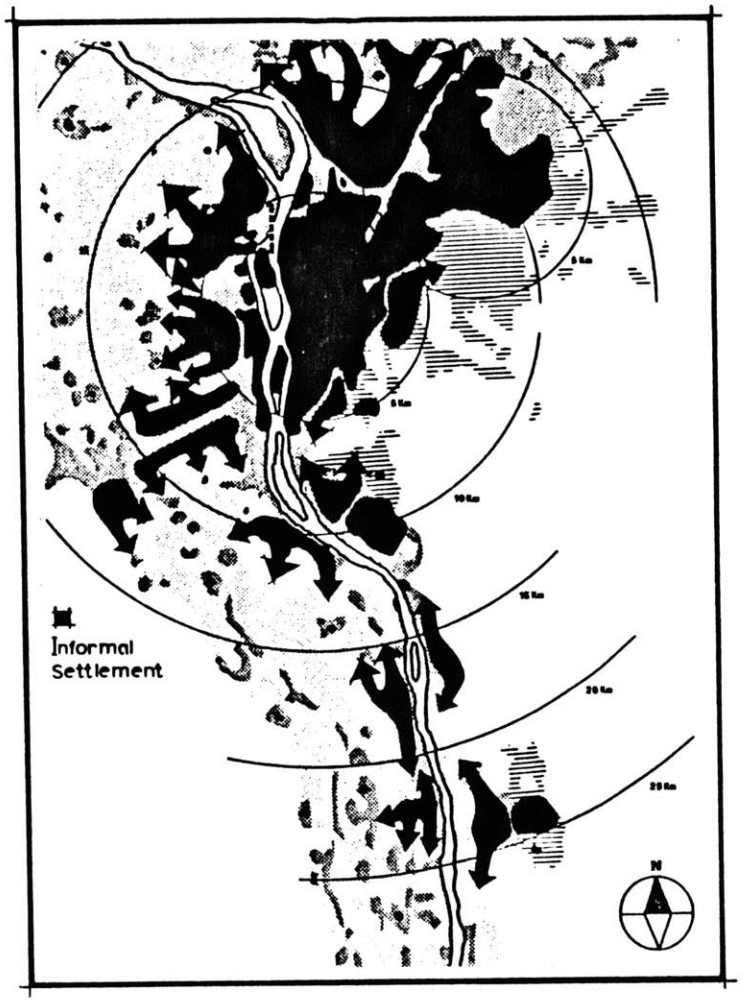
- Proximity to relatives and friends: relatives and friends provide the means of helping others find a suitable site.

CHARACTERISTICS OF THE SITE

The sites chosen tend to have certain uniform characteristics:

- Access to water: water is necessary both for sustenance and for construction purposes.





RELATIONSHIP OF LOCATION OF INFORMAL SETTLEMENTS AND INDUSTRY IN CAIRO.

- Agricultural land generally has access to water; either from irrigation canals or groundwater (wells).

- Informal settlement sites, if not gaining access to groundwater, tend to be located near water mains.[12]

- The narratives mention access to water in varying degrees: cheaper land has more difficult access, often requiring the resident to walk far.

- Other sources of water are public taps, commercial vendors (tank trucks or water carriers), mosques, pumps or neighbors or commercial establishments.

- Access to transport

- Agricultural land often has unpaved roads or paths crossing the fields or connecting to major or secondary roads. These serve as makeshift byways for transport.[13]

- Those informal settlements located near large industries can take advantage of major roads leading to them.

FACTORS NOT INFLUENCING CHOICE OF LOCATION

- Access to electricity
- Electricity is installed almost universally and adding additional or illegal connections is not difficult.

- Gas- or kerosene-burning stoves and lamps are ready substitutes for electricity.

- Access to Sewage system

- Most informal owners will install private holding tanks, "khazzans".

ACQUISITION OF LAND

"While working for a company I found my present house lying empty." (Subsequently his neighbor mentioned that the owner of the house appeared and sold the house to him charging the standard price of 15 piasters a meter.)

(Ali)

"When I first arrived in the area it was just an empty desert and people were free to build where they liked." (Now the house is in the main street.)

(Osman)

"Our first house consisted of four rooms plus a large dining room which we shared with the landlord, each of us having two rooms. I did not enjoy sharing accomodations and decided to buy my own piece of land and build a house. Several people were selling land and I made an immediate bid when I heard of an available plot. The landlord refused to be paid in installments and I had to pay LE 230 without being given a receipt. Not having formal proof of ownership, I built the house in one stage."

(Hussein)

"My friends and relatives were buying land so I decided also to buy a house in the same area. It consisted of a yard, a room with a ceiling covered with reeds and a bathroom. Then I made gradual improvements to it."

(Abdullah)

CHOICE OF LOCATION

Informal development on agricultural land

"Regarding the land, there is a code here by which all those who claimed a piece of land first are accepted as the owners and nobody dares to take a part without prior agreement. When I first came, I usurped a piece of land. Some of the local people resented this and reported me to the government saying I took advantage of my job (guard with the City Council) to acquire the land. My boss gave me an ultimatum. Either I would have to give up my job or the land. Since I am a peaceful man with a family to support and in need of a salary, I chose my job."

(Sabry)

"We lived in the flat for six months during which time we claimed a piece of land. People started moving into the area about 15 years ago, but at that time, it was not very crowded. A man arrived some time later saying he had claimed the land earlier, but went away satisfied when we paid him LE 2 to drop his claim."

(Ismail)

"I hope to buy the land from the government on a long-term mortgage or pay "tahkier" (usage tax for claimed land)."

(Hossam)

"We are also afraid that if the government demands the "tahkier" after a long time, we will not be able to afford the accumulated amount."

(Ahmed)

"My overwhelming wish is that the threat of being driven out of my house will be removed. There are daily rumors that the government is going to destroy our houses."

(Abdel-Hamid)

"My wife says some people came to measure the land and fixed a tax ("tahkier") but she did not go to the authorities to find out the value in case she discovered that we owed a large sum and would not be able to pay. We would rather put off payment until we are able to collect our share through a community savings group."

(Aiyoub)

ACQUISITION OF LAND

In this part, I will try to draw a general picture of the different means of acquiring land in the informal settlement, highlighting the value of the land and its use.

ACQUISITION:

PURCHASE

- Most informal settlers purchase land converted from agricultural use.[14]

- Agricultural land is often worth more as residential property than for agricultural purposes because:
  - low profit from crops due to government's ceiling on crop prices.
  - deterioration of the agricultural value of land from the encroachment of urban areas (drying up of canals, wastes in canals, etc.)

- The land is subdivided illegally and sold either to speculators or individuals for their own use.

Land Cost

- The cost of land forms an increasing percentage of the total housing cost for the informal builder. Estimates of inflation of 20% to 40% annually [15] are not uncommon This is much higher than for general construction costs (about 15% annually).[16]

- Land prices in informal settlements are influenced by:
  - repatriations from Egyptians working abroad finding their way into the land market.
  - potential access to water or other infrastructure
  - In 1977, prices varied between LE 5 and LE 15 m^2. Where access to water and electricity is possible or visibly forthcoming in the near future, prices were not less than LE 10 m^2.
  - In the outer fring areas, where there are no utilities, and little hope of being serviced in the next 8 or 10 years, land sell for LE 4-5 m^2. [17]

INHERITANCE

- According to Egyptian Law, land can be subdivided by individuals to accomodate family members.

- The subdivision of agricultural land is controlled by the 1978 Agricultural Law.

- Conversion of agricultural land to urban uses is controlled by Law 52 of 1940 and 1975.

- Subdivision may legally occur on agricultural land with proper variances or on non-agricultural urban land. In either case, the procedures are costly, and the chances of success are small.[18]

- Illegal subdivision and selling of agricultural land for residential development is widespread.

SQUATTING

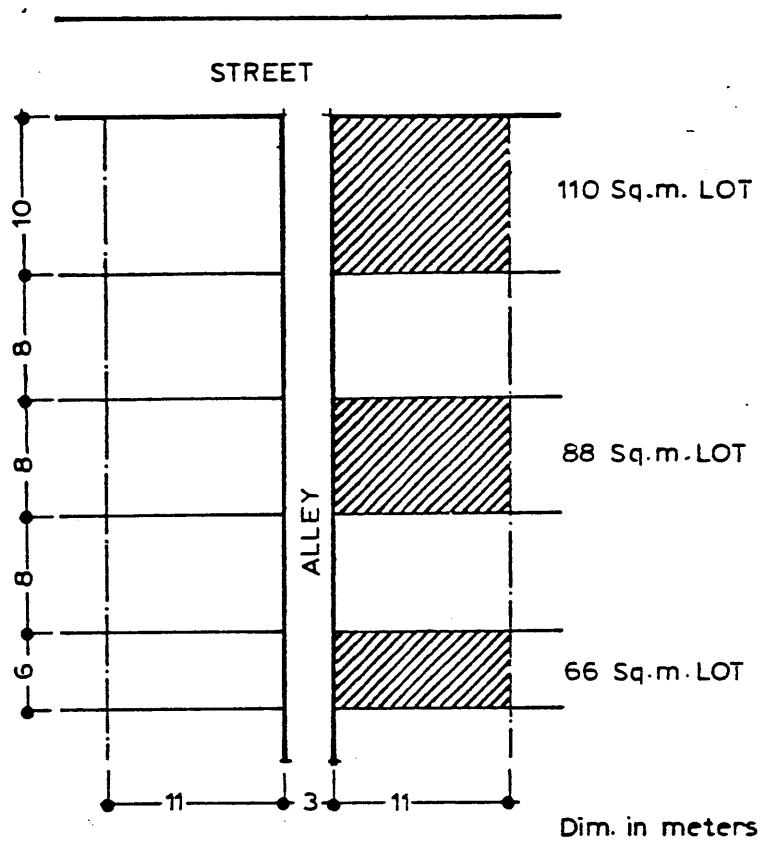
- Squatters form only a very small percentage of informal owners: 6%.[19]

- Squatting tends to take place on government-owned desert land.[20]

- Squatters expect the eventual legalization of their claim by payment of a fee for usage which is later levied by the government during legalization procedures.

- In recent years, squatters have been relatively immune to government eviction.[21]

- However, land registration and acquisition of title to the land often proves difficult because of the problem of conflicting claims, as seen in some of the narratives.



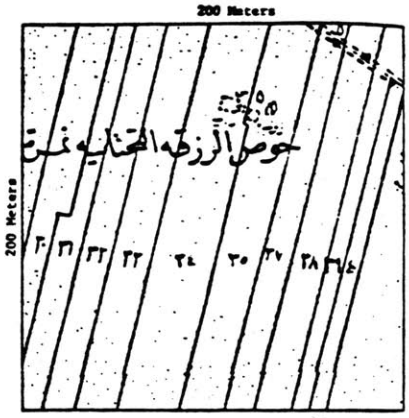
SCHEMATIC DIAGRAM OF TYPICAL LOT LAYOUT AND RANGE OF SIZES IN AN URBAN INFORMAL SETTLEMENT.

- The tendency in the last twenty years has been a reduction of the lot size because of rising land costs.[22]

- On the average, lot sizes are about 80 m^2. 120 m^2 is rarely exceeded, nor do lot sizes generally fall below 65 m^2.[23]

Informal Land Subdivision

- The residential layout on agricultural land tends to follow the original property lines, and is influenced by former irrigation channels and canals.[24]



PROPERTY LINES 1940's
AGRICULTURE LAND

1977

- A relatively regular land subdivision is produced, promoting development in a simple grid pattern.

- The physical layout tends to follow the pattern of the village:
    - minimum area for street
    - little public open space
    - very dense development
    - full lot coverage[25]

- The owner maximizes his profit by subdividing his land into the largest possible number of plots.

- The great majority of these subdivisions are illegal because of the difficulty and cost of applying for legal subdivision permission.

FINANCING THE DWELLING

"To pay for our house, I had to sell many of our possessions: three sofas for LE 21; my wife's gold earrings and wedding ring for LE 50; a cupboard for LE 40 and some cattle for LE 350."

(Ismail)

"I built the house in stages whenever we were able to save some money. I borrowed some money from friends and neighbors towards the construction and have been building continuously for the last eighteen months."

(Hassan)

"Buying the land and paying for the construction proved extremely expensive so I was forced to sell my T.V., recorder, my wife's jewelry, and use all my savings which I earned from three months' work in Saudi Arabia."

(Mokhtar)

"We got an estimate of the cost of the building: LE 5000. My brother and I together have saved LE 3000. It took us five years to save that much. We do not intend to borrow money. We'll build one floor, live in it until we have enough for the second floor. By that time, the children will have grown up and we'll need the extra room. We may rent the extra rooms until the children need the space.

I have never thought of going to the bank. No one here deals with banks except maybe the big contractors or suppliers. I saved my money in the post office savings account, but this is not really a bank. I have no intention of using the "jam'iya" (informal credit institution). You don't use it for big items like building a house. It's useful for emergencies or if you run short of money right before you finish construction, but nothing big."

(Abdel-Meguid)

"I thought of going to the Arab countries to work and I had an offer. This is the way most people around here get money to build. But I can't leave the country now because I haven't finished my military service."

(Naguib)

"Once in a while I extend credit. Mostly when I buy the materials myself. But I can't afford to tie up too much money that way. Usually I only give credit for about 50% of the cost. And the terms are very flexible. Whenever my customer gets some money, he brings me some.

People around here don't like to be in debt. They like to feel that the house is theirs and paid for.

People around here do not deal with banks...among the more than 3000 customers I have had contact with, only 3 had loans from the bank."

(Fathy Gabr, informal sector supplier)

I do not like to give any work on credit, but once in a while you have to. If a man bought a lot of materials and just needs a little to complete the work and he doesn't have the money, then you give him what he needs and he pays when he can.

Nobody gives long-term credit.

Owners don't like to buy on credit; they get money, sell land, if not enough, they sell their wives' jewelry. People don't build for the sake of building, but for their future."

(Hagg Badr El Gabban, informal sector contractor)

FINANCING THE DWELLING

The informal owner finances his dwelling through the interrelationship of three factors:

1. cash, acquired through various means
2. credit, offered in varying degrees by informal sector suppliers and contractors
3. the incremental nature of construction

Formal sector financing, such as loans from banks, is rarely resorted to.

CASH

Both the purchase of the land and actual construction; purchase of building materials and hiring the contractor; require a substantial amount of cash on the part of the prospective owner. This is needed as a downpayment or payment in full to the landowner, contractor or supplier.

