



1989 Technical Review Summary
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Moqattam Zabbaleen Community Improvement

Cairo, Egypt



Planner

Environmental Quality International (E.Q.I.)
Cairo, Egypt

Client

Moqattam Zabbaleen Gam'eyya
Cairo, Egypt

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I. Introduction

a. Project Description

The project consists of a number of inter-related programmes for the social and economic uplift of the *zabbaleen* (garbage collectors) community at the Moqattam Hills and for the physical upgrading of their settlement. Technical and advisory services for these programmes have been provided to the *gam'eyya* (association) of the *zabbaleen* by Environmental Quality International (EQI), a Cairo based firm of Consultants. Funding has been provided by OXFAM, USAID, Catholic Relief Services (CRS), Ford Foundation, The European Economic Community (EEC), EMMAUS, and the Association des Amis de Soeur Emmanuelle.

b. Programmes

The programmes that have been, or are being, implemented are:

- Internal Clean-up Programme: lifting of unusable waste and setting up of a compost plant.
- Mechanisation of Garbage Collection.
- Small Industries: loans and extension.
- Infrastructure Protection: advice.
- Housing: loans and architectural services.
- Home Hygiene and Child Health: this programme has led to an Animal Health and Production Project consisting of research and extension.

Work in the *zabbaleen* community at the Moqattam began in early 1981 and has continued ever since.

c. Objectives

The objectives of the project are to:

- Increase the incomes of the *zabbaleen* community.
- Improve the environmental conditions of the *zabbaleen* settlement.
- Develop the administrative and managerial capacity of the *zabbaleen gam'eyya*.

II. Context

a. The Garbage Collection System in Cairo and the Role of the Zabbaleen Community

Origins of the System

About 100 years ago, a group known as the *wahis* (people from the oases) migrated to Cairo from the Kharga and Dakhla oases and assumed responsibility for the collection, transport and disposal of household wastes. They dried this waste in the open and then sold it as fuel for the cooking of fulmudammas and for heating water in Turkish baths. 50 years later, Christian migrants from Assiut began to come to Cairo to raise pigs in the settlements on the out-skirts of the city. An arrangement developed between the *wahis* and the *zarrabs* (pig breeders) whereby the *wahis* allocated garbage collection routes to the *zarrabs*. The *zarrab* was responsible for collecting, sorting and disposal of wastes in exchange for proprietary rights over them for use as pig feed and for the recovery of saleable components. The *wahi*, however, retained his right to collect fees from the

households for the service performed by the *zarrab*. Over the years this arrangement has been institutionalised. Collectively the *wahis* and the *zarrabs* are known as the *zabbaleen* (plural of *zabbal*).

The Operation of the System

- *Arrangement between Wahis and House-owners*

The *wahis* are under contract with owners of houses and buildings to arrange for the collection of garbage from their premises. In case of apartment blocks, the *wahis* usually have to pay an initial fee for acquiring this right. Depending on the size of the block, the fee varies from LE 25 to LE 1'000 (US\$ 12 to 450). Cairo apartment dwellers pay the *wahi* between LE 0.25 to LE 1.5 per month for this service.

- *Arrangement between the Wahi and the Zarrab*

The *wahi* controls the right of the *zarrab* to work and collects the fee for the work performed by him. In addition, the *zarrab* pays the *wahi* LE 0.50 to LE 5.00 per month. In exchange the *zarrab* acquires the right over the waste he collects.

- *Zarrabs Manner of Work*

The *zarrab* collects garbage from individual households or institutions along the route allocated to him by the *wahi*. He carries the garbage to his donkey-cart. While he is doing that his son or minor daughter stay behind to guard the cart. When the cart is full he returns to his settlement where the garbage is unloaded in the courtyard of his house. The women and children of the family then sort it out. The organic material is given to the pigs. Plastics, glass, metals, bone, cloth, paper, are all sorted out and placed in separate piles or containers. These are sold by weight to middlemen who specialise in particular products. These middlemen are known as *mu'allims* and they often advance cash for emergency needs of the *zarrabs* or for the setting up of their *zeribas* (pig pens). About 70 percent of the earnings of the *zarrabs* comes from the *zeriba* and the rest from recyclable waste. However, as the result of such advances, the *mu'allims* acquires the sole right of purchase of recyclable materials from the *zarrab* and at lower prices. If he has financed a *zeriba* then he also acquires a share in it. Due to this close relationship *mu'allims* are constant visitors to the *zabbaleen* settlements and many have business establishments in them. The *wahis* on the other hand seldom visit these settlements and most of them live in the Bab El Bahr area of Cairo.

Advantages/Disadvantages

- *Advantages*

The system is self-financing and as such saves the Governate of Cairo from operating a complex municipal system with problems associated with revenue collection and maintenance. In addition, it provides employment to a large number of people and fulfils the local demand for pork at very low prices. Studies have shown that the municipal collection system in Cairo costs the governate LE 14 as expenditure on labour for a ton of refuse collected. The *zabbaleen* operated system for the same exercise costs LE 1.3.

- *Disadvantages*

Due to the rapid expansion of Cairo the *zabbaleen* can only service 50% of the city. Thus, upper-income areas, where garbage has a higher content of recyclable material, take priority over lower income areas. Because of the use of a donkey-cart, the process of garbage collection and transportation to the *zabbaleen* settlement is slow and often erratic.

b. *The Zabbaleen Settlements: their Nature and Problems*

Land and Evictions

There are 5 *zabbaleen* settlements in Cairo. Technically speaking, they are all encroachments on state land. In addition, the social status of the *zarrabs* and their pig breeding activities have always confined them to the fringes of the city. So, as the city has expanded, the *zabbaleens* have been forced to move, in many cases more than once. This lack of tenure security, combined with social discrimination, has prevented them from making any major investments in housing or in improving their environment.

Housing

- *House Plan*

All houses in the *zabbaleen* settlements are back to back and side to side, with no space in between. The entrance is from the street and animals, carts and people all pass through it into a courtyard. Part of the street in front of the house is used as an extension of the house. The entrance passage is used for parking the cart and sorting the garbage. It is sometimes roofed with cane for shade. The entry passage leads to a courtyard which is used for cooking, laundry, storing of recycled materials, eating and entertaining guests. Children also play in the courtyard and it usually contains a *kanoon* (oven) for baking bread. If the entrance passage is small then the sorting of materials is also done in the courtyard. The rooms and courtyard are to the front of the house, while the *zeriba* is at the back and occupies about 40 to 50 percent of the area of the site. Often dogs sleep in the *zeriba* so as to protect the animals against thieves.