Sources

The two major sources are:

1. Household Savings/Investments

- Most households will save for some 5-10 years in order to accumulate the necessary capital.[26]
- Family investments or savings in the form of the wife's jewelry, home furnishings, and other property such as land or animals may be sold to raise funds.

- The majority of households do not maintain their savings in banks, but at home, in post office accounts or in "jam'iya" (informal credit institutions).[27]

2. Repatriations from Workers Abroad

- Family members working abroad provide substantial amounts of capital to finance building construction. In 1979, the worker remittances entering Egypt through official channels were estimated at 1.5 billion.[28]

Secondary Sources

- Savings or loans from sources such as the "jam'iya" play a minor role in providing cash for land and construction. They are used mainly for consumer goods, weddings, etc.[29]

- Another minor source is gifts or loans from relatives or friends.

Amount Needed to Enter the Informal Housing Market and Begin Construction

- Approximately one year's income (LE 450-550 in 1977) is the minimum capital needed to purchase land and and begin construction.[30]

- This is contrary to the view that in self-help construction situations, the residents begin construction the moment they desire to.

CREDIT FROM INFORMAL SECTOR SUPPLIERS

- Suppliers offer varying degrees of credit in an informal manner (the client pays when he has money at hand). However, if the supplier is pressed for cash, this reflects on the amount of credit he can extend. Normally, the structure iself (walls and temporary roof) are paid for in a lump sum.

- In construction, the major investment the owner will make is a concrete roof. Contractors usually require a 20-25% downpayment and the rest in installments over four or five years. The effective interest rate usually works out to be 20-25% per year.[31]

- Homeowners thus will end up carrying about LE 15 per month in installments out of an income of LE 450-550 (1977).[32]

INCREMENTAL BUILDING

- Most owners cannot afford to finance their dwellings totally out of savings, therefore they build in stages.

- Because the owner's cash flow is intermittent, he is not prevented from continuing construction on an on-again-off-again basis. The owner builds until his capital is used up and his credit fully extended and then stops until further cash comes in from any of several sources.

- Each addition of a room or installation of a utility also requires a sizeable sum, some LE 50-150.

COST OF THE DWELLING

The following table illustrates various income levels and the affordable house of each:

Household Income (LE)	Affordable House	Number of Houses Built per year
340	900	40,000
530	1400	40,000
850	2200	32,000
1580	4000	18,000
2400	7000	9,000

Source: TAP Report 79-5, "Housing Policies and Urban Markets in Developing Countries: The Egyptian Experience"

Those in the lower income ranges represent the largest number of dwellings built per year.

The average 60-80 m^2 dwelling costs about LE 1500-2500 (1977).[33] The breakdown of costs is:

Land	LE 500-900
Structure	LE 200-400
Roofing	LE 400-500
Utilities	LE 200-400
Flooring/ Finishes*	LE 200-300

*exclusive of doors and windows

- From this table one can see that those who have less money to spend will save on land costs, roofing and installation of utilities.

- The cost of informal sector construction will vary depending on the builder's approach (whether he uses a contractor or not, type of labor, etc.) Other factors affecting cost are:

  - transport cost element to obtain materials
  - standard of construction chosen

- However, informal sector construction is significantly cheaper than formal sector construction:[34]

informal sector housing	LE 30-50/m^2
average housing	LE 60-70/m^2
"luxurious" housing	LE 80-100/m^2

- Differences in construction costs are attributed largely to differences in the quality of finishing materials, amenities and overhead of larger contractors.

- What is important in the formal sector is the price of the finished product; in the informal sector, it is the price of the inputs to the construction process.

BUILDING PROCESS: ALLOCATION OF MATERIALS

"I bought all the building materials myself. I got as much information as I could from other people building houses in the area and found out how and where to buy the best materials."

(Ismail)

"After finishing work every day, I worked for another four hours making bricks near the piece of land I claimed.

I bought wood for the doors from my village and had it made up here."

(Ali)

"We bought most of the building materials ourselves from Ismailia except the mud and the sand. We heard about dealers from others who had built houses in our area before us. We brought the mud from Ezbet Shehata and had to pay the nightwatchman to allow the builders to take sand."

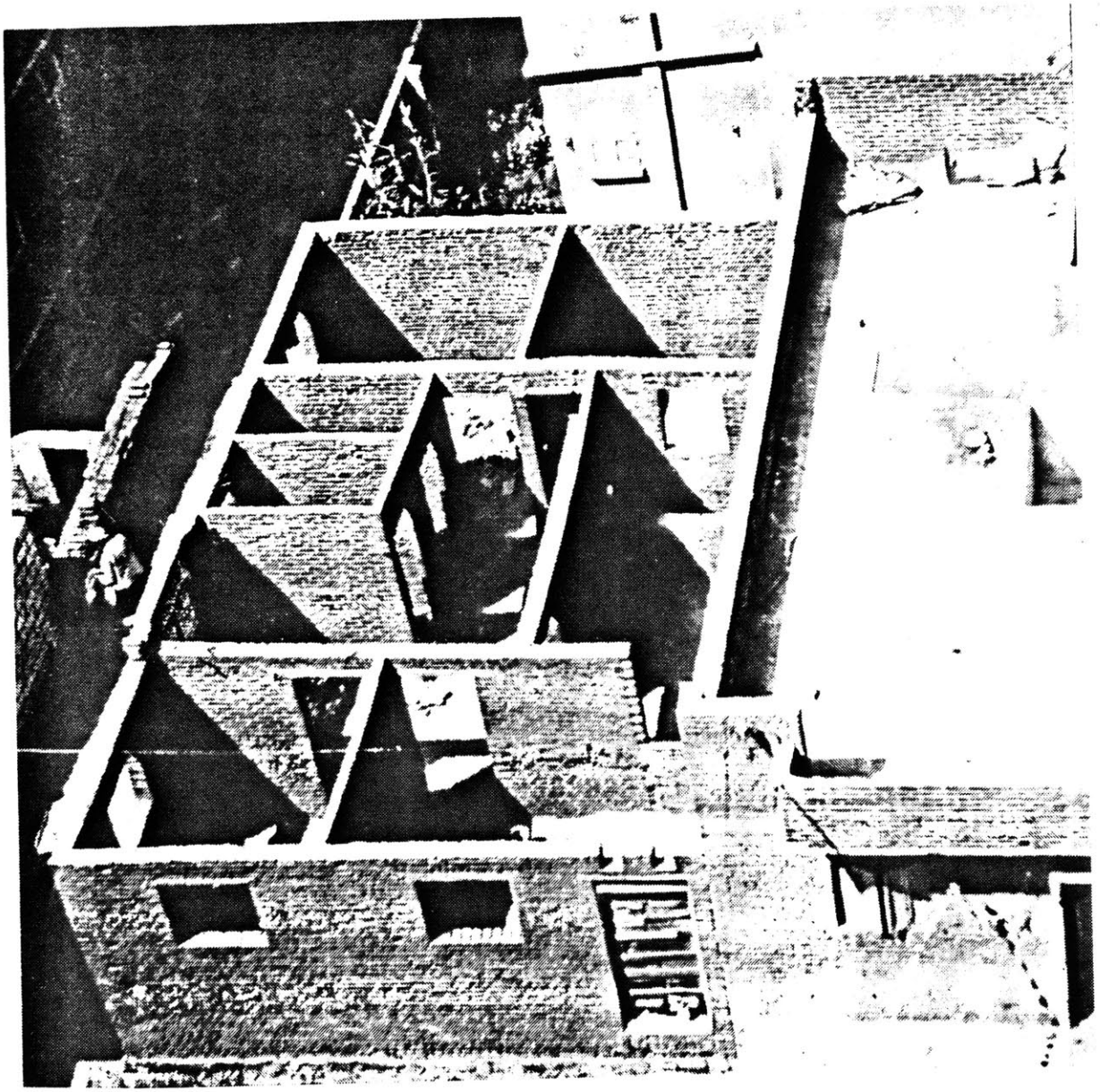
(Osman)

"We made a considerable saving when it came to the ceiling since there were two camphour trees in the yard and we used branches from these for the construction."

(Anwar)

"I like to have my hand in more than one area of supply. The market is always changing and the situation with regard to each material varies from month to month."

(Hagg Badr El-Gabban, informal sector supplier)



ALLOCATION OF BUILDING MATERIALS IN THE INFORMAL SECTOR

- Most informal builders prefer red bricks, recycled bricks are also used among the lowest income sector.

- Because of the expense involved in pouring a concrete roof it is almost never done untill the owner is ready to build another story

"In my business, I don't need expensive machines. And I use a cheap grade of lumber. I frequently buy used lumber. If I am asked to replace a wood roof with a concrete one, I select from old lumber what I can use to defray costs. I usually get it very cheaply. Lumber is the most important material in my business. I get my new lumber from a distributor I've known since I started my own business.

If you are the regular customer of one supplier, you are sure he won't cheat you and will give better quality materials. When there is a shortage in a given item, you get preferential treatment. And If he doesn't have it, he will find it for you. If you don't have the full cost, he will give you the material and wait until you get the money from your customer.

In 90% of these small jobs I get, the owners buy their own materials.

Outside builders who do the big buildings benefit from subsidized materials. Usually they exaggerate the dimensions of the building to qualify for more materials, then sell the surplus in the black market."

(Fathy Gabr, informal sector contractor)

BUILDING PROCESS: ALLOCATION OF MATERIALS

According to his financial situation, the informal owner will choose to:

1. make the building materials himself (mud brick).

2. buy the building materials himself or have the contractor buy them.

3. choose building materials of a range of quality: new or recycled materials; legal or black market. Building materials of all types are readily available.

4. substitute materials for other materials according to changes in market prices (for example, the owner or contractor may change the concrete/rebar proportion).

5. transport the materials himself or not.

BUILDING MATERIALS

Egypt produces cement, gypsum, marble, limestone, bricks, glass, some reinforcing steel, china/porcelain products, and cement and asbestos pipes and boards. Large quantities of cement, reinforcing steel and timber are also imported.

The informal owner uses a variety of building materials, often relying on used or recycled materials because they are cheap and easiest to obtain. The following table is a listing of materials used in informal housing construction:

Materials Used in Informal Housing Construction

MATERIAL		USE	SOURCE
*	Mud Brick (unfired)	Brick form) nonformed) walls	Local brickmaker, fields canal banks, etc.
**	Red Brick (fired)	Whole new) and used) walls, foundation	Brick distributor and salvage from bldg. sites
	Cement	Concrete mix for foundations, beams and pillars	Government and market
***	Stone	Foundations, walls	Quarry or building site
	Gypsum & Mastic	Interior and exterior wall coating	Government and market
****	Steel reinforcing rods (re-bars)	Structural reinforcement	Government and market
	Wood	Doors, window frames & shutters (assembled or not assembled)	Market
	Glass	Windows, doors	Market
	Eastern toilet		Regular market
	Western toilet		Regular market

Materials Used in Informal Housing Construction

MATERIAL	USE	SOURCE
Water closet for toilets		Regular market
Sink		Regular market
Tiles		Regular market

Source: Informal Housing in Egypt

* Used primarily in urban periphery areas and around villages.
** Prices much higher for smaller quantities.
*** When used for walls--usually in areas near quarry.
**** Variation in price reflects different diameters.

Mud Bricks

- The lowest income sector most often employs mud bricks, generally made by the owner himself who will also transport the mud. Mud bricks are used for the property wall as well as for the structure.

Red Bricks

- Most informal owners prefer to use new bricks, but the lowest income sector will use recycled bricks.[35] Old brick pieces are also used in concrete.

- The sale of bricks is unregulated by the government, although the use of sand bricks is officially encouraged because of the depletion of Nile top soil.

- The use of red bricks requires a specialized labor team whom the owner will hire himself or whom the contractor will supply.

Cement/Reinforcing Bars

- Cement price and distribution is government-controlled and allocation at subsidized prices goes to contractors according to the size of the project as stated in the building permit.[36]

- The black market, however, readily provides cement at higher prices. The informal builder will rarely acquire a building permit because of the difficulty and expense involved and purchases, in general, black market cement and rebars.

- The black market can respond to a variety of small orders quickly, but is an impediment to households attempting to improve their dwelling or build in more desirable materials.

- The following table compares black market and official subsidized prices for cement and other materials

ALTERNATIVE MATERIAL PRICES 1976-1978[37]

Material	World Price	Official Price	Average Black Market
Cement	LE 34/ton	LE 18/ton	LE 45/ton
Steel	LE 180/ton	LE 150/ton	LE 190/ton

- Steel reinforcing bars are mainly recycled from salvaging and demolition contractors.[38]

Wood

- Wood for doors and windows most often comes from salvaging contractors.[39]

- Contractors may provide new timber, but will use recycled timber to reduce the cost.

Roofing

- Because of the great expense (LE 400-500 in 1977) the reinforced concrete roof is almost never poured until the owner builds a second story.

- Temporary systems used are: wood joists covered with palm, straw mats, canvas or asbestos panels. A 60 m^2 system will cost LE 60-70 (1977).[40]

- Roofing presents the opportunity for improving the use of building materials, or improving the technology of production: it could be made cheaper by the use of precast, vibrate concrete panels and beams or hollow and serrated red brick or asbestos cement blocks could lighten structures and reduce costs.[41]

THE RANGE OF SOLUTIONS

- The Ismailia Reports set down the range of solutions available to the informal sector builder, from the cheapest to the most expensive, by arrangement into three "arrays".[42] The individual building may be built with a series of arrays, and since most building is incremental, different rooms or sections may represent different arrays.

- As one progresses from the cheapest to the most expensive array, the use of purely local materials (mud, sand, wood beams, woven mats) decreases and the use of red brick and cement increases.

Mud Brick Array (normally one-storey maximum)

Foundations: large mud bricks in excavated trench

Walls: mud brick (6 X 12 X 25 cm) with earth mortar, 30-40 cm thick.

Roofing: split palm or other local wood beams, overlaid with one or two layers of woven matting and topped with 10-15 cm layer of mud and straw.

Floors: beaten sand or cement/sand screed.

Rendering: mud plaster with whitewash, inside and out.

Doors and windows: wood, usually recycled.

- This array almost exclusively uses local materials (mud, sand, timber) all of which are readily available, relatively cheap and less subject to inflation.

- Only door and window joinery and cement for renderings require non-local resources.

Intermediate Array (normally one-storey maximum)

Foundations: same as above or red brick chips and cement.

Walls: cement and sand block made on site, mud or cement mortar; some use of red brick with cement mortar for thin (12 to 24 cm) walls.

Roofing: imported wood beams, with same overlays as above.

Floors: concrete floor with topping of cement screed, usually 25 cm thick overall.

Rendering: as above, but with more use of cement-sand mortar.

Doors and windows: wood, either recycled or new.

Red Brick Array (normally three-storey maximum)

Foundations: salvaged red brick and cement or limestone.

Walls: red brick (6X12X25 cm) with cement mortar, usually 40 cm thick with bearing load.

Roofing: As above until additional floor added; then reinforced concrete at 40 kg/m^3 of steel.

Floors: concrete floor with sand topping and concrete tiles.

Rendering: gypsum or lime plaster and whitewash or oil paint inside; outside usually given a brown coat or left bare.

Doors and windows: imported wood, some use of ironframes.

- This array uses non-local and more expensive materials.

- Costs per m^2 of the different arrays are approximately (1977):

Costs/m^2 for Informal Construction[43]

Mud Brick Array	LE 5-8
Intermediate Array	LE 10-14
Red Brick Array	LE 17-21

THE SUPPLIER

- Most suppliers are sons of the area. Their clients come through personal contact, friends, relatives and previous clients.

- Suppliers will provide some materials on credit, although they too do not apply for formal sector financing and thus their ability to extend credit is limited.

- Suppliers are sources of technical information for the owner/builder.[44]

BUILDING PROCESS: LABOR

"While living in a hut built with rolls of cane, I hired a builder to construct a house for me."

(Hussein)

"All the people who want to build houses here go to the railway station where one can find hundreds of brick workers or masons. It is in the station that they negotiate with the builders about the design of the house and the rates. The reasons behind the builders gathering at the station is that most had skipped military service and were therefore not able to work at a permanent job with the government or a private company."

(Ismail)

"My wife and I and two workers made the bricks by mixing sand and mud. I would knead the mud and my wife would add the water. Other families employ a builder but make the bricks themselves."

(Mohamed)

"Our neighbors hired a builder who stopped work whenever they ran short of money."

(Amr)

"Most suppliers and builders in this area are sons of the area. I employ six workers on a permanent retainer. Three are my nephews, one is my cousin and one is the son of a friend and one is an outsider."

(Hagg Badr El Gabban, *informal sector contractor*)

"Most of my clientele I get through person contacts and from previous clients and friends. I am captain of the local soccer team and everybody here and around here knows me. That helps in getting customers.

My major problem is labor. The workers sit near the bridge and name their prices. They are the pashas of today; they know they are in demand. Labor quality is a major problem. The workers need constant supervision.

I have two carpenters and three helpers on my permanent payroll. I have had them working regularly for the past year. My problem is that I have to take them green with no experience, and once they are trained, they find jobs in Libya or Saudi Arabia, so I am always left with people less than fully skilled."

(Fathy Gabr, informal sector contractor)

"I bought all the materials myself, but hired a laborer and three assistants for the construction. The house was completed in less than three days."

(Hussein)

"I hired a mason and assistants who were paid a daily rate. It took a year to complete the first stage so that I could move in with my family."

(Said)

BUILDING PROCESS: LABOR

The informal owner's finances regulate his choice of standards or quality of his dwelling, the building materials, and accordingly, what combination or type of labor he will employ. Labor of all levels of skill is readily available. The contractor he chooses will be from the area and usually known to him personally. In order of increasing expenditure, the informal owner's choices include:

1. the owner does all the work himself.

2. the owner hires laborers and supervises them himself (a labor team)

3. owner/contractor combination: the owner hires a contractor and works with him as an assistant and/or supervises other laborers. Contractor is usually a skilled artisan or craftsman with a specialized labor team.

4. the owner hires a contractor who is responsible for all aspects of contruction. The contractor provides specialized labor teams for bricks and reinforced concrete.

- Approximately 45% of all construction is carried out by labor teams supervised by the owner.

- 40% of the construction is done by a contractor carrying out the work.

- These figures suggest only a limited role at present for self-help.[45]

The Labor Team

- A loosely organized team that is locally recruited from local train stations, cafe, etc. on an as-needed basis.

- The team is usually led by a skilled and experienced tradesman who also does the organizing.

- The most common method of contracting is an arranged sum according to the volume of wall to be constructed.

- The labor team has the ability to respond to the demands of small scale operations.

- The labor team provides employment for local unskilled laborers.

- The cost is relatively low, versus the expense of hiring a staff that is retained permanently by someone.

- However, labor teams can be affected by periodic shortages of labor which may increase their cost.

- The typical small contractor will retain a core team part-time on a permanent basis.[46]

- Skilled labor does pose a problem, as once trained, skilled laborers will go to Libya or Saudi Arabia to work for more money.

The Contractor

Two kinds of contractors work in the informal settlements:

1. those with larger firms who also engage in real

estate development and build 3-5 story walkups for rental.

2. The smaller contractors who build 1-2 story dwellings and who head specialized labor teams. This section will deal with this type only.

- The contractor is responsible for design and construction, although the owner may get involved.[47]

- The structure is generally built for a lump sum based on the volume of walls or number of rooms constructed.[48]

- The small contractor may also provide credit for roofing and utilities.

STAGES OF CONSTRUCTION/DESIGN AND FUNCTION

"The house as it now stands consists of a medium-sized room which serves as a bedroom, a smaller room (which doubles as a living room, dining room and kitchen) and a bathroom. My wife is unhappy about not having a separate kitchen. The bathroom is separated from the kitchen by a nylon curtain."

(Mohamed)

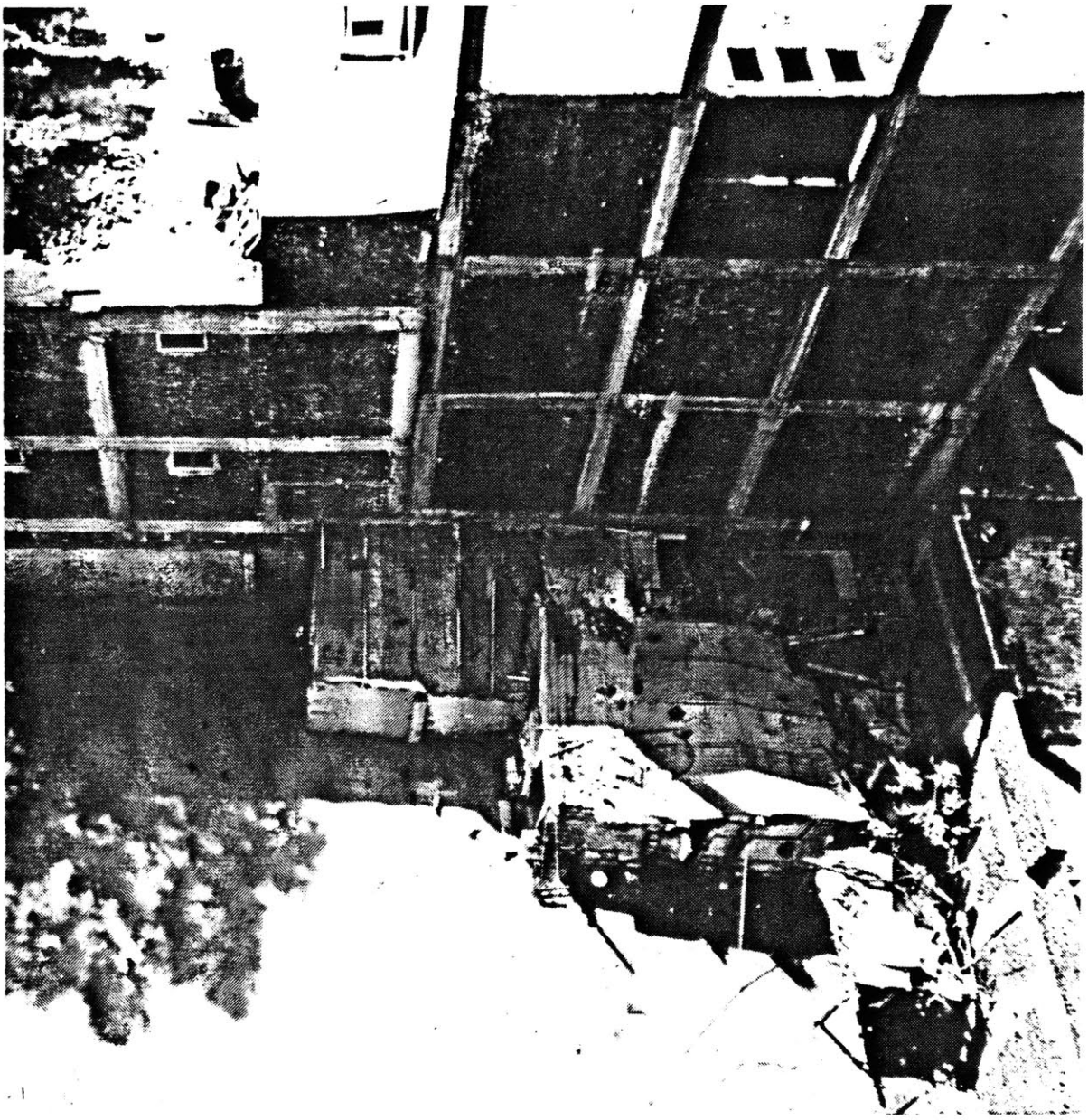
"It took a year to complete the first stage. I was able to build in two stages. In the first, I completed two flats, consisting of two rooms, a living room, two baths and a kitchen. I then built the rest of the house which consisted of a two-roomed flat, and a second flat of two rooms and a third bathroom. We moved in after the first stage. I lived in one flat with my nephew and son and my daughter-in-law and the grandchildren in the other.

We started on construction of the second stage after two years. It also took one year to complete. We built two flats, one of two rooms and a living room and the other with two separate rooms and a bathroom. At the moment, we rent out two flats."

(Saber)

"Our house is built on 200 m^2 of land. We also own the small lot next to ours (100 m^2) which we bought twelve years ago for 50 piasters/meter. It was agricultural land. Combined, the 300 m^2 are enough for two houses. In the beginning, my brother insisted on building another old style house, spread out. He likes the idea of an interior courtyard so the women can raise chickens and do all their activity in privacy. But that is wasteful. Nobody does this now, when the square meter of land is LE 50. So I convinced him to divide the land into two lots, and build a two-story house for both of us on half of it."

(Naguib)



CONSTRUCTION IN THE INFORMAL SECTOR

In many cases the owner proceeds to build his house while living in a temporary dwelling on the same lot.

"First, I made the bricks. Then I built a room and the fence. In the third stage, I constructed the hall and another room and in the fourth and final stage, I added the kitchen and the bathroom.

The last stage of completion involved the coating of the walls which was done in the last month. First the hired laborer covered the walls with mud, charging LE 2 per room. Then I bought a LE 1 worth of lime and coated the walls with it. That is how I built my house from August 1976 to June 1977."

(Ismail)

"We built our present house in two stages. The first was gradual and extended over four months since we had financial difficulties. In this stage, we built four rooms, and an entrance and a hall.

In the second stage of construction, the walls were cemented and plastered, the floor cemented and we built a w.c. and a kitchen, added a sewage reservoir and constructed a mud wall around the house. The whole process took one year."

(Amr)

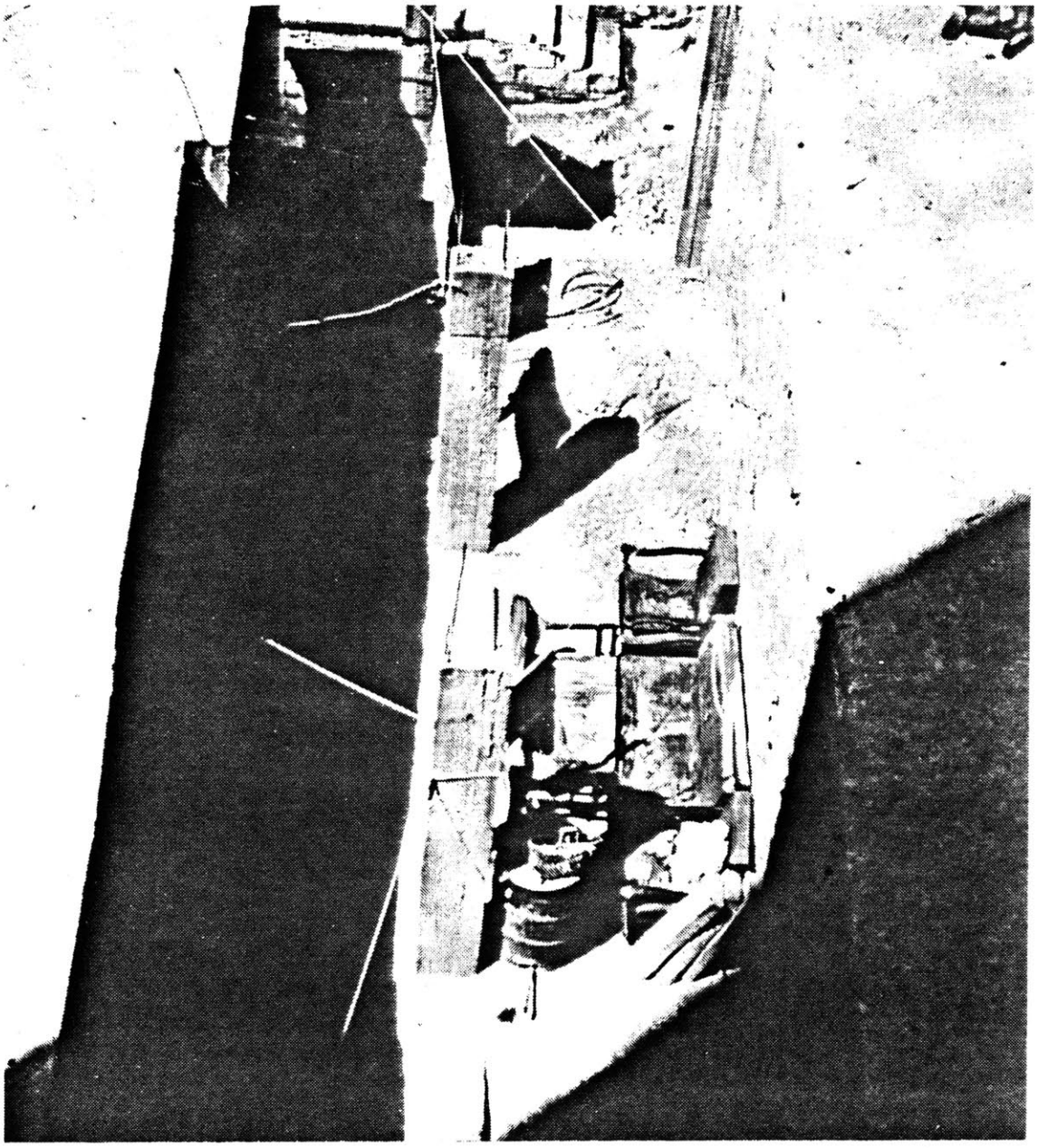
"The vast majority are building to fit their own family's needs. Even the multi-family houses you see going up now are usually built by two or three brothers who inherited a piece of property or some money. Now each has his own family. They buy a few more meters if they can, and ask me to demolish the old structure and build a two-story house so each can have a floor. If they have extra rooms, they rent them."