- *Size of the House*

Number of rooms in a house depends on the size of the extended family, which usually consists of a couple, their married children, and unmarried grand children. As a rule, there is one room per nuclear family in the house. A few families have a separate room for receiving guests. These rooms are near the street and sometimes get converted into a grocery or general store. All rooms are about 3 m by 4 m. They are badly lit. The size of the *zeriba* on the other hand is related to the number of pigs, and it is divided into 2 areas. One roofed, to house the donkeys, and the other unroofed, for sows and new born piglets. The size of a plot varies between 50 sq m and 120 sq m with a built-up area of 15 sq m to 50 sq m..

- *Building Material*

Walls of most houses in *zabbaleen* settlements are made of flattened tin barrels. These are nailed to an irregular timber frame. The roof is also of irregular timber supports covered with cardboard, cane and cloth. Rooms belonging to the more important section of the extended family may be of stone. Floors in the rooms are of earth and in some cases compacted stone covered with a thin coat of weak concrete. Doors and windows are of timber. The entrance gate however, is invariably of a timber frame with tin sheets nailed onto it.

Water

In most of the settlements there is no water supply system. The *zabbaleen* cart water in donkey drawn containers called *fantaz* from the nearest available soura or from the Nile, whichever is nearer. This water is usually acquired by making informal financial arrangements with caretakers of apartment blocks or government hydrant operators. Depending on the location of the water source the *zarrabs* pay up to LE 5 per month for water in winter and up to LE 30 in summer. Thus, they spend about LE 30 (US\$ 13) per month, or about 25% of their average income on water. The consumption of water by the pigs and donkeys is more than 4 times the amount consumed by humans for drinking, cooking and washing.

Sanitation

There are no latrines in the *zabbaleen* settlements. The people excrete in their *zeribas*. Waste water flows into the street. The cost of making a pit latrine varies from LE 800 to 1000, depending on the nature of soil. This is beyond the means of the *zabbaleen* community.

Fuel for Cooking

All the houses in the *zabbaleen* settlements use LPG gas cylinders. The initial cost of a cylinder is LE 240. However, it can be purchased at LE 300 on hire purchase at LE 10 per month. The refill costs LE 2 and lasts 15 days. The *kanoon* however, is used for heating water and baking bread. Its fuel consists of dried garbage.

Environmental Problems

- Inside the House

In almost all houses, cooking, sorting of garbage, playing of children and entertaining guests take place in the same space. Because of decaying organic matter in the garbage, the stench is unbearable and the courtyards are full of flies. In addition, the rooms are barely ventilated, for the windows are far too small. The roofs are made of tin, so the houses are cold in winter and unbearably hot in summer. In addition, there are no proper storage areas for the recyclable materials. These lie around the courtyard and it is common that animals and children cut themselves on them.

- Toxic Wastes

The *zeribas* are only cleaned three or four times a year. With the result that organic residues, not eaten by the pigs, and pig droppings, accumulate. This accumulated waste creates an environment which is toxic in nature and injurious to both pigs and human beings. When the *zeribas* are cleaned this waste is left to ferment on the street. Its disposal away from the settlement costs LE 8 to 10 per cart load. Few families are willing to have it removed at this price.

- Diseases among Humans and Animals

In addition to the diseases which are produced by the decay to organic matter in the garbage and toxic wastes, tetanus is common in the settlements. This is because children are forever cutting themselves on glass and tin. According to one estimate, 50% of the infants die at birth and over 50% of the mothers suffer from post natal infection. Animals are also badly effected by the degraded environment. Piglets die due to the effect of toxic conditions in the *zeribas* and donkeys suffer from cuts and burns inflicted by the contents of the garbage.

- Fire Hazards

Fires are common in *zabbaleen* settlements. This is because in the extreme heat of Cairo, organic and toxic wastes lying in the streets, reach high temperatures. The settlements also contain large quantities of cloth and waste paper which fly around in the wind. When the two come into contact a fire starts causing heavy damage to houses and to the animals in the *zeribas*.

Facilities

The *zabbaleen* settlements have no schools, clinics, veterinary services, telephones or surfaced roads, in addition to having no water supply, sanitation, electricity or waste collection systems. Apart from a few shops which cater to the daily needs of the residents and the store houses of the *mu'allims* there is no commercial activity. "Life is simply all work" and "God is the doctor" were statements made by *zabbaleen* during conversation with the Reviewer. The Coptic church has a presence in all settlements through visiting priests, and churches in two.

Zabbaleen Population

It is estimated that the *zarrab* population of Cairo is about 22'000. They live in 5 settlements. In addition, there are about 2'500 *wahis* and about 100 middlemen. 30 percent of the *zarrabs* do not work as garbage collectors but as grocers, butchers, coffee shop owners or building site labour.

c. Non-zabbaleen Informal Settlements

Over 40 percent of Cairo lives in informal settlements. Most of these settlements have developed as a result of subdivision of agricultural land or the urbanisation of villages which have been absorbed by the city sprawl. In such settlements the residents have tenure security, and even though basic amenities are missing, many of them have unapproved high rise construction in them. In the remaining settlements, which are on state land, there is no security of tenure. In this respect they are similar to the *zabbaleen* settlements, and like all informal areas, they too are not serviced. However, houses in these settlements are of a more durable nature than in *zabbaleen* areas, and the environmental problems created by badly managed pig breeding and garbage sorting are absent. By all accounts these settlements are rapidly increasing in number and government plans to upgrade them have not yet materialised. The *zabbaleen* settlements constitute less than 1% of the population living as encroachers on state lands.

d. The Zabbaleen Settlement at the Moqattam

Location

The Moqattam *zabbaleen* settlement is located at the foot of the Moqattam hills in the South-Eastern area of Cairo. It is the site of an old stone quarry. Its approach is from the Salah Salem Expressway, on the other side of which is the Citadel containing the Mohammad Ali Mosque. To the North-West of the settlement is the squatter colony of Manshiet Nasser which has a population of about 50'000.

Plan of the Settlement

The road from the Salah Salem Expressway winds through the hills and becomes the Sharia Al Faran road, once it enters the settlement. This road runs through the length of the settlement and divides it into two. It terminates at an old quarry which now houses a compost plant. The area to the North-East of the road is comparatively flat and contains the Coptic church. The area to the South-West is higher and hilly, and the roads here follow the contours of the site. Road widths are substantial, few being below 12 m while the Al Faran road is 20 m. Open spaces are few and consist mainly of a widening of the roads at an intersection. There are no trees except in the church compound.

Climate

The climate of Cairo is hot, dry and dusty in summer and mild in winter with occasional rainfall. At the Moqattam, however, climatic conditions are far more severe than in the city itself. The desert wind from the south is stronger at these heights, and in the absence of a buffer of vegetation or buildings, dust storms are common in summer. This, combined with fine particulate wastes, often reduces visibility to nearly zero on windy days.

Statistics

The area of the *zabbaleen* settlement is 40 hectares and its population today is estimated at 12 to 15'000. 30% of this population do not work as *zabbaleens* and, according to a 1981 survey, 9% were then services sector middlemen. The settlement has about 900 carts that are engaged in garbage collection. They bring in an estimated 1'000 tons of raw waste into the area every day.

History of the Settlement and its Residents

- The Origin of the People

The majority of the residents of the settlement are landless agricultural labour whose families have migrated to Cairo from the area around Assiut in upper Egypt. This migration has been an ongoing one since the early 1930's. The links of the residents with their place of origin are still strong and marriages between them and their rural relatives are common. They are almost all Christians and belong to the Coptic Church.

- The Origin and Development of the Settlement

In their 65 year's history in Cairo, the residents of the Moquattam settlement have been evicted from their homes several times as a result of the expansion of the city. In 1970, they were moved from Imbaba in North-West Cairo, to the present location. They carried their animals and tin shacks with them. Due to fear of eviction, they did not improve their homes or environment. However, with the establishment of a church in 1975, the residence felt more secure, and before the present intervention took place, almost half the houses had one or more rooms and compound walls in brick or stone. The stone was acquired by levelling the ground for roads or from the hills. The government has not permitted the *zabbaleen* settlement to expand beyond its 1978 limits and all attempts have resulted in the bulldozing of the new encroachments.

The Settlements Relationship with its Neighbours

Generally the people of Cairo are not aware of the nature of *zabbaleen* settlements or the life of their inhabitants. Many are not even aware that they breed pigs or sell recyclable waste. In the neighbouring settlement of Manshiet Nasser, most residents had no contact with the *zabbaleen*, until the building boom in the settlement in the mid 1980's. Those nearer the settlement consider the *zabbaleen* to be a nuisance as their garbage pollutes the atmosphere, while others are upset by the passage of *zabbaleen* vehicles through their settlements. There is no socialising between the two communities. The *zabbaleens* on the other hand are not interested in the residents of the Manshiet Nasser settlement as their garbage has almost no recyclable waste in it.

III. Description of the Project

a. Origins of the Project

- Formation of the Gam'eyya

Although the present project with its many programmes began in the 1980's, its roots lie in the interest taken earlier by influential Christians and charitable organisations in the *zabbaleen* community. This interest led to the formation of the Association to Care for the Christian Garbage Collectors about thirty years ago. Bishop Samuel of the Coptic Orthodox Church was one of the members of the *gam'eyya*. Before the present programmes commenced, the function of the *gam'eyya* was to help the *zabbaleen* acquire birth certificates, army papers, assist them in their dealings with the government and provide for their funerals and religious ceremonies. The majority of the members of the board were influential christians and the rest *zabbaleens*.

- *Soeur Emmanuelle*

From the early seventies, a Belgian nun, Soeur Emmanuelle, has been working with the *zabbaleen* community in Cairo and mobilising resources from various international and church earnestness for assisting them. When the present programmes began, she was living with the *zabbaleen* community at the Moqattam and earlier at Tora.

- *Development Plans of the Government of Cairo and their Effect on the Settlement*

In the late seventies work on the World Bank aided First Egypt Urban Development Project (FEUDP) began. The project included the upgrading of certain squatter colonies through providing secure land tenure to the residents and services infrastructure. Manshiet Nasser and the Moqattam *zabbaleen* settlement were among the areas earmarked for upgrading. In addition, FEUDP also had a solid waste management component to it and Dr. Mounir S. Neamatalla was then working for the Government of Cairo's solid waste management unit. He felt that rather than create a new system, the *zabbaleen* system of waste collection needed to be studied and if necessary modified to respond to Cairo's expanding needs. He left the Cairo Governate and formed his own consulting company, the EQI, which became the consultant to the Cairo Governate on the solid waste management component of the FEUDP. Studies carried out by EQI for the FEUDP brought Dr. Neamatalla into close contact with the *zabbaleen* community, the *gam'eyya*, Soeur Emmanuelle, and other charitable organisations working with the *zabbaleens*. This led to the EQI becoming the technical advisor and consultant to the *gam'eyya* of the Zabbaleen and to the development of various programmes which have been initiated for them since 1981. In addition, the upgrading programme of the FEUDP gave the *zabbaleen* de facto security of tenure and made it possible for them to respond to the new programme proposals.

b. *General Objectives*

The General Objectives of the Project were:

- To study the sociology and economy of the *zabbaleen* community so as to promote suitable programmes for its upgrading and development.
- To change the nature of the *gam'eyya* from an association for the *zabbaleen* to an association of the *zabbaleen* and to build up its capability and capacity for administering development programmes and the finances involved.
- To initiate programmes so as to improve the economic conditions of the *zabbaleen* community. It was felt that if this could be done then it would be easier for them to respond to technical advice and financial inputs for improving their homes and the environmental conditions of their settlement.
- To help make government schemes under the FEUDP meaningful to the community, it was felt that the arrival of water and sewerage in the settlement would create a whole new set of problems if the community was not trained to use water correctly, make the proper sewerage connections and maintain and operate the systems at local level.

c. *Description of Programmes*

Sociological and Economic Studies

Detail studies of the *zabbaleen* community, the Moqattam settlement, the economy of the garbage collection and recycling system and its relationship to the larger waste management problems of Cairo were carried out by the EQI. These studies were prepared for the FEUDP and other funding agencies such as the CRS, OXFAM and the Ford Foundation.

Changes in Gam'eyya

In 1980, the *gam'eyya* was "secularised" by the addition of 3 Muslim members to its original board of 12 and the dropping of the word "Christian" from its name. Proper offices were established for its in the settlement and a trained administrative staff hired. An ex-police officer, Talat Sobhi, now serves as the General Manager and he is assisted by 35 part-time and 5 full-time staff members. The *gam'eyya* has thus been transformed from a small parochial organisation with a budget of LE 1000 in 1981 to one with a budget of over LE 250'000 (US\$ 340'000) in 1986. From dealing with assisting the *zabbaleens* in acquiring birth certificates and army papers, it is now responsible for the mechanisation of the garbage collection system of Cairo. However, the salaries of the *gam'eyya* are paid through funding from international organisations.