(Fathy Gabr, informal sector contractor)

"The house as it stands now has seven rooms and a shop. The front yard is used as a living room and converted to a sitting room in summer. There is also a back yard for raising chickens and sheep. We also have a special room for storing the oven. There is a pit latrine which is drained every six months and costs 50 piasters each time this is done.

It is of prime importance to have some roofed rooms and an unroofed yard for raising fowl and for ventilation. We value privacy. Apart from introducing water and electricity, I don't feel the house needs any improvements."

(Hossam)



CONSTRUCTION IN THE INFORMAL SECTOR

The owner usually moves in as soon as the shell is finished

"With the help of my brothers and I, my father built three rooms of mud with the ceiling made of reeds. We also carried the building materials on a donkey. Three years later, we added four more rooms, but because my brothers and I were busy, and my father was old, the construction was done by a mason and his assistant. The house did not have water, electricity or a w.c.

Seven years later, I decided to move into a separate section. I constructed this with financial help from my father, savings and a loan. I built four rooms and a w.c.

At present the house consists of eleven rooms with a very large yard and is surrounded by a fence with a gate opening onto the road. There is a large hall through the entrance which is shared by all the family for receiving guests. Both my brother and I have four rooms, while our parents have one. Another room is used as a stable and the remaining one as a guest room. The yard and the w.c. are shared by all the family.

The house itself is a conveninent size and is built along the same lines as a traditional village house in Upper Egypt. It is comfortable and they can raise poultry and cattle which keeps the cost of food down."

(Anwar)

We live in a one-story house, but I will add more floors when my son gets married and I have more money. My neighbor gets money from his son in Libya and already has built three stories."

(Sabry)

STAGES OF CONSTRUCTION

Several years is the normal time period for an informal sector dwelling to take on a final form as the owner envisions it. At any given time, one will find in an informal settlement dwellings at different stages of construction. The typical scenario of an individual building for his family's shelter is as follows:

Stage One:

- The owner buys or claims a plot of land and builds a structure (either of mud brick; reinforced concrete skeleton and brick infill; or brick load bearing walls).

- The structure is covered by a temporary roof of palm, straw mats, corrugated tin, or asbestos panels.

- The dwelling usually consists of two or three rooms plus a cooking area and bathroom. The owner may also construct a wall on the boundaries of his plot.

- The family moves in after the first floor, sometimes the first room, is completed. During construction, the family may wait either in the village or in a rented flat.

- An electrical connection is easily accesible either by illegal connection to the nearest source or the owner may choose to wait for a legal connection.

- Water is accessible from the nearest tap which is near or far depending on the cost of the land.

- A simple septic tank system is installed.

- This stage may take a number of days or months, depending on the time and money the owner is able to invest.

Stage Two:

- Addition of reinforced concrete roof and second story covered by a temporary roof;

  or

- addition of rooms.

  or

- demolition of original structure and construction of a new structure of more durable materials.

  or

- Finishing:

  The cheapest solution is the most typical:[49]

  The outside is left unfinished and the inside is given a brown coat and whitewashed.

  Stairs: stone or concrete slabs
  Flooring: lower grade cement tile
  Plumbing: water closet and sink of cast terrazo.

- Connection to utilities: water connection at the cost of LE 70-110 (1977).

Stage Three:

- Addition of other rooms or stories according to foundation and income.

- Addition of furniture, appliances, higher grade finishing.

The Influence of Financing on the Stages of Construction

That the construction process in the informal sector tends to be done in stages (except for larger contractors who build 4-5 story walkups for rental and the rare individual who can finance his dwelling in its final form all at once) is dependent on the owner's finances. The availability of labor and materials, both readily obtainable, does not significantly affect the building process.[51]

- Each addition or upgrading of the dwelling requires a sizeable sum of cash: (1977)

LE 100	addition of a room
LE 70-110	installation of water
LE 100	sewage system installation

(The yearly income of the informal sector resident is under LE 500 per year.)

- The addition of a reinforced concrete roof, and the second story is much larger, LE 400-500 (1977).

- The owner must save for a number of years or have a family member working abroad and sending back income in order to cover the cost.

- Credit from the supplier or contractor is not always available and generally is on a short-term basis because:[53]

  - banks will extend credit only to formal sector suppliers (on the basis of registered land or buildings on registered land).

  - the erratic income stream of informal sector suppliers and their involvement in illegal activities (sale of black market building materials, construction without building permits) makes them reluctant to go to banks for financing.

- The idea, then, that the informal owner builds and adds to dwelling by "adding a brick here and a brick there" in his spare time, so to speak, is not valid. The owner saves, builds with his savings, and then must save again for a period of time in order to accumulate the cash necessary for the next stage or addition, each of which is, for him, a sizeable investment.

DESIGN AND FUNCTION

In the informal settlement, the prevailing type of individual dwelling is that characterised by the intensive use of plot with a height from one to three or four stories. The full coverage dwelling represents about 50% of buildings in the informal settlement; with 25% being courtyard dwellings and 25% four-storey and higher walkups for rental.[54]

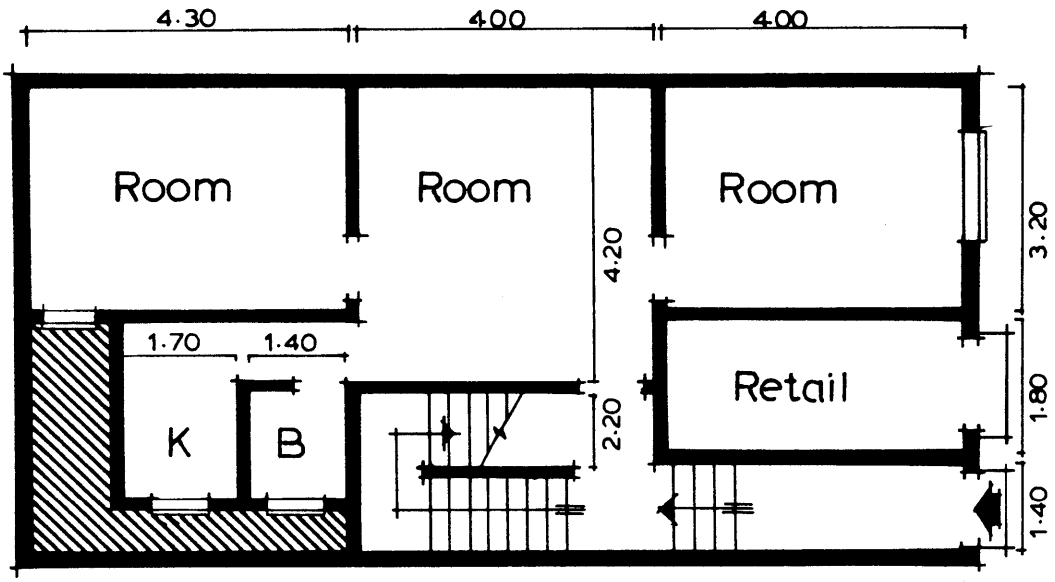
This section will discuss the full coverage dwelling and the courtyard dwelling. Four to seven storey walkups built by larger contractors and developers are beyond the scope of this thesis.

FULL COVERAGE DWELLING

The following diagrams illustrate typical full coverage dwelling plans.

Characteristics

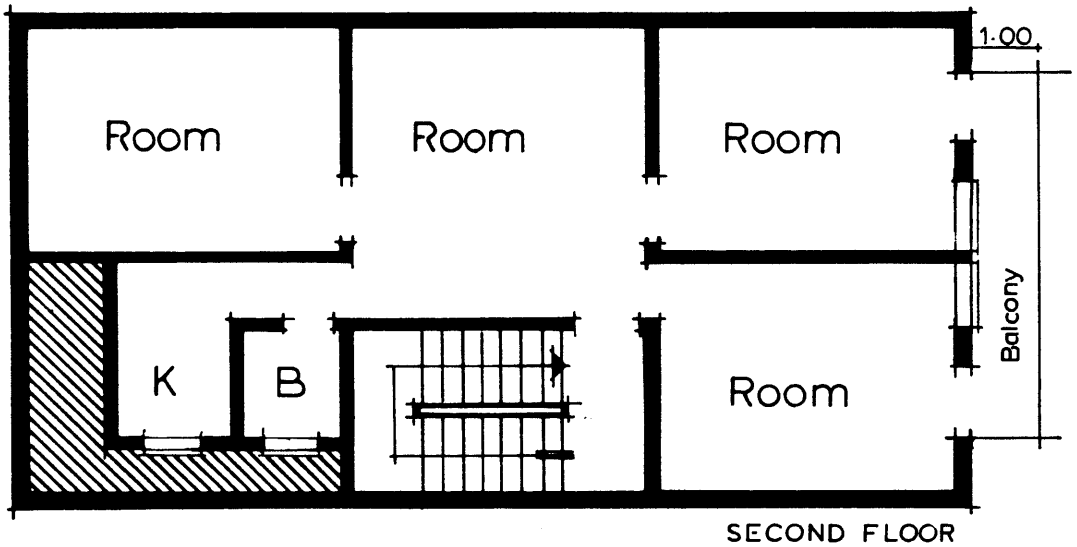
- intensive use of plot (Subdivision Law 52 of 1940 states that the building may not cover more than 60% of the parcel).[54a]
- dwelling is usually a ground floor with two upper floors, sometimes, three; tends to expand vertically.
- each floor is occupied by one, sometimes two apartments.
- plot has narrow frontage
- size: 6 to 8.4 meters in width
  9 to 15 meters in length[55]



GROUND FLOOR

Typical plan of max. lot coverage
Informal sector construction.

Dim. in Meters



SECOND FLOOR

DESIGN AND FUNCTIONS OF INFORMAL HOUSING

Typical case of max. lot coverage

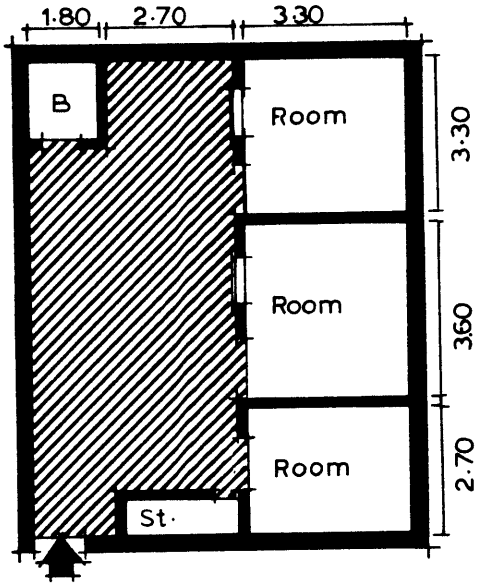
- no yard or interior courtyard
- ventilation of back rooms by air shafts
- room size: 3 to 4.5 meters in width and length
- construction: reinforced concrete and brick infill or load bearing brick walls; reinforced concrete roof.

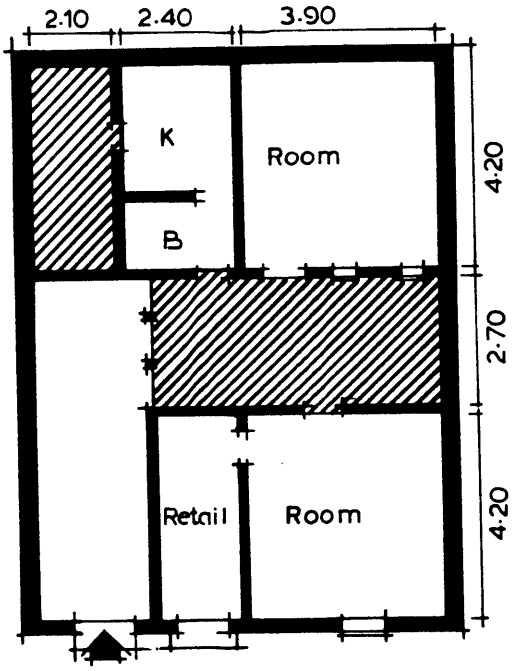
COURTYARD DWELLING

The following diagrams illustrate typical courtyard dwelling plans.

Characteristics

- The plot is comparatively wider than the full coverage dwelling with a width of 8 to 10 meters and a length of 10 to 14 meters.[56]
- courtyard is located centrally or at side.
- dwellings are usually one floor, sometimes two.
- because of building materials and foundation, tends to expand horizontally, not vertically.
- room size equivalent to full coverage dwelling: 3 to 4.5 meters in width and length.
- ventilation: rooms lighted and ventilated from courtyard.
- kitchen and bath usually placed at back of site, sometimes centrally.
- entrance is always from the front.
- construction: mud brick, brick.





Two examples of courtyard houses
Informal sector construction.

Dim.in Meters

ROOM FUNCTIONS/BOTH DWELLINGS

- The dwelling in its initial form consists generally of two to three rooms (or less depending on owner's finances), a cooking area, and bathroom. Lower income owners can reduce this to one or two multi-purpose rooms.

- Rooms are multi-purpose in the initial stage and become more specialized as the owner can afford to install infrastructure and buy appliances and furnishings.

- The courtyard is also multi-purpose: used as a sitting room, raising chickens and other animals and provides privacy for women doing chores.

- Shops are also put in by informal owners.

- The number of rooms is dependent on the owner's permanent income.[57]

CHOICE OF FULL COVERAGE DWELLING OVER COURTYARD DWELLING

- The full coverage dwelling tends to be the most common regardless of the economic category of the user, origin of the head of the family or length of stay.[58]

- The preference for the full coverage dwelling over the courtyard dwelling is due to its economy: because of the land and construction costs, there is greater utilization of the plot for extra rooms for family space or for rental. The dwelling also has greater expandability than the courtyard dwelling (vertically).

- The steady demand for rental units will affect continued popularity of this dwelling type.[59]

- The courtyard dwelling, on the other hand, is closely associated with the individual who is building solely for the needs of his family.

- The space utilized for a courtyard will be for raising poultry and family functions.