Mechanisation of the Zabbaleen Garbage Collection System

Armed with detailed studies of the economy of the *zabbaleen* garbage collection system, the *gam'eyya* and its consultants have lobbied with the governate of Cairo for officially institutionalising a mechanised version of the present *zabbaleen* system. So, when in December 1986, the Cairo Cleaning and Beautification Authority (CCBA) invited private companies to bid for the collection rights of the city's garbage in the districts of Zamalek and Manial, the *zabbaleen* also decided to make a bid. For this purpose an understanding between the *zabbaleen*, who serviced these districts, and their *wahis* was essential. With considerable effort this was arrived at and as a result an organisation known as the Environmental Protection Company (EPC) came into being and was awarded the contract. Its board consists of 3 members from the *gam'eyya*, 3 from the *rabita* or association of the *wahis*, 2 from the EQI, 1 from Governate and Ahmed Effendi, a middleman of considerable standing in the garbage trade. 20 mechanised vehicles, appropriately designed, replaced the 40 donkey-carts that operated on these routes. Drivers, in most cases, non-*zabbaleens*, have been recruited for the operation of these vehicles, each of which looks after 2 routes. The *zabbaleen* on these routes are all from the Moqattam settlement. The monthly fee collected by the *wahi* from the households served has been raised to LE 2.75 and 50 percent of this is surrendered to the Company for operating costs. A garage for the vehicles, with record keeping and maintenance systems has also been established at the Moqattam. In addition, a kiosk and reporting office in both districts have been established to monitor the work of the Company.

Internal Clean-Up Programme

In 1983, the EQI looked into the issue of the disposal of unusable organic wastes that piled up on the streets of the settlement. As a result, a technical proposal for the establishment of a compost plant which would utilise this waste and *zeriba* droppings, and at the same time generate funds for the *gam'eyya*, was prepared. It was, however, realised that such a plant would require considerable time before it could be established. As a short term solution the *gam'eyya* requested the city authorities to utilise a nearby public dump site for waste disposal. Once permission was granted four trucks were engaged to transport 16 loads daily out of the settlement. Meanwhile, it was decided that the *gam'eyya*, because of its other involvements and administrative constraints, was not in a position to handle the establishment, operation and maintenance of the compost plant. So, another organisation, the Association for the Protection of the Environment (APE) was formed in July 1984 to undertake this work and a funding proposal was drawn up in November 1984. A Swiss contractor, Buhter Brothers, completed the plant in 1986 and it has been in operation since January 1987. The EQI has a 2 year contract for its operation.

Small Industries Programmes

The Small Industries Programme, consisting of providing loans to applicants for the setting up of small industries to recycle inorganic waste materials, was launched so as to increase the income of *zabbaleen* families. Money for the loans was provided to the *gam'eyya* by OXFAM, and EQI acted as the consultant to OXFAM and advisor to the *gam'eyya*. Criteria for the acceptance of applications were developed and a bid committee established. Criteria included availability of

space in the applicant's house; proximity to an electric connection; the applicant's house; proximity to an electric connection; the applicant's knowledge regarding the industry; a good reputation, economic need and an approval by the President of the *gam'eyya* board. The pilot phase lasted from June 1983 to June 1984. During this period, 7 industries, consisting of plastic granulation, rag pulling and rag weaving were established. Because of problems of loan recovery, criteria for acquiring a loan in the post pilot phase was changed and applicants were required to make part contributions for the setting up of their industrial unit. The EQI's role in this programme has been to advise the *gam'eyya* on appropriate machines, the capability of the applicant, to market and monitor the operations. So far the programme has financed 43 machines.

Infrastructure Protection

Advice on the proper use of piped water, storage, making of sewerage connection was attempted by the EQI. However, this was discontinued due to a poor response from the population and delays in the arrival of infrastructure to the settlement.

Home Hygiene and Child Health leading to the Animal Health and Production Project

The infant mortality rate in the settlement in 1981 was 240. A project aimed at improving child health conditions was commenced. Initial observations led the EQI to the conclusion that one of the main reasons for the high infant mortality and child morbidity rate was the constant interaction of the children and mothers with the *zeribas* where conditions were most unhygienic and animals unhealthy. The health programme so far has not really taken off except for the establishment of a dispensary which has a doctor, a woman gynaecologist and a dentist and the beginnings of a vaccination team. However, the search for a health and hygiene intervention has led to the establishment of an Animal Health and Production Project. This programme began in October 1987 and has consisted of 3 things. One, the establishment of a veterinary clinic complete with surgical and pathological units, medicines and expert medical advice. Two, advice on structural changes in the *zeriba* such as shade for the pigs, the division of the *zeriba* into separate compartments for the sow and the piglets and the regular cleaning of the *zeriba* itself. Three, advice on production, worming, use of penicillin for castration, ear-notching and related activities. 30 have now become a part of this programme and pay LE 5 per month towards its operation. Two extension agents have also been recruited from the community to assist the programme.

Housing Programme

- Initial Programme

- Financial Arrangements and Identification of Beneficiaries

The advent of the Government's upgrading programme encouraged the *zabbaleen* community at the Moqattam to invest their money in housing. The first housing programme was initiated by Soeur Emmanuelle who allocated LE 24'000 from her resources for it in January 1985. LE 600 was to be given as a loan to individual families who were to contribute LE 550 from their own resources. Of the LE 600 given as loan, LE 240 was to be repaid over a period of 2 years at LE 10 per month. This repayment was to be collected by the *gam'eyya*. The target group was to consist of families living in shacks and a committee of 4 *gam'eyya* board members and one EQI staff member was formed to select the beneficiaries. Thus, 40 households benefited from this funding. In addition, Soeur Emmanuelle constructed an additional 34 houses free of charge for persons identified by her and Father Samaan, the priest of the Coptic Church in the settlement. The cost of each such unit was LE 2'000.