- A need for privacy is indicated by the intention of having a courtyard. This is associated with first-time traditional owners from a rural area with a concern for privacy for women and family.

- The courtyard dwelling can expand horizontally to the boundaries of the plot, but not vertically over two stories because these dwelling are generally constructed of mud bricks.

OWNER SATISFACTION

- In the interviews there is a sense of content, satisfaction and pride of the owner for his dwelling, regardless of its state; connection to utilities or not, or stage of construction or finishing.

- In terms of the preferences of the owner, the dwelling itself does not appear to be a major area for intervention.

- What does seem to be an area for intervention is financing the owner's initial entrance to the informal housing market and later upgrading and additions because of the sizeable investment required of the owner for both.

- The literature on the informal owner neatly lists his priorities: need for additional rooms, reinforced concrete roof and second story, installation of utilities, appliances and furnishing. Rather than thinking in terms of the user and recounting his priorities for consumption, it must be made clear that before all these, the owner's priority is <u>financing</u>, in order to be allowed to make choices as to what form his dwelling will eventually take.

INFRASTRUCTURE AND FACILITIES

"The location of the flat is considered to be one of the best in the area: on a main street close to the shop where we buy our daily provisions. Transport is not a problem, the road is lighted and there is water and electricity in the area. The basic disadvantage is the absence of preparatory or secondary schools. My son has to travel on a bicycle which is dangerous. There are no services such as a police center, fire station or telephone and telegraph office."

(Said)

"There are still no services or street lighting. The public tap is one kilometer away and always surrounded by a large crowd struggling to gain access. There are no preparatory or secondary schools, the nearest being three and a half kilometers away. There are garbage dumps in front of the house which are foul-smelling and a constant health hazard and where a few people actually raise pigs."

(Tarik)

"There is electricity inside and outside the house. The water tap is half a kilometer away. We have a sewage reservoir which needs to be drained every six months. The streets in our area are not lighted or surfaced and we are far from the police station, ambulance center and post office. Garbage is also a problem; we dump it in a hole some ways from the house. When this is full, like everyone else, we look for another suitable place to bury our rubbish. As for public transport, there is a bus which goes from here to Ismailia. It takes a quater of an hour and costs three piasters."

(Selim)

"We don't have public sewerage or water here. Only the mosque has water. We are about 200 meters from the mosque's water line. It costs LE 6/meter to get the extension (LE 1200). We are now using the public faucet, about 100 meters from here. But we plan to have our own pump in the new house, which will cost about LE 300."

(Naguib)

INFRASTRUCTURE

Authorities attempt to install standpipes where needed, generally at 500 - 100 m intervals.

"Although I live in what is considered to be one of the best areas, it is not well planned. There are many problems arising from the lack of basic services like an ambulance center, fire station and telegrphic facilities. We also need a telephone available at all times. There is an urgent need for a primary school and a government cooperative shop selling meat, fish and vegetables. There are several grocery and fruit and vegetable shops in the main street very close to my house, plus a weekly market, but I prefer to buy my daily provisions in Ismailia where prices are lower."

(Ahmed)

"The major disadvantage of the location of the house is the distance from all utilities and services: the family has to travel a long distance to get water and the schools, market and the medical center are all a long way off. Electricity was installed two months ago, but the current is very weak."

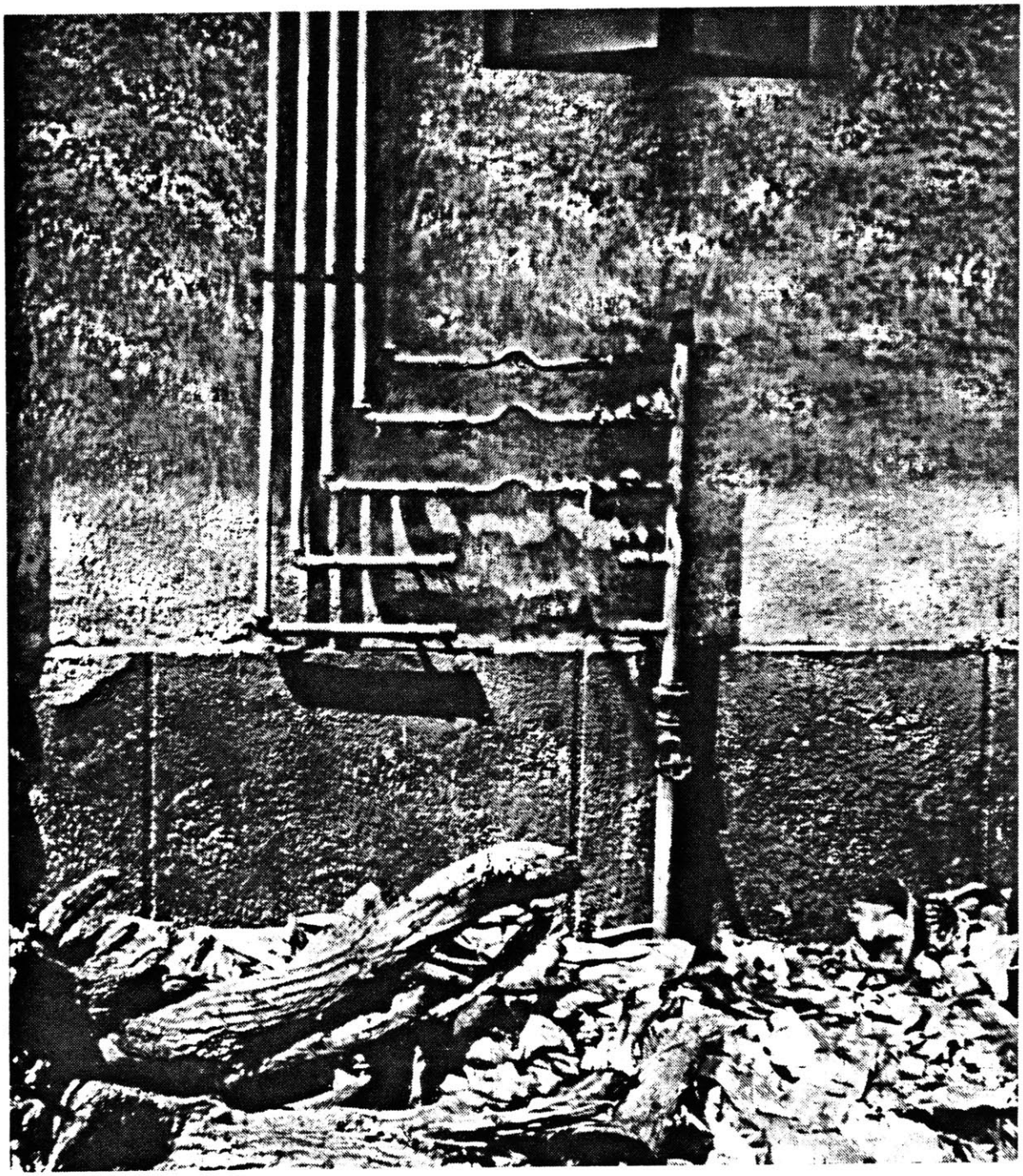
(Anwar)

"The chief advantage of the locality is that it is quiet and not overcrowded like other parts. But the distance from the center of town and all essential services make life difficult. There is no post office, police station, market or mosque. The lack of water, electricity and a proper sewage system are also missed. There is a tap near our house and water pipes pass in front, but I have to wait until the appropriate authorities visit me and give me the necessary permit to install water inside. The sewerage pipes are also connected to the building next door and it should be simple to extend the pipes into our own house."

(Hussein)

"The main disadvantage of this location is that there is no refuse disposal system. There is no way of getting rid of our rubbish apart from dumping it in a pit some distance away from the house. Also, the road in front is unleveled, full of bumps and very dusty.

The area outside the front door is also very noisy because the public tap is located there and women who come to collect water are constantly squabbling and leave the tap running. As far as the house itself is concerned, we feel that it is above average in standard. Electricity was installed inside within a year of its completion and the roads are lighted." (Sabry)



INFRASTRUCTURE

Once main lines have been extended to/or near informal areas, individual connections become largely the responsibility of the residents.

INFRASTRUCTURE AND FACILITIES

What follows is a general description of the level of infrastructure available in informal settlements in Egypt. The intention is to draw a quick picture for the reader, keeping in mind that the level of infrastructure or facilities may vary from one settlement to another, depending on location, age and political importance. However, these variations generally fall within the described range.

Infrastructure

Potable Water

- pump installed by individual or community (groundwater).

- public tap, at varying distances from dwelling; shared with many other inhabitants. Taps at mosques or neighbor's house.

- house connection; made to nearest main line, depending whether owner is able to afford the investment of connecting.

- purchase from vendors (water carriers, tank trucks).

Electricity

- The number of households having house connections is high, in the 80-90 percentile. Connections, either legal or illegal, are fairly easy to get; either through government extension of service to areas

(the Electricity Authority has been extremely efficient in extending services to informal areas) or through illegal tapping into the nearest source.

Sewerage

- The majority of owners provide a "khazzan" or holding tank installed in the street in front of their house. Constructed of plastered red brick, these need to be cleaned every six months either by bucket or suction car.

- Sewage main lines are often found on the borders of informal settlements; the government rarely installs secondary lines.

The following table list typical percentages of households with access to physical infrastructure in informal neighborhoods:

Type of Infrastructure	Percentage of Households
Water	
private connection	40%
no private connection	44%
Sewer	
public sewer	0%
holding tank	59%
Electricity	80%
Transportation	
within 15 minutes to nearest bus station	92%

Source: Informal Housing in Egypt (figures for Beni Suef)

Roads

- Established by residents; based on former paths on agricultural land, along land subdivisions.

- Unpaved, ungraded, generally impassable to vehicular traffic.

Facilities

Garbage collection

- There is no refuse collection available in informal settlements. Residents dump it in nearby canals or in agreed-upon locations, or burn or bury it.

Schools/ Health Care/ Police Centers, etc.

- Primary and secondary schools are far from informal settlements requiring children to travel long distances by their own means, on foot or by bicycle.

- Health care: informal sector residents will use the nearest facilities which can be some distance away.

- The poor conditions of roads within the settlements prevents the entrance of ambulances to the settlements.

- Generally, facilities such as police stations, telegraph and telephone offices are not available in the informal settlements; residents must use the nearest which can be some distance away.

- Older, more established settlements may have more facilities.

Public Transport

- Provided on main arteries on borders of informal settlements and to older, established areas.

Expectations and Division of Responsibility

A distinction must be made between what the residents feel is a service they can provide for themselves and that which they feel is beyond their capacity or what they feel the government should provide.

Informal settlement residents are willing to provide house connections for water, sewage and electricity. They feel the government should provide schools, police stations and other facilities such as telephone and telegraph stations, health centers, roads and garbage collection, and main water and sewer lines.

In the interviews, residents expressed a willingness to contribute both time (one day a week) and money to help the government install infrastructure.

Level of Infrastructure as a Function of Owner's Income/Affordability

- On the level of the house, a range of options is available to the owner according to the investment he can make in land cost (the higher the land cost, the higher the level of infrastructure available) and in the investment he can afford to make in utilities house connections.

- For example, the owner making a minimum investment in land can expect to get potable water from a public tap at considerable distance from his dwelling. An owner making a higher initial investment can expect a public tap near his dwelling, or can afford to connect to a nearby main line.

- Therefore, one sees a great variety in the levels of infrastructure available in the informal settlements.

Level of Infrastructure as a Function of Political Pressure and Economic Factors

- On a community level, in high density areas, political pressure can be exerted by residents to have main lines of infrastructure extended once areas are developed.

- In areas contiguous to the urban fringe or in infill areas between existing developments, it is relatively easy for authorities to extend main lines and to serve a large number of households per unit of linear expansion.

- If density is low in a relatively dispersed settlement pattern and relatively far from main infrastructure lines, it is more difficult for residents to marshall political pressure and more costly per household to install infrastructure.

Obstacles to Infrastructure Installation by Government

- Public agencies do not have the financial resources necessary to pay for expanding infrastructure on secondary levels.

- The public agencies must rely on central tax revenues and compete with other agencies in the slow political budgetary process in order to make investment decisions.

- Decision-making and budget allocation is on the national level, yet implementation is on the local level.

- Even if funds are available, technical difficulties exist (unplanned nature of informal settlements, narrow crooked streets) that make installation difficult and yet more costly.

INFORMAL EFFORTS VERSUS PUBLIC INTERVENTION

"People coming from my original village have formed an informal aid society through which they help others from the same place. Should anyone come fresh from there and have difficulty finding work, they might decide to collect money for his journey back to the village or help him find suitable employment."

(Said)

"There are disputes at times over house construction. The width of roads has been fixed by common agreement and everyone leaves a small piece of their land for the road, but sometimes one neighbor will encroach on another's land and quarrels follow. Older members of the community are called upon to solve the disputes. If things get out of hand, the police are called in."

(Abdullah)

"Community relations are good. We are free to use each other's water pumps and help a neighbor in need by organizing a savings pool or lending money if necessary. One of the leaders of the neighborhood collected LE 50 from local people to build a mosque in the neighborhood.

Once, when some officials from the Society of Housing for Teachers approached the local residents saying that the land belonged to them and that they were going to demolish all the houses, the local people were very upset and angry and formed a group to visit the Governorate. They talked to an official and the incident was not repeated."

(Ali)

"A local resident who worked for the Suez Canal Authority collected money from the other residents and applied to the authorities to fix a tap which was installed in ten days."

(Anwar)

"There are a few members of the Arab Socialist Union, but most of the local people have acknowledged community leaders whom they respect and approach for advice and help. For serious crimes and disputes, there are the Arab Judges, a council of Bedouin elders who are called in to arbitrate.

There are, however, several projects in the area which were the result of direct cooperation among the residents. Two successful community projects are the mosque and the cemetery which were built with local contributions."

(Ahmed)

"I and some of my neighbors were responsible for introducing electricity into the village by having prolonged discussions and negotiations with the appropriate authorities. I also collected 50 piasters from every family in the area to pay for repairs to the public tap."

(Mahmoud)

INFORMAL EFFORTS VERSUS PUBLIC INTERVENTION

The individual and cooperative efforts of the informal sector residents are succeeding where public intervention does not in providing basic services and facilities. The government supplies, in general, only potable water mains and electricity. The residents attempt to provide for the rest of the needs of their society.

Informal sector residents provide:

<u>infrastructure</u>:

- house connections to water main lines
- individual sewage facilities
- house electrical connections
- cooperative efforts in applying to the government to install public taps and electrical lines

<u>facilities</u>:

- cooperative efforts to raise money to build religious facilities and cemeteries

<u>social needs</u>:

- informal aid societies to assist immigrants newly come to the settlements
- informal credit institutions
- community councils, composed of elders or respected members of the community to resolve disputes ("Arab Judges")
- general sharing of pumps, ovens, taps, etc.

The residents also cooperate to block encroachments on their land, either by outside individuals or by the government.

The basis for their action is the concept of close cooperation among the neighborhood residents, traditional in Egyptian society; where the neighborhood is well-defined on all sides, and is a small population well-known to each other with a substantial number of relatives and close friends. This group is a vigorous force in providing for itself.

In contrast to this vigor, government efforts are feeble and ineffective in providing infrastructure and facilities to the informal settlement area because of:

- the high cost of installing infrastructure in informal areas and the accompanying technical difficulties of installation (narrow, crooked streets).

- the bureaucratic process and the high degree of centralization in decision making. Budget allocation and decision are made on the national level; implementation is on the local level.

- reluctance to recognize/legitimize illegal settlements.

But the individual and collective efforts of the informal settlement residents to provide infrastructure and facilities represent ultimately an attempt to consolidate their position. Many of their actions for providing a dwelling to this point have been ostensibly illegal: squatting, purchase of land illegally subdivided, purchase of black market

building materials, building without a building permit, etc.) The outward normalization of their position as quickly as possible represents an inherent fear of the government and a feel that the more consolidated their position, the less likely it is that the government will evict them.

> *"My overwhelming wish is that the threat of being driven out of my house will be removed. There are daily rumors that the government is going to destroy our houses. People arrive at times to measure the land and the houses and this adds to my feelings of insecurity. I hope that the government will eventually decide to sell me the land and I can feel secure and at peace."*
>
> *(Osman)*

USERS' NEEDS?!

I had originally intended to write a lengthy chapter on users' needs, to categorize them, analyze them...etc.

However, confronted by the simplicity and straightforwardness of the residents' statements, I would like to put them as they are and let the reader be his own judge.

"Food is, of course, on the top of our list. I would spend the extra income on food. The most important thing after that is to buy furniture and beds as we have no beds and have to lie on straw mats.

I do not think we need any other household gadgets since we have an oven and a kerosene cooker.

I do not think it essential to have a modern house although I would appreciate running water and electricity inside the house."

"Among our immediate needs are a radio, a cupboard, a bed, two sofas, a table and other furniture to replace those we sold to pay for this house. Of course, I would like to have all utilities inside the house."

"My wife's priority is a cooker which she says is all she really needs. For myself, I would improve the standard of food and finally buy better clothes. Then, I would complete the house and introduce water and electricity."

"As far as immediate purchases are concerned, we would like to buy a cooker first in place of the kereosene cooker we now use. Next in priority is education for the children. I would also prefer to have a wide open space behind the house for raising fowl and perhaps even a cow, which would enable us to have our own milk, butter and cheese.

However, our most important requirement is the introduction of water into the house."

CONSTRAINTS AND CONTRADICTIONS

Acquisition of Land/Choice of Location

Building Materials

Housing Construction and Delivery Systems

Housing Finance

Infrastructure

CONSTRAINTS AND CONTRADICTIONS

INTRODUCTION

The informal sector is responsible for more than 75% of the current housing stock built. However, analysis of the current government policies related to housing show that they benefit the participants in the informal sector least of all. In some cases, informal sector participants do not benefit at all.

The government of Egypt does not have an agreed upon national urban/regional policy.* Rather, it has formulated a mixture of separate uncoordinated responses to issues both real and perceived. No one single agency in the government is entrusted with overall coordination. Three agencies are directly involved: the Ministries of Planning, Finance and Development.

This part will deal with the constraints and contradictions between those approaches or policies and the endeavors of the informal sector of construction in Egypt.

We shall start by describing current government policies, pointing out their intentions and then try to assess the impact of their implementation on the informal sector.

Then, by comparing them to the corresponding reality of the informal sector's activities, we will be able to point out discrepancies between what the government intends and the vast majority of construction activities in Egypt.

* Country Development Strategy Statement

ACQUISITION OF LAND/CHOICE OF LOCATION

Traditionally, the most secure and sought after investment for savings and earnings in Egypt has been land. Arable land is limited. Over 90% of the Egyptian population is compressed into a little over 4% of the land base of the country, most of which is the fertile Nile Valley and Delta basins.

The government of Egypt argues that there is too great a population concentration on too limited a land base. Agricultural land is threatened by encroaching urbanization.

It is government policy (the Five Year Plan) to conserve agricultural land and to direct urbanization away from the built-up areas by:

a) legislation and control on the use and subdivision of agricultural land

b) promoting the development of free-standing new desert and satellite towns.

Current Government Policies

A. Legislation/control of the Use and Subdivision of Agricultural Land

- A cornerstone of Egyptian development policy is the conservation of agricultural land. The rationale is that Egypt is becoming more and more dependent on imported food. The rate of loss of agricultural land is 60,000 feddans per year or 1% of the national agricultural land base.[1]

- The conversion of agricultural land to residential (or other development purposes) is strictly controlled by Law 52 of 1940 and 1975. The owner must make a detailed and expensive application to the government for permission which is rarely granted.

- The 1978 Agricultural Law vested power of authority to develop agricultural land in the Ministry of Agriculture. Before 1978, local officials had authority to regulate subdivision and infrastructure provision on such land.[2]

- Subdivison of agricultural land is strictly controlled by law (except for distribution to family members).[3] The procedures for acquiring government permission are costly and rarely successful.

- Street widths should be 10 meters (Article 4 of Law 52 of 1940).

- At least one-third of the total area must be allocated for roads, square, parks, etc. (Article 5).

- Buildings may not occupy more than 60% of the parcel.

- Impacting upon these agricultural land policies and motivating conversion of agricultural land to residential purposes is legislation which controls rents of agricultural land. Rate of return to the owner is low. Rents for rural and agricultural land are directly controlled. Tenants, by law, pay a multiple of the land's tax.

Despite this strict control, most price controls are circumvented by leasing per crop than per year (crops rents are unregulated). However, the prices evolved are still not true shadow prices because prices received by farmers for their crops are also set by law.[4]

Impact on the Informal Sector

- Laws regarding the conversion of agricultural land to other purposes are ignored because there is little enforcement. The owner of agricultural land will subdivide his land on the urban periphery and sell it as residential property, without permission from the government, and can make a greater profit than if he were treating it as agricultural land.

- A comparison between urban land prices and agricultural rents reveals the profit to the owner if the land is sold for residential use rather than being rented for crops: [5]

Urban Land Price (per acre)	Agricultural Rent (per year)
Fringe (no services) LE 6000-12,000	LE 84 (cotton, rice) LE 450 (tomatoes)
Fringe (access to paved road LE 40,000-120,000	

- Laws regarding subdivision are ignored because there is no enforcement. Land is subdivided and sold. Subdivisions are generally inefficient (long blocks,

no public spaces, etc.) Because of the high cost of land, plot sizes are decreasing.

- Because sale and subdivision of agricultural land without government permission is illegal, the informal owner has no legal title to the land.

- For squatters, the greatest fear is government eviction.
- The informal owner hopes to eventually get title to the land by paying "tahkier" (land use tax) to the government if it undertakes legalization proceedings in the settlement, but fears he will not be able to afford the amount. In addition, the laws regarding hekr leasehold are not clear:

> The laws governing this condition are found in the Civil Code, Book Three (primarily articles 870 to 984 and 999 to 1014), but a reading of these laws shows that there is considerable confusion in terms of strict interpretation. For example, whereas Article 874 states that a cultivator or builder on empty state land becomes owner forthwith upon possession, even without permission by the State. This stipulation is contradicted by Article 968 which sets fifteen years of continuous possession as a condition of ownership. Further, Article 974 states that ownership by possession can be suspended if any cause for suspension exists.[6]

Current Government Policy

B. New Towns

The government of Egypt believes that building free-standing new towns in the desert will will help to decentralize Cairo and Alexandria and and minimize the loss of agricultual land. These towns in the desert are built at enormous expense and high levels of subsidization.

Consequences/Impact on the Informal Sector

- Industries are not relocating there because of the cost and the economic benefits of remaining in urban areas.

- The cost of the planned infrastructure per capita is equal to Egypt's per capita income. Amenity levels planned are extremely high.

- Housing in the desert towns is not affordable to households of incomes less than LE 1000 per year.[7] Public sector housing in new towns is targeted to a wider range of income than traditional public sector housing (LE 1388-1580).[8]

The desert town policy turns its back on the economic viability of the already developed urban areas.

Consequences/Impact on the Informal Sector

- The informal sector does not setttle in these areas because:

  a) the lack of employment opportunities. It is not economically rational for the informal sector to settle outside urban area fringes because of their proximity to employment.

  b) housing is available at lower cost in informal settlements.

LAND COST

Fueled by repatriated earnings from abroad, and a constant demand for investment in land, the informal sector is faced with ever increasing prices for land with access to employment and minimum infrastructure.

Current Government Policy

- The government, through not opening up its own land for development, restricts the land available in the open market for housing and thereby keeps the price high. Other than land in desert towns, which is prohibitively expensive and has little access to employment, the government does not make available other non-agricultural sites for housing development.

  (USAID has identified 26 vacant government-owned sites, largely on non-agricultural desert land, totalling over 30,000 feddans which could house the population needs for metropolitan Cairo for the next 15-20 years (6-8 million persons at a density of 200-300 persons/feddan.)[9]

- The government restricts the extension of infrastructure to developing areas because of the high cost of installation. The government is unable to afford extensions because of inefficiencies in the authorities themselves (no cost recovery, tariff rate structures, subsidization).

- The government does not provide secure investment alternatives to investment in land.

- The government does not restrict or tax capital gains made from the sale of land.

Impact on the Informal Sector

- The informal sector is forced to pay increasing prices for limited land available in the market.

- The plot size is decreasing.

- Prices for land with infrastructure is higher, depending on the level of infrastructure.

- The informal sector tends to settle on poorly serviced agricultural land (with some access to water).

- Growth is most rapid in areas with lower land costs and a smaller degree of infrastructure.

- There is tremendous profit to be made in the sale of and speculation in land.

- A constant demand for land as an investment vehicle for repatriated earnings from abroad.

- Land in Egypt remains the main secure repository for savings and investments.

BUILDING MATERIALS

Current Government Policies

Cement/Reinforcing Steel Bars

In order to control inflation in prices of cement and rebars and to ensure their availability for public sector projects in the development plan, the Egyptian government in 1961 began to control the importation, distribution and pricing of cement and rebars. The government currently imports more than 50% of current construction requirements of cement and rebars.

Cement[1]

Local production goal in 1980 was	3.6 million tons
Actual production in 1979 was	3.0 million tons
Requirements for 1980 are	7.5 million tons

Rebars[1]

Local production goal in 1980 was	300,000 tons
Requirements for 1980 were	900,000 tons

Consequences

- The government subsidizes middle income formal sector housing built by public and large private sector contractors with building permits.

- The public sector (about 50 firms in Egypt) and large private companies get preferential treatment in needs for building materials[2], yet they provide only 25% of current housing stock.

- Government regulation of cement and rebars and the system of allocation via building permits and artificially keeping prices low has stimulated a strong black market.

- The black market can respond quickly to small orders, but the higher prices are an impediment to informal sector builders.

Alternative Material Prices 1976-1978[3]

Material	World Price	Official Price	Average Black Market
Cement	34 LE/ton	18 LE/ton	45 LE/ton
Steel	180 LE/ton	150 LE/ton	190 LE/ton

- The government provides building materials at subsidized prices to public sector and large private sector builders with building permits.

Building Permits

- In an attempt to maintain building and construction standards, the government initiated the building permit system. It is an expensive, laborious process which requires design documentation and title to the land.

- Law 106 of 1976 states that: all construction or modification of buildings, whatever the cost, must be

preceded by obtaining a building permit from the administrative committee responsible. (Article 4). Permits are not given for buildings which do not conform with general and technical specifications of Decree 169 of 1962. Permits are not given without proof of freehold title to land, nor without technical documentation and fees.[4]

- The building permit process can entail a wait of up to two years to obtain approval. Applicants are then placed on a waiting list for between two and four years after which "tickets" are used to purchase materials directly from the producers. Small quantities normally cannot be purchased in this way.[4]

Consequences

Small informal builders do not apply for permits since most do not have legal title to their land nor design documentation. Consequently, they are unable to get building materials at subsidized prices.

Bricks

- In order to preserve topsoil since the High Dam prevents its river-borne distribution, the government now makes brick factories pay for top soil used in making bricks, a policy initiated in the mid-1970's.[5]

- Except for government produced sand bricks (2% of brick production in 1976), pricing and trading is open market.[6]

Consequences

- The price of bricks has risen rapidly from LE 7.5 per thousand in 1970 to LE 20 per thousand in 1977.[7]

Sand Bricks

- As a substitute for red bricks, the use of sand bricks is officially encouraged by the government. Sand bricks are available at subsidized prices.

- However, production is very low. The estimated requirement in 1980 was 2,400M bricks/year. Estimated sand brick production for that year was 200M/year.[8]

Consequences

- The informal sector is forced into using red bricks at every rising prices.

BUILDING MATERIALS

Impact on the Informal Sector

- Informal sector builders are forced to buy cement and rebars from the black market at high prices (even though their building costs are lower than formal market costs) because alllocation of building materials at subsidized prices is limited to those builders with building permits.

- Those unable to afford cement and rebars at black market prices are forced to build with brick (brick load bearing walls) because of their relative cheapness.

- The rising prices of bricks, however, are causing increasing financial burdens for informal sector builders.

- The high cost of new materials (cement and rebars) promotes the use of used concrete, rusty rebars and substitutions in the concrete/rebar proportion leading to dangerous construction practices.

- A commendable show of flexibility and efficiency in consumption of resources in the informal sector:
  - the informal builder makes substitutions in materials (brick load bearing wall instead of concrete/rebars, for example).
  - the informal builder substitutes used materials for new (timber, for example)
  - the informal builder uses temporary, but functional systems (roofing systems of palm, or asbestos panels)

Current Government Policy

Formal Sector Housing

a. Public Housing

- Total government and public sector company housing activities represented 6.6% of the total housing construction in the period 1966-1976.[1]

- The target household income group (1982) was LE 1388 to LE 1580 per year at unit costs of LE 3500-400 net of infrastructure.

- Public sector housing in new towns is targeted to a wider income range than traditional public sector housing.

- The unit size is 50 m^2 (2-3 rooms) with private service facilities in five-story walk-ups.