- Design Aims and Construction Procedures

The programme aimed at making additions and modifications to existing houses. These consisted of the building of one room, a kitchen area and a toilet corner. An essential part of the modification was to divide the house into two separate areas each with a different entrance. One area was to consist of the cart entrance, a sorting area, a storage space and

the *zeriba*, and the other area of an entrance for humans leading to a sleeping, living and a cooking area. The room was normally 3 by 4 m and about 3 m high. A contractor was employed to carry out these additions and modifications and the loan element of LE 600 was paid directly to him by Soeur Emmanuelle.

- *Technology*

The construction consisted load-bearing brick work with a reinforced concrete roof. The floors were of in-situ concrete and the doors and windows of timber. The window openings are about 1 by 1 m.

- *Manpower*

The contractor, the masons and the carpenters were all from outside the settlement. The skilled labour came from Manshiet Nasser. Part of the unskilled labour, by some accounts 40%, was from the settlement itself.

- *Second Housing Programme*

In January 1986, the second housing programme was commenced. A fund of LE 50'000 was allocated by Soeur Emmanuelle for it. The programme was designed by the *gam'eyya* with the assistance of the consultants and provided for small loans of LE 600 to the applicants. 80 loans could be extended as a result. The selection criteria for the beneficiaries were: 1)- he would be operating a route; 2)- he should have applied for or owns a mechanised waste collection vehicle and 3)- he should have developed an agreement with his *wahi* which would allow for payment of the monthly instalments on his vehicle. The second housing programme was launched at a time when there was government pressure on the *zabbaleen* to mechanise collection and it was to help promote mechanisation that these terms were drawn up. As mechanisation was an important issue at the time in *zabbaleen*-government relations, the *gam'eyya* decided to postpone implementation of the programme so as not to divert the community's financial resources into any other activity.

- *The Current Housing Programme*

- *Financial Arrangements and Selection of Beneficiaries*

The current programme was launched in January 1987 with finances left over from the second Housing Programme and an additional LE 20'000 from Soeur Emmanuelle. The target group was strictly limited to people living in tin shacks. LE 500 was to be given as a loan by the *gam'eyya* and a minimum of LE 500 was to be contributed by the beneficiary. The EQI's involvement with the programme finished in January 1988.

- *Design Aims and Construction Procedures*

The unit to be built for LE 1'000 was a 3 by 4 m room, 3m high with a door and a window. It was part of a larger double storey house plan so that house-owners could, if they wanted, build more of the house or add to it incrementally over the years. The same separation of living, sleeping and cooking areas from the *zeriba* and garbage sorting area was built into the plan. No plans for any changes in the *zeriba* itself were suggested and the *zeribas* in the new houses are no different from the *zeribas* in the old. A contract guaranteeing payment by the owner and proper implementation by the contractor was worked out. The payments were divided into two instalments. The first instalment of LE 500 was paid for foundations, 4 concrete columns and a concrete roof. The owner paid LE 250 of this sum in advance to the contractor and LE 250 were paid by the donor on completion of this work. Similarly, LE 250 were paid in advance by the owner for the concrete block walls, door and window and the balance of LE 250 by the donor on completion of work. Most of the houses built through these loans have not only consisted of one room but also a double storey.

- *Technology*
In-situ reinforced concrete pad foundations, columns, beams, staircases and roof slab form the structure of the house. The walls are of concrete block, or in cases where the residents have built more than the basic unit, brick has been used as it is cheaper. In-situ concrete has been cast in timber forms. The door and window are in timber. The floor of the basic unit is in concrete.
- *Manpower*
As for the initial housing programme, the contractor is from outside the settlement and so is the skilled labour component. However, an increasing number of workers from the community are involved as unskilled workers in the building activity in the settlement.

- *Role of the Consultant*

The consultant prepared the designs and suggested the technology for the first housing programme. For the current programme, he has not only prepared the incremental plans but has also worked out the contract between the owners and the contractors. An architect from the EQI was involved full-time in advising the owners on extensions to their houses and in sorting out problems between owners and contractors. Earlier studies by the consultants concerning the manner of work in *zabbaleen* houses made it possible for the EQI architect to make designs that respond to the needs of the community. The EQI prepared standard plans not only for double storey houses, but also for apartment blocks and commercial centres that the residents wanted to construct.

IV. Dates and costs

a. *Internal Clean-up Programme*

Dates

Clean-up programme begins	July	1983
Compost plant study	Early	1983
Formation of APE	July	1984
Compost plant funding proposal	Nov.	1984
Plant complete	Nov.	1986
Plant in operation	Jan.	1987

Funding (grants)

EMMAUS	LE	186'200
EEC	LE	622'300
Ford Foundation	LE	416'500
Amis de Soeur Emmanuelle	LE	245'000
Total	LE	1'470'000 (US\$ 600'000)

b. *Small Industries Programme*

Dates

Begun	July	1983
Consultants involvement ends	Dec.	1985

Funding (grants)

Oxfam for initial phase	LE	33'700
Oxfam for second phase	LE	60'000
Total	LE	93'770 (US\$ 38'000)

c. *Mechanisation of Waste Collection*

Date

Initial studies and proposals	1982 onwards
Formation of EPC	Sept. 1987
Operation of new system	Jan. 1988

Funding (grants)

Soeur Emmanuelle	LE 289'200
Zabbaleens investment	LE 156'400
Total	LE 445'600 (US\$ 181'900)

d. *Animal Health and Production Project*

Dates

Programme begins	Oct. 1987
EQI assistance to end	May 1989
CRS assistance to end	Sept. 1980

Funding (grants) from CRS

Project expenditure (estimate for 3 years)	LE 205'440 (US\$ 83'850)
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e. *Housing*

Dates

Initial programme begun	Jan. 1985
First phase, begun	Jan. 1986
Current phase, begun	Jan. 1987
EQI involvement ends	Jan. 1988

Funding (grants) from Soeur Emmanuelle

First phase	LE 92'000
Second phase	LE 24'000
Current phase	LE 20'000
Total	LE 136'000 (US\$ 55'500)

f. *Total Funding*

(minus payments to the <i>gam'eyya</i> , consultants, expenses on child health and hygiene programme and for infrastructure advice)	LE 2'350'810 (US\$ 959'510)
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V. Technical Assessment

a. Assessment of Programmes

Sociological and Economic Studies

The initial socio-economic studies carried out by the consultants are very important research documents and have promoted an understanding of waste management problems in Third World cities. The research into housing has also clearly related the requirements of the community to the work they perform and to health issues. However, monitoring reports, study of the various processes set in motion by various interventions and the linking of the work being done at the Moqattam to the larger context of the city are missing.

The Changes in the Gam'eyya

Although the *gam'eyya* has been "secularised" and a larger number of its board members are now *zabbaleens*, the garbage collectors still "find themselves entrapped among the influential christian families" (Marie massile Assaad: in conversation with the Reviewer). The addition of new highly qualified administrative staff to the *gam'eyya* has, in the opinion of some board members, further alienated the *zabbaleen* representatives on the board. Although the *gam'eyya* claims to represent all *zabbaleens*, garbage collectors at the Tora settlement were not aware of its activity. In addition, the general body consists of only 217 members although there are an estimated 3'000 *zabbaleen* households in Cairo.

Mechanisation of Garbage Collection

- *Financial Position*

Revenue and expenditure figures of the EPC are available from January to September 1988 and show a loss of LE 32'061. This shortfall is 15.5% of the amount spent of operating and maintaining the company. However, the major reasons for this loss is that due to a lack of capital, the EPC has had to lease CCBA vehicles at a cost of LE 60'358. If these vehicles can be donated or acquired through collection of money from the beneficiaries, then there is every reason to believe that the company can run at a small profit. The expansion of the system also poses some problems as large grants to meet capital costs cannot always be available. Thus, it has been decided that in the future each *zabbaleen* operator will contribute LE 4'000 towards capital costs instead of the LE 1'500 which have been contributed for the Zamalek and Manial districts. It is felt by some *zabbaleens* that this will make it impossible for the poorer *zabbaleen* to work with the EPC.

- *Benefits to the Zabbaleen*

Thanks to mechanisation the *zabbaleen* finish their work in less than half the time it used to take them. Thus, they can seek other employment in their spare time. In addition, they no longer need donkeys for their work and this saves them the cost of donkey feed. However, in the absence of donkeys, carting *zeriba* droppings away from the house or operating a *fantaz* does pose problems. Just by the act of mechanisation their incomes have not increased. However, by mechanisation, the threat of being replaced by some other system has been eliminated.

- *Benefits to the Clients*

The EPC serves 26'402 domestic and 1'402 commercial units in Zamalek and Manial. According to these house-holds the level of service of the *zabbaleen* has improved as a result of mechanisation. In addition, the house-owners also appreciate the fact that their *zabbaleen* now wear uniforms.

- *Mechanisation and House Building Activity*

None of the 40 *zabbaleens* working with the EPC have invested in housing as a result of this activity. Most of them had already built their homes or were in the process of doing so at the time the company came into being. In some cases, payments made to the company have hindered construction activity.

Composting Plant

- *Institutional Arrangement*

75% of the members of the APE board are non-*zabbaleens* and the executive director is a retired professor of agriculture. The General Body consists of 50 *zabbaleen* members.

- *Financial Position*

At present the compost plant is running at a loss of 40%. However, it is estimated that as the supply of waste to it increases, and as it functions in more than one shift, its position will improve. There is no reason to doubt the consultants projection that by 1993 the plant will be earning LE 92'640 per year. However, it must be borne in mind that apart from its establishment, the plant is able to function today thanks to grants it receives from the sources mentioned earlier and from the Christian Brothers.

- *Benefits to the Community*

With the establishment of the plant an increasing number of *zabbaleen* are taking their *zeriba* and other wastes to the plant regularly. This is because the proximity of the plant saves them a long journey to a dump-site or the making of a payment for having their wastes lifted. Due to these reasons rotting organic matter in the streets is decreasing and *zeriba* cleaning is more common than before. Both results will have a positive impact on health and on the environment. In addition, APE runs a programme on health and another on vocational training for girls. It is foreseen that these and other such activities will be financed by funds from the plant in the future.

- *Pollution*

The plant is situated in a depression which was originally a quarry. The residues are left to ferment in this depression. As a result there is considerable pollution at the level of the settlement which badly affects the eyes and breathing. Usually pollution producing activity is placed on higher ground if it is near a settlement.

Small Industries Programme

- *Concept*

The concept of the small industries programme was that instead of selling raw recyclable waste, the *zabbaleen* should process the waste and sell it for higher prices. This would increase their incomes and also create employment. By initiating a revolving fund it was thought that it would be a continuing activity.

- *Loan Recovery*

The major problem with the programme is that instalments on loans are not being recovered and if this continues the time will come when the programme will stop. To tackle this problem the *gam'eyya*, on the advice of its consultants, made it compulsory for applicants to make a matching investment against the loan they receive. However, this has not changed the situation. *Zabbaleens* with whom this was discussed felt that these loans were given as patronage to the applicants and that protection of the defaulters by their patrons in the board was a major reason for the problems the programme found itself in. However, there is evidence showing that the programme was not explained properly to the applicants. It is certain that no systematic monitoring of their work was done nor a proper organisation developed for loan recovery. The new rules combined with the system of "patronage" (if the accusations are true) means that only the richer or more influential *zabbaleen* can get loans from the programme.

- *Benefits to the Zabbaleen*

Although only 43 small businesses were established as a result of the programme, a large number of jobs were generated. A number of new migrants from Assiut are working in these workshops. In addition, the *mu'allims* of the settlement, learning from the programme, have also set up small workshops and outsiders have established recycling units so as to be near to the source of raw and semi-processed material. It is estimated that over 70 small units have been established in addition to the ones established through the revolving fund. In addition, workshops to service these units have also sprung up. A major reason for the expansion of this activity is the upgrading programme which has made water and electricity partly available to the area.

- *Pollution*

The industrial activity in the settlement is producing considerable pollution. This is especially true of the rag pulling machines which cause respiratory problems not only for people working on them but also for the neighbouring households.

- *Effect on Housing*

The small industries programme and the activity it has generated, especially the expansion undertaken by *mu'allims* and outsiders, has had a major physical impact on the settlement. Multi-storey buildings, without *zeribas*, have come into being; shops, mechanised transport and building material ware-houses have sprung up and the services sector has expanded.

Animal Health and Production Project

- *Benefits*

28 *zeribas* have adopted the programme and the ones visited show that not only production has increased by about 20% but also that the pigs are healthier. In addition, the regular cleaning of the *zeribas* has improved the environment in the homes. The vet centre has also seen of immense assistance to the community. This can be judged by the fact that from October 1987 to September 1988, 1'264 animals (other than pigs), of which 720 were donkeys, were treated at the centre. Of these, 30% would have died, had the centre not been operative. In addition, the centre played an important role in the prevention of the spread of a foot and mouth epidemic, which took place in 1987 in the settlement.