- The units come under rent control and the specified rent is seldom even equal to the cost of rent collection itself.

Consequences/Impact on the Informal Sector

- Public sector housing is rented at extremely low cost (3.8% of total household income) which is far below the percentage a family will expect to pay from its income for housing.

PUBLIC HOUSING

There is also severe deterioration of the stock over time from minimal maintenance due to lack of revenue from rents.

- It has never been possible for the government to meet the demand, especially considering the large subsidies involved. This is reflected in the percentage of publicly-owned housing in the market (6.6%).

- Many public housing projects were demonstration projects to begin with; politically motivated.

- The great demand and long waiting lists open the door to favoritism and black market activities.

- The target income level represents those well above median income (in Cairo households, LE 986 in 1982)[2] and does not address the needs of informal sector owners who are median income or below.

b. Private Sector Housing

- Private sector housing represents 15% of all housing produced in the period 1966-1976 and generally serves a very small group of upper income households.

- The percentage is small because of the difficulties and high cost of: obtaining a building permit; gaining access to legal subdivisions; obtaining long-term financing.

- These difficulties far outweigh the benefits of the use of subsidized materials allowed by the building permit and increase construction costs.

FORMAL (Private) SECTOR HOUSING

Consequences/Impact on the Informal Sector

- Because of strict rent control regulations, the market favors housing built for sale which serves only a small group of upper income households.

- For rental units, the landlord will demand "key money" (a large sum for first-time occupancy), although illegal, which is generally 100 times the monthly rent to recover his costs and make a profit.

  The high key money payment will exclude even high income young couples since wealth is scarcer than income.

Housing Costs, Rents and "Key Money [3]

Type of Unit	Size (m^2)	Current Cost	Official Annual Rent (LE)	Key Money (LE)
High Quality	150	10,000	360	10,000-40,000
Middle Quality	90	5,000	180	1,500-10,000

The Informal Sector in Action

- The informal sector, then, is excluded from both public and private sector housing because of the income and wealth requirements.

- The informal sector meets the housing needs of those excluded from public and private channels in urban areas and represents about 75% of all housing supplied.

- Informal housing is a rapid response to housing needs of low income groups at expenditure levels suited to their income.

INFORMAL HOUSING

Formal Sector Construction

- In the formal market (public and private), contractors carry out 75% of the work; 17% is carried out by the owner supervising a labor team.[4]

- The services of an architect are required to obtain a building permit.

- Construction Costs:

- Formal sector construction is significantly more expensive than informal sector housing:[5]

Housing Type	Cost per m^2
Informal Housing	LE 40 (approx.)
Public Housing	LE 60-70
Private Sector "luxurious"	LE 80-100

- The differences in construction costs in formal and informal sectors are largely a result of the differences in the quality of finishing materials and amenities and in the cost of labor and overhead.

- The costs (in time and money) of acquiring a building permit; gaining access to legal subdivisions; and long-term financing; far outweigh the benefits of using subsidized materials.

The Informal Sector in Action

- Among informal owners, an unskilled labor team assembled by a local craftsman/artisan with the owner acting as general contractor is the most common method of construction. (45%) with 40% carried out by a contractor.[6]

  This suggests only a limited role for self-help in construction activities.

- The labor team, composed at the time of construction, has the advantages of:
  - ability to respond to demands of small-scale operations.
  - relative low cost (versus hiring a contractor with a labor team on regular full-time basis)

- It is rare that a contractor or owner will employ an architect to design an informally constructed house. In 47% of Cairo households, the building contractor did the design; 31%, designed by the owners themselves; 22% friends and relatives.[7]

- The contractor, however, is involved in critical elements such as the concrete roof.

- Informal suppliers act as sources of technical information for informal owners.

- Large scale migration of construction workers to other arab countries has affected not only employment and wages in the construction sector itself, but in the economy as a whole.

  - New entrants in the construction sector are less skilled than those they are replacing, therefore affecting productivity and quality.

  - Policies designed to increase skills and productivity of domestic labor appear necessary to restore the skill composition of the labor force.

- Labor migration (and its replacement from the countryside) tion appears to have affected the skill levels of the laborers and the structural quality of the dwelling.

- Building Standards:

- Housing in the informal sector is built to standards not very different from the official formal sector. Informal sector housing is of far better average structural quality than older existing housing.

- The continuous pressure for vertical expansion and economizing on building materials have led to structural collapes in several instances.

- The construction of informal housing is usually incremental, allowing the owner to accumulate savings and purchase building materials on an ad-hoc basis over time.

- The cost of construction is significantly cheaper in the informal sector because of:
  - the lower cost of labor
  - the services of an architect are not employed
  - access to cheaper land with relatively low degrees of infrastructure at time of construction and initial occupancy
  - no expenses associated with acquisition of a building permit

- The most important factor is the price of the inputs to the production process and not the price of the finished dwelling. In the informal market, the owner can relate each input; land, construction, building materials, labor; to his financial situation.

In general, informal housing in Egypt provides accomodation for income groups below the 50th percentile. It permits a rapid response to housing needs for low income families. It also provides a form of investment for many owners. It is very common to find low income groups renting informal units in a house owned by members of high-to-middle income group who also live in the building.

However, the danger of poor quality and structurally unsound buildings should not be trivialized. It is always there and will be become more prominent as pressures to expand become more acute.

HOUSING FINANCE

Current Government Policy

Formal Sector Finance

Institutions: housing finance for the formal sector is mainly the responsibility of three organizations:

a. Credit Foncier Egyptien

- The largest source of mortgage credit in the private sector; borrows from the Central Bank and lends at 2.5% below the discount rate (12% per annum for 1982) for economic housing loans.

- The majority of its loans (61%) go to individual mortgages targeted to modest income families.

- Loans provide no more than 45% of the actual construction cost.

b. The General Authority for Building and Housing Cooperation

- The GABHC prepares housing cooperative projects and provides loans to cooperatives throughout the country. It is financed by the Central Bank or the Credit Foncier.

- The GABHC has no depositors and does not generate funds internally.

- The GABHC supervises development of housing cooperatives and acts as a liaison between the ministry and the cooperatives.

- Only households in the 40th to 50th percentile of urban income can afford the lowest priced co-op units under GABHC's subsidized interest rates.

- Many benefits of the GABHC go only to those able to become cooperative members.

Cooperatives

- Two types of cooperative exist:
  a) to sell land after subdivision
  b) to sell apartments to cooperative members after construction and provision of infrastructure

- Establishment of a cooperative requires an initial capital of LE 300 and thirty members.

- Members are given preferential access to housing finance (Law 14 of 1981).

- State lands; recently, on the urban fringe; are sold to cooperatives at reduced prices.

- Cooperatives are exempt from most national and local taxes and duties and from property taxes.

c. The Housing and Development Bank

- The HDB lends a portion of its funds to finance new towns. (13%)

- The HDB also finances some low income housing programs to serve households with incomes in the range of LE 30-200/ month with the difference between the HDB rate and the Central Bank rate made up through government subsidies to HDB.

- Formal sector financing is extended on the basis of freehold title to land or buildings on registered land and the existence of a building permit.

- The banking system in Egypt has not mobilized the savings of the informal sector (including remittances from abroad, estimated at LE 1.5 billion in 1979).[1]

  Whether this is due to:

  - low interest rates on savings accounts
  - traditional distrust of government institutions
  - no expectation of credit
  - immediate investment into housing, consumer goods
  - maintenance of savings in post office accounts, informal credit institutions, etc.

  is a topic which can be further investigated.

Consequences/Impact on the Informal Sector

- The present system of housing finance is deficit-oriented, relying on government subsidies to bridge the gap between resources and expenditures of the three lending agencies due to the lack of private sector participation in deposits.

- This leads to a severe dependency relationship between the central government and the mortgage banks.

  - Deposits of the private sector in mortgage banks account for only 4% of total funds available. In comparison to the LE 199 million in mortgage bank assets available, there is only LE 9 million in deposits by private sector and public authorities.[2]

- Cooperatives:

  - Because they are favored by lending agencies and government regulations (reduced land prices; exemptions from property taxes and most central and local taxes and duties), cooperatives can develop large holdings that are not utilized, contributing to the urban land shortage.

  - In addition, since they do not pay property tax, cooperatives can afford to hold on to their properties and develop in accordance with market demand.[3]

  - Since cooperatives are affordable only to the 40th to 50th percentile of urban income (the lowest priced units only), most cooperative units are financially out of reach of most low income urban population.

- Since cooperatives are affordable only to the 40th to 50th percentile of urban income (the lowest priced units only), most cooperative units are financially out of reach of most low income urban population.

- The informal sector's resources are outside the formal banking system. Therefore informal sector owners cannot take advantage of the benefits of having funds in the formal banking system: interest, extension of credit.

- Because of the requirements for extension of credit (freehold title to land, building permit) informal sector owners cannot get financing from banks and mortgage agencies.

- In addition, this applies to informal sector suppliers and contractors who also are reluctant to apply for formal sector credit because of their "illegal" activities (selling black market building materials, building without a building permit, etc.) and the irregular nature of their income in the face of regular payment schedules required.[4]

  This then limits credit from suppliers and contractors available to informal sector owners.

- The informal sector owner must accumulate relatively large amounts of cash and deal with cash to a large extent because formal sector financing is not available.

  - A substantial amount of cash is needed to enter the housing market, approximately one year's income

(requiring five to ten year's savings or remittances from abroad).

- Each additional upgrading (addition of a room, installation of utilities) requires an additional large sum (in 1977):[4a]

reinforced concrete roof second story, temporary second story roof	LE 400-500
addition of a room	LE 100
sewage installation (cesspit)	LE 100
water connection	LE 70-110

(Some credit may be available from informal contractors and suppliers.)

- Informal sector resources do little to expand the availability of mortgage funds for housing because they are maintained outside the formal banking system, despite the enormity of remittances from abroad.

- There is no market control over the flow of finances into the informal sector.

The Informal Sector in Action

- The informal sector supplies and finances the largest share of all housing produced in Egypt, some 75%.

- Therefore the informal sector has been successful in relating housing process to household affordability:

  - A local contractor is hired to construct as much of the dwelling as finances permit.

  - The building process may take many years to complete as households finish different stages of building with savings accumulated over time.

  - Owners can expand their houses over time as finances permit.

  - Owners have access to land at comparatively cheaper prices because of the relative lack of infrastructure provision at the time of construction and initial occupancy.

- Financing (accumulation of cash) is done largely through:
  - workers' remittances from abroad*
  - savings
  - sale of possessions: wife's jewelry, cattle, property, furnishings, etc.

  *in 1979, officially estimated at 1.5 billion LE

- Other sources are:
  - limited credit from suppliers and contractors
  - renting a room (for those financing additions or upgrading)
  - informal credit institutions such as the "jam'iya"

- The general sentiment of many owners interviewed was the desire to avoid long-term debt. Payment of loans over long periods of time is not common. The Ismailia case studies revealed a suspicion of long-term mortgages because of the high and regular payments required. Tradition and irregular incomes have meant that saving and selling of possessions are the main means of raising money.

- Informal sector owners spend a relatively small percentage of their income on housing in comparison to food and clothing. In the 1974-1975 period, the median income category spent:[5]

% household income	item
9.6%	housing
54.3%	food
13.6%	clothing

This percentage increased as income decreased. The lowest income categories spend 11% to 16% on housing.[6]

The informal sector has been successful in relating housing development to household affordability. One of the main sources of household savings, however, workers' remittances from abroad, may have peaked. If this source begins to lessen, the housing efforts of the informal sector could be seriously jeopardized.

INFRASTRUCTURE

Current Government Policy

Water/Sewer Systems

- Urban areas have experienced steady increases in utilities provision even in the face of rapid increases in the housing stock:

Recent Changes in Provision of Basic Utilities in Greater Cairo (% of buildings connected)[1]

Utility	1970	1976
Public Water	50%	56%
Public Sewer	44%	52%

- While overall there is a generally high level of infrastructure, great variability of level of provision exists in the informal areas. In some areas of Cairo, levels of infrastructure provision are surprisingly low, given city-wide levels of access. In the largely informal area of Shoubra El Kheima, less than 30% of the families are connected to water systems.[2]

- Informal housing in general is less provided with water and sewerage than formal housing built with government approval.

- Differences between formal and informal housing infrastructure levels persist over time.

- It is extremely difficult for the government to finance the high cost of maintenance and expansion of water and sewer systems for existing cities and develop initial ones in new communities.

- Financing problems are related to inadequate tariff rates which are not realisitically set to cover initial installation of the system nor maintenance and operating charges.

- The central government has to subsidize the water and sewer systems in most urban areas for their operating and maintenance expenses which can be as much as 2.4 times the total revenue of the system.[3]

Water

- In Cairo and Alexandria, separate water authorities are responsible for both planning and administration.

- The Greater Cairo Water Authority and the Alexandria Water Authority operate and maintain the systems from central funds directly received from the national budget and from limited user revenues. There are few limitations on the issuance of debt or chaging fees.

- In areas of greatest growth, south and east Cairo, Kheima, Imbaba, ther percentage of buildings in these areas connected during the period 1966-1976 has declined.[4]

- Only in older, slower growing areas was the GCWA able to expand the percentage of coverage.

% of Buildings Connected to Water[5]

Area	1966	1976
N. Cairo	79%	86%
E. Cairo	72%	67%
C. Cairo	56%	72%
W. Cairo	78%	79%
S. Cairo	56%	52%
Giza	68%	51%
Imbaba	62%	42%
Kheima	38%	16%

- Despite its independence in setting water charges to residents, the GCWA did not have the financial revenues to pay for expanding the water system. In 1980, the direct subsidy was as large as 2.4 times the revenue.[6]

- Authorities will not deny the public drinking water and attempt to install stand pipes where needed, generally at 500-1000 meter intervals, if residents of a developed neighborhood request it from the authorities.[7]

- Once main lines have been extended to or near informal areas, individual connections become largely the responsibility of informal area residents.

Sewer Systems

- The General Authority for Sewerage and Sanitary Drainage is the responsible authority. Production and processing facilities and the main lines of the distribution systems must be approved in the national budget process and built and financed with central funds.

- Local authorities operate the systems, set fees and administer the collection of fees.

- The provision of secondary street sewerage is the full responsibility of the local governorates.

- Because of the high cost of financing maintenance and expansion of the sewer system and the inadequate tariff rates which do not cover initial installation or operation, the authorities do not have the funds needed to expand coverage rapidly.