- *Problems of a "Self-supporting" Centre*

The centre runs at a subsidy. Unless the membership for the programme is increased to at least 20 times its present number and the monthly fee enhanced to LE 10 from LE 7, it cannot be self-supporting. This may take many years.

- *Effect on Housing*

The programme has had no effect on housing activities in the settlement.

Housing Programme

- *Loan Recovery*

Loan recovery for the initial and second housing programmes did not materialise because of a grant element; unclear terms of association between the donor, contractor and owner; emphasis on the charitable nature of the work being done and the absence of an institutionalised system of loan recovery. These problems have, however, been overcome for the current programme. The new relationship which has evolved between the different actors also results in safeguarding their respective interests (see section III.c.: *Housing Programme*).

- *Result of the Present Criteria for Beneficiary Selection*

The criteria for the selection of beneficiaries are simpler: anyone who can raise a matching sum of LE 500 against the loan and lives in a tin shack. This leaves the poorer *zabbaleens* out of the programme altogether (see appendix I. Case 1).

- *Results of Employing a Contractor*

For the construction of the basic unit the beneficiary has to employ a contractor approved by the programme. This prevents the beneficiary from building the house himself or making savings by employing his own labour. The contractor is from outside the settlement. The reason given for this is that it creates a more formal relation between him and the owner.

- *Building Types*

Basically 3 types of new buildings have been built in the settlement although within each type there is considerable variation:

- individual double-storey houses with a *zeriba* at the back;
- A 2 or 3 storey building with 4 to 12 apartments housing a nuclear family in each apartment. Such families belong to one extended family and the building may or may not have a common *zeriba* at the back or shops in front.
- 2 to 3 storey buildings with shops or full-fledged shopping areas on the ground floor, apartments on the floors above and no *zeribas*.

The first category is the most common.

- *The Designs*

The plot sizes and locations were already defined. The front was seldom wider than 8 m and the *zeriba* had to be maintained at the back. These constraints determined the designs along with the considerations mentioned in section III.c. Thus, houses were built side by side with no space between them, and opened directly onto the street. Due to a shortage of space the living quarters had to be on the first floor and the work area below. This segregation is welcome given the nature of the work done by a *zabbaleen* family. Staircases in the houses appear abnormally grand. However, the people seem to like grand staircases and children and guests sit around on them while the family is sorting the garbage. In most cases, sewerage connections are not possible and so the toilet drains out into the *zeriba* below (see appendix I.case 2).

- *Response to the Designs Additions and Modifications*

- *Division of Functions*

The people have not accepted the division of the house into living and work areas each with separate entrances. Thus, the wall between the two is usually demolished. This is because while working, the women like their children to be visible. Another reason is that the area set aside for the entrance to the living quarters, or in the case of narrow plots, for sorting, gets converted into a shop for rent or personal business (see appendix II).

- *Space for Toilets and Kitchens*

Again, the *zabbaleen* have not reacted positively to the architect's suggestions of separate spaces for toilets and kitchens. These were not priorities for them. Thus, in most cases the *zeriba* is still used as a toilet and cooking is done in the courtyard.

- *Addition of a Balcony and Provision for Future Expansion*

Although the architects designs in the early stages did not provide a balcony on the first floor, the *zabbaleen* created one by cantilevering the slab out onto the street. In addition, all house occupants who have built a first floor have left provision for a second floor as well. This, they feel, will house their children's families.

- *Doors and Windows*

A large variety of doors and windows have been used in the houses. The majority of them however, are of timber, although a large number of steel ones have also been used. A number of houses have used venetian shutters to protect their glass windows. Most shops and commercial construction have steel roller shutters.

- *Response to the Technology*

The people are happy within the reinforced frame and slab and concrete infill walls. They feel that this is the construction that offers "the most strength". They have, however, replaced concrete blocks by brick work as bricks are cheaper. It is felt that brick work also provides better insulation, although this is definitely not the reason why it has been used. In some cases stone infill with stone from the neighbouring quarries has also been used.

- *Finishes*

- *External*

Most houses at present have not been plastered over. Exposed concrete and badly bonded brick work are visible. However, the owners intend to finish them as and when they can afford to.

- *Internal*

The ground floor, which in most plans has become the work area, has not been finished in almost all cases. The first floor has been finished with cement plaster and painted in most of the new houses visited. In some cases bathrooms have been finished with ceramic tiles and kitchens have proper stoves. In a few houses the floors have been finished with terazzo tiles.

- *Surface Decoration*

A number of motifs, in cement plaster, can be found on many external façades. In addition, paintings and mosaics of a religious nature, depicting Christ or the Virgin, are common, especially on entrances to building.

- *Quality of Construction*

The quality of construction is poor, especially masonry workmanship; vertical and horizontal levels of concrete and plaster work and joinery details. The reasons for this have not been studied by the consultants nor have attempts in improving the quality of construction been made.

- *Climatic Performance*

The materials of construction and their specified thicknesses would not normally provide relief from the heat of summer in Cairo. However, where the *zeribas* have been maintained at the back and the street in front, cross ventilation becomes possible which is not the case in other informal settlements in Cairo due to the absence of a *zeriba* and the fact that owners desire to construct on as much of the plot as possible. Again where the *zeriba* is maintained light and ventilation is sufficient. However, in most buildings where there are no *zeribas*, the apartments are dark and dingy and as the whole site has been constructed upon, ventilation must surely be a problem in summer.

- *Sources of Funds for Construction*

Most *zabbaleen* have borrowed money to build their houses. Many have taken advances from their *mu'allims*. This will adversely affect their earnings. A number of them have sold their assets in their villages. Those whose plots were in a favourable location have made arrangements with potential shopkeepers to finance them in exchange for rights on the shop at a low rent. A sizeable number continue to live in shacks with no hope of building a house in the near future.

b. *The Project and the Changes at the Moqattam Zabbaleen Settlement*

Physical Changes

Physically, the *zabbaleen* settlement has changed completely between 1981 and 1989. In 1981 it was a settlement of tin shacks, with no shops or commercial activity, extreme poverty and streets infested with organic waste. Today, more than half of its homes are built of concrete and brick with buildings of up to 4 storeys; its streets have a large number of shops and there is considerable commercial activity, and though the open spaces are still full of organic waste, conditions are much better than before, especially in the more developed areas. In one respect, however, it has not changed. It had no trees before 1981 and still has no trees or vegetation today. The role of the project in helping to bring about these changes is difficult to assess. Making this assessment could be done by seeing how the land use pattern has developed in the area; by studying changes

in the land market, and by comparing the developments at the Moqattam to the changes that have taken place since the upgrading announcement in the neighbouring settlement of Manshiet Nasser.

Emerging Land Use Patterns

The Moqattam settlement can be broadly divided into 3 zones. The area at the entrance of the settlement nearer to the Salah Salem expressway has high rise buildings, all of concrete and brick, many with shops on the ground floor and without *zeribas*. These belong to the *mu'allims* who have occupied this land after the announcement of the upgrading programme. They have received no assistance from the project for building their homes and property. The other zone is the Sharia Al Faran and the area to its North-East. This is similar to the area near the entrance but has a large number of shops, some of which have been let out to outsiders. These shops house most of the industrial activity in the settlement. According to some residents there are also cases of people having sold their land to outsiders who are building markets and apartments for rent. The third zone is to the South-West of the Sharia Al Faran and has the largest number of tin shacks and *zeribas* in it. This area is on high ground, farthest away from the entrance on the one hand and from the Manshiet Nasser settlement on the other. Shops in this area have the lowest rents in the settlement. It seems that some informal arrangements between the *zabbaleens* who own valuable land and outside financiers do exist in the first two zones and have resulted in the developments that have taken place. However, it is difficult to substantiate this statement in the absence of a scientific study on the land market and the response to it.

Changes at Manshiet Nasser

The Manshiet Nasser settlement has also changed in the last seven years, and apart from the presence of large dumps of organic and recyclable wastes at the *zabbaleen* settlement, there is very little physical difference between the two settlements. Façades of buildings, building material and technology, commercial activity, presence of industrial units are all of a similar nature. Manshiet Nasser is a much larger settlement and as such it has larger low-rise domestic areas in it.

VI. Users

a. Socio-cultural Profile

The target group of the project are the *zabbaleens*. The majority of them (95%) are Coptic Christians and originally come from the area around Assiut in Upper Egypt. Their monthly incomes vary from LE 80 to LE 120. As such they earn slightly more than an average Egyptian worker. They live in extended families. Each family consists of the founding couple, their married children and unmarried grand children. They marry young, women by the time they are 15 and men by the time they are 18. Marriage almost always takes place between close relatives. Literacy is low and according to a 1981 study is no more than 12%. Men operate the cart and collect garbage from households along the route. Women sort out the garbage, feed the animals, and look after the home and children. The *zabbaleen* have no social links with other sections of society except with the *mu'allims* and *wahis* with whom they come into contact because of their work. As a group they have been discriminated against by the authorities because of the nature of their work and have often been evicted from their homes.

b. *Response to the Project*

Response of the Clients

The client of the project is the *zabbaleen gam'eyya*. As a result of the project it has now a budget of LE 250'000 instead of LE 1'000 in 1981. It has received international recognition for its work, established relationships with various agencies throughout the world and expanded its staff and influence. The *gam'eyya* is satisfied with the project and with its role in it.

Response of the Target Group

There are about 1'200 *zabbaleen families* in the settlement of which about 300 have *zabbaleen* families benefited directly from the project programmes. The response of the community to the programme can be judged from the fact that, there are only 270 *zabbaleen* members in the General Body of the *gam'eyya*. Those who have not directly benefited are critical of the project and complain of nepotism and corruption while those who have benefited, are most satisfied with it. This is specially true of the Housing and Small Industries Programmes. Those who have built their homes, like Namroud William, say they feel secure from eviction and fire. They no longer want their sons to work as *zabbaleen* and want to acquire consumer luxury items they never dreamt of before. The Shahata family, who live in a tin shack feel that they are doomed to live as they do because they will never be able to raise LE 500 so as to benefit from the programme. They are in debt to Ahmed Effendi, member of the EPC board, and this debt they will take with them to the grave.

VII. Persons Involved

a. *From the Governate of Cairo*

Vice Governor Abdel Al Rahman. Former Chairman of the CCBA. At present Vice Governor of the Central Region, which includes the Moquattam.

b. *From the Zabbaleen Gam'eyya*

- Johan El Raheb: became president of the *gam'eyya* in 1983.
- I Saq Mikheal: administrator since 1979.

c. *From EPC*

Ahmed Rakabawi: member of the board and a key figure in forcing an agreement between the *zarrabs* and the *wahis* which led to the creation of the EPC.

d. *From APE*

Marie Bassili Assaad: member of the board.

e. From the Consultants Office

- Mounir Neamatalla: director and co-ordinator. Author of the various studies on the composting plant and the mechanisation of solid waste management.
- Architect Emad Farid: in charge of the housing project.
- Engineer Mounir Boshra: in charge of the Small Industries Project.
- Sociologist Naela Refaat: in charge of the Animal Health and Production Project.

f. Soeur Emmanuelle

Belgian nun who has made it her life mission to improve the conditions of the *zabbaleen*.

Arif Hasan

Karachi, 7 May 1999

Appendix I

- Case 1* Malak Shenouda has an extended family of 14. It consists of 3 nuclear families and they live in 4 rooms: one nuclear family to a room with one room for Malak Shenouda. The family has been living here since they were evicted from Imbaba 18 years ago. Her house, animals and other belongings were destroyed in the mid 1970's when auto-combustion caused a fire in the area. She now participates in the Animal Health and Production Programme and as a result she sells 30% more pigs than before. She also sends her *zeriba* droppings in her own cart to the compost plant every fortnight. Previously, the *zeriba* used to be cleaned every 3 to 4 months and this exercise, inclusive of carting the droppings, used to cost LE 30. She would like to build a house but she does not have the matching LE 500 to get a loan. No one in the family goes to school and nobody ever visits a doctor. "When we suffer God takes care of us".
- Case 2* Namroud William came to Cairo from Assiut when he was 1 month old. 18 years ago the family was evicted from Imbaba to the Moquattam, after having lived briefly in another settlement. At that time he did not like working as a *zabbal*, so he worked with a building contractor in the morning and covered his route in the evening. He took no money from the contractor till he had accumulated LE 2'000. With this money he approached the *gam'eyya* for a house-building loan. However, he could never have completed this house had he not inherited a piece of land in Upper Egypt which he sold for LE 2'000. The house was commenced in 1984 and was completed in March 1989. While the house was being built the family lived in a small room near the *zeriba*. He feels that since the house was completed his life has changed. He feels secure. There is freedom from the fear of fire, and when in the living area on the first floor, from bad smell. He also intends to send his children to school.