Consequences/Impact on the Informal Sector

- Whereas subdivision law No. 52 of 1940 requires that the costs of sewerage, water and roads be borne by the developer, and by inference, the inhabitants, this has been applied only to a small fraction of the urban development in Egypt, if at all.

- It is very rare in the informal sector that any but plot connections are charged to plot owners which has led to the formation of a tradition where the inhabitants expect the government to continue to provide infrastructure free of charge.

- The expected subsidy is largely due to the government's financing of improvement through non-recoverable allocations in the general annual budget. Because there are so many deficient infrastructure services, funds are rationed by sector and administrative units and once spent, are written off.

- While the various consulting firms and most of the studies done on infrastructure both on the national and the local level strongly recommend less subsidies and support cost recoverable projects, these recommendations alone will not change people's attitudes which are based on precedent and their own vision of fairness (if they did not pay, why should we?).

- Utilities networks cannot be provided by individual households, therefore they are the item most often described as the main drawback of informal settlements.

- The location of most informal housing in illegal subdivisions initially precludes the on-site provision of infrastructure by the public agencies; even in the legal subdivisions, the government is legally only responsible for providing utilities to the border of subdivisions and the developer is required to do the rest.

- The political reality of the situation is quite different, however. Once informal housing settlements are spatially consolidated and represent permanent residential communities, and the residents collectively request government recognition, formal provision of infrastructure may be forthcoming.

- Residents of informal settlements are well aware of the fact that, even after recognition (if it comes at all), they have to wait two years or more to receive basic services. The statements in the interview suggest a willingness and determination to provide themselves with basic services and an understanding that the government's provision of infrastructure is a long-term process.

- Consequently, existence of infrastructure in areas adjacent to potential informal settlements is a prime determinant for location.

The Informal Sector in Action

Water

- Informal sector residents tend to settle on agricultural land because of the availability of water there.

- Piped water may not be available for years, and then only from public taps.

- Residents will depend on wells, public taps, vendors, mosque taps and neighbors' taps for access to water.

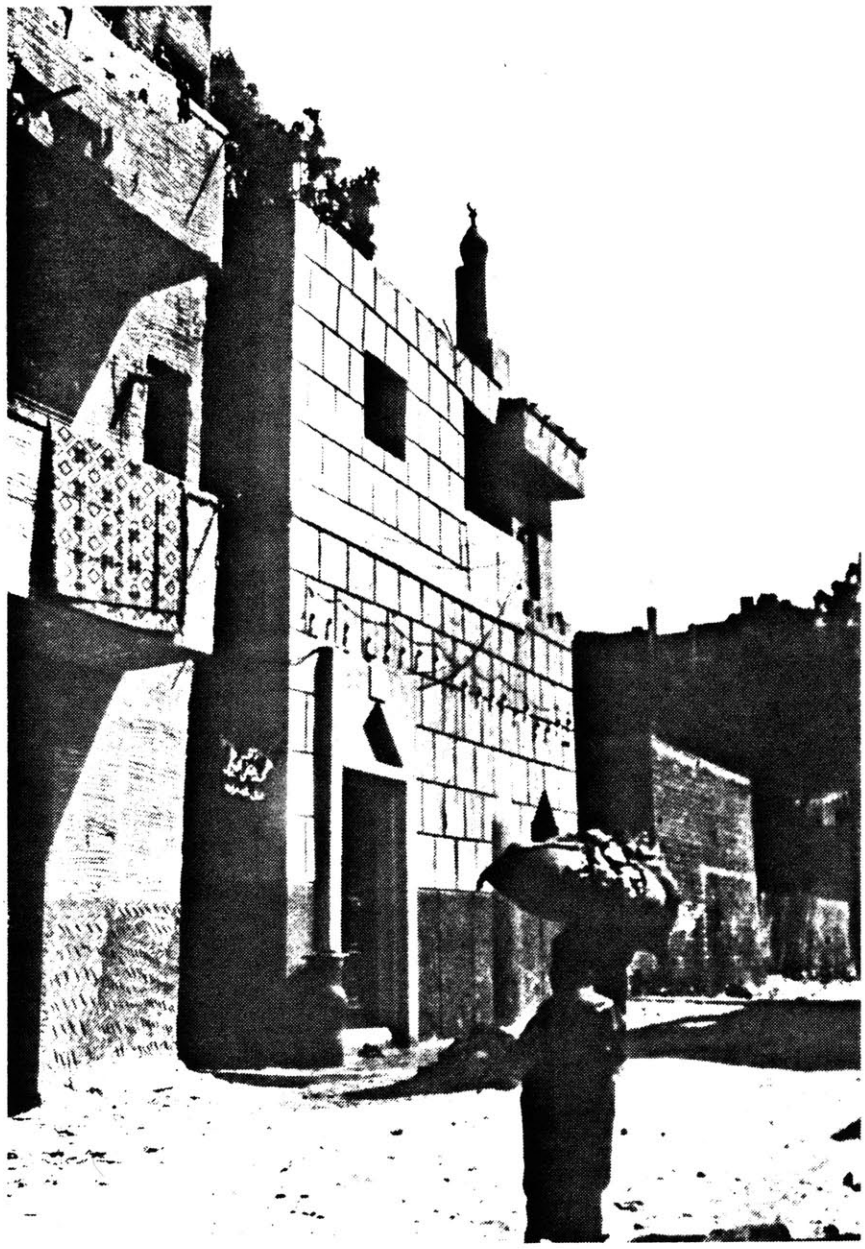
- The informal status of the residents, their location in illegal subdivisions and the prohibitive cost of water installation has prevented most residents from obtaining legal connections into their neighborhood.

  - In most cases, the residents will wait until the neighborhood is well developed, then go to the authorities requesting drinking water facilities.

  - Informal residents are anxious to establish mosques or churches in their neighborhoods knowing that these institutions are given priority for water connections under existing laws.

- Authorities will not deny the public drinking water and attempt to install standpipes where needed, usually at 500 or 1000 meter intervals.

- In the city of Beni Suef, public taps serve 7% of formal owners versus 32% of informal ones; however, about 34% of all the city's households have no potable water sources and have to rely on public pumps.[8]



INFRASTRUCTURE

Informally constructed mosques provide a source of water for the residents since mosques and churches have high priority regarding access to infrastructure.

- Individuals and owners of establishments will either allow residents free access to water or charge a fee.

- In Cairo's informal settlements, 30 to 50% of the residents get water from a public tap versus 8 to 15% from a neighbor.[9]

- Arrangements to connect to existing networks are usually carried out in two ways:

  - the residents pay a local (informal) contractor to tap into the main line at an average cost of LE 70-110.

  - residents install the connections themselves with the help of a laborer.

- However, sometimes an agreement is made between formal and informal households to allow house-to-house connections. This, however, is generally undesirable because formal homeowners do not want to risk getting caught by the authorities.

- Some residents pay a fee to the mosque for access to water.

- Residents on side streets off main streets where lines have been installed will wait five to six years after their buildings have been completed, then collectively hire a contractor to hook up the entire street to the line on the main street.

- The authorities are well aware of illegal tapping into main lines, but it is very difficult to control. This also causes problems with water pressure. Pressure is so low already that building permits now mandate a water tank on roofs of buildings over four stories. Informal builders do not obtain a permit and as a result, rarely install tanks.

Sewer Systems

- The informal resident will provide a "khazzan" or holding tank for his dwelling. This must be cleaned every six months. Often khazzans are not drained frequently enough and sewage spills into the street. Drained sewage is often dumped into canals and ditches.

- The problems of sewage and waste disposal are not as important a factor in determining location of a settlement as is access to water.

- High infant mortality rates and health risks are often reported in informal areas. These are partly attributable to sewage inadequacies such as intrusion from septic tanks into underground water used for drinking.

- Most sewage networks in urban areas are limited and working well beyond their capacity.

- The majority of informal settlement areas show a willingness to pay for sewer connections, but are not optimistic that the city would extend the system to their vicinity.

- There is a strong disposition for self-help in this area between informal sector residents.

Electricity

Current Government Policy

- The Electricity Authority is fully autonomous; although nominally under the control of the Ministry of Electricity and Energy; and has complete power to issue debt and collect fees.

- Regional or district offices install lines, meters, and collect revenues.

- The Authority covers its installation and operating costs and receives no direct subsidy from general tax revenues.[10]

- In the most rapidly growing areas, East and South Cairo, Giza, Kheima and Imbaba, the Authority has been able to keep up with growth:

Area	% of Buildings Connected[11]	
	1966	1976
N. Cairo	59%	89%
E. Cairo	60%	78%
C. Cairo	48%	80%
W. Cairo	70%	88%
S. Cairo	32%	56%
Giza	59%	81%
Imbaba	53%	76%
Kheima	40%	71%

- The greatest growth during the 1966-1976 period occurred in South and East Cairo and in Imbaba and Kheima. The percentage of buildings connected has increased substantially during this period.

- Under existing laws, all communities, formal or informal, must be given access to electricity.

- The government must supply principal power lines without charging individuals. Individuals are allowed to obtain a connection to any existing distribution point if the dwelling is within a 250 meter radius of that power source. source.[13]

- Installation takes about a month after the resident has paid a LE 60 fee to the Authority.

- If ten or more residents file a request and are prepared to set aside 8 m^2 for a distribution point, power will be provided within three to six months.

The Informal Sector in Action

- Access to electricity does not present a direct problem to informal sector residents.

- The percentage of house connections in informal settlements is already high, in the 70 to 80% range.

- However, continuing illegal connections and old wiring add a drain on the system and contribute to the frequent and habitual power outages.

Roads

Current Government Policy

- The Ministry of Transportation is formally in charge of planning and building regional or national roads.

- Local streets and highways are the responsibility of the governorates. The governorate will submit a proposal to the Ministry and if approved, central government revenues will be given to the governorate for construction. Actual construction is at the local level.

- There is no cost recovery or user service fee. There is no significant tax on motor fuel. General tax funds finance all road building.

Public Transport

Current Government Policy

- The poor condition of the transport systems reflect the pricing and subsidy policies.

- Fares cover less than 40% of the cost of transport. The rest is direct government subsidy.[13] Transport authorities must compete with other government agencies for scarce government tax revenue.

- The Cairo Transit Authority does not have independent power to adjust fees and to issue debt.

Consequences/Impact on the Informal Sector

- deteriorating transport systems

- little extension of services to informal areas

- recent improvements in transport have usually involved foreign aid

- roads, which may seem to some to be a luxury, are of vital importance to informal areas, both as access to employment, and to facilitate the transport of building materials.

The Informal Sector in Action

- Most informal development occurs on agricultural land adjacent to main arterial or secondary feeder roads or railway lines. Residents can generally walk to the nearest transport node.

- The predominance of the linear or grid street pattern based on the original agricultural property lines permits regular inlets into most neighborhoods.

- Street widths are generally adequate.

- Roads originally existing on the agricultural land and along canals are in use.

- Private taxis service informal areas.

- Problems exist within the settlement:

  - The conditions of the roads within the settlement are very poor and often impassable to vehicular traffic. Motorized transport (including ambulance services) cannot enter many settlements.

  - Residents sometimes do not refrain from building on agreed-upon public spaces and rights-of-way.

Garbage Collection

Current Government Policy

- Garbage collection is mainly handled by the private sector.

- In general, it is very inadequate, even in high income areas.

- The government does not provide garbage collection in informal areas, and only to a small degree in formal areas.

- The private sector garbage collectors, the "Zabaleen", who collect garbage mainly for resale to recyclers, prefer to go to higher income areas of the city to obtain higher value waste materials. There is also the question of whether the informal sector residents could afford the fee charged by the "Zabaleen".

Consequences/Impact on the Informal Sector

- Residents intermittently arrange for garbage to be picked up and hauled to the periphery, but say the volume of waste is so large that their efforts seem futile.

- Residents dump garbage in vacant areas, trenches, and canals.

- When removal efforts are not made by the community, the degradation of residential areas is extreme--streets can be completely blocked; canals, a source of wash water for some, are polluted; disease is spread.

- The problem of garbage collection is something residents are unable to do for themselves. It has a large share of complaints from informal sector residents.

- Education, basic health and nutrition services are provided in urban areas at a generally higher per capita rate than in rural areas. However, informal settlements have a very small share of these services and only after a settlement is legalized does the government consider extend-extending any of these services. It should also be noted that each of the essential services is closely interrelated to one another; improvement in one sector without corresponding improvement in others can be counter-productive. The installation of a water supply system without adequate drainage can spread disease through the prevalence of stagnant water.

- The choice of standards for provision for housing, physical and social infrastructure and tariff rates will significantly affect the country's long-term ability to meets its urban needs.

- A better match is needed between standards and affordability than is currently embodied in the new town developments and the various other developments undertaken by the Egyptian government.

- In Cairo, the incidence of private water connections is considerably lower among recently built informal units than among recently built formal units (55% vs. 100% respectively for housing built during the period 1971-1976). For earlier units, the difference in private water connections between formal and informal units are less (88% vs. 81% for units built before 1960).[14]

- While this may suggest that informal settlements tend to catch up with formal housing areas over time concerning water provision, this is not true for sewer systems. Differences between formal and informal areas in public sewer provision show no clear pattern in time.

- The comparative differences in levels of infrastructure provision for formal and informal housing in different urban centers are a function of political and economic factors more than anything else.

- Informal housing in what is perceived as informal areas is less well served by infrastructure provision than informal housing in predominantly formal areas.

- Financial self-sufficiency of the responsible authorities is an important institutional condition for the smooth growth of supply of infrastructure.

- Direct reliance on general tax revenue creates serious supply problems in an environment of tax scarcity.

NOTES

EVOLUTION OF INFORMAL SETTLEMENTS

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Stages of Construction

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52. HCU, 39-40

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Notes

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5. IDR, 175, 106 (Vol. 3)
6. TAP Report 80-6, 60
7. TAP Report 80-6, 60
8. TAP Report 80-6, 92

Housing Construction and Delivery Systems

1. CDSS, A-20
2. CDSS, 31
3. CDSS, A-22
4. ABT, 93
5. CDSS, 31
6. ABT, 93
7. ABT, 93

Housing Finance

1. CDSS, 34, 28

2. CDSS. 33
3. CDSS, 32
4. ABT, 97
4a. HCU, 39-40
5. HCU, 12
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Infrastructure

1. ABT, 44
2. CDSS, 14
3. CDSS, 14
4. Wheaton, 32
5. Wheaton, 31
6. CDSS, 14
7. ABT, 61
8. ABT, 61
9. ABT, 61
10. Wheaton, 37
11. Wheaton, 31
12. ABT, 71
13. Wheaton, 40
14. ABT, 55

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