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SMALL SCALE ENTERPRISES IN EGYPT:
FAYOUM AND KALYUBIYA GOVERNORATES
PHASE I SURVEY RESULTS

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PHASE I SURVEY RESULTS*

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Foreword

This paper is one of a series of reports produced by Michigan State University's Off-Farm Employment Project. The project, which is funded by the Office of Rural Development and Development Administration, Development Support Bureau, U. S. Agency for International Development, has the basic purpose of enhancing the ability of AID missions and host country institutions to identify and implement programs and policies that generate off-farm employment and income opportunities benefiting the rural poor. One of the major components of the project is the generation of new knowledge relating to off-farm activities. In collaboration with host country institutions and AID missions, detailed field surveys of small-scale enterprises are currently being conducted in Egypt, Jamaica, Honduras, and Thailand; the results of these studies will be published in this series. A second component of the project involves the marshalling and dissemination of existing knowledge of off-farm activities. A state-of-knowledge paper has already been produced, while special studies relating to off-farm activities will continue to appear in this series. Previously completed studies in this area currently available through the Off-Farm Employment Project include:

1. Carl Liedholm, "Research on Employment in the Rural Non-Farm Sector in Africa," African Rural Economy Paper No. 5, 1973.
2. Carl Liedholm and Enyinna Chuta, "The Economics of Rural and Urban Small-Scale Industries in Sierra Leone," African Rural Economy Paper No. 14, 1974.
3. Enyinna Chuta, "The Economics of the Gara (Tie-Dye) Cloth Industry in Sierra Leone," African Rural Economy Working Paper No. 25, 1978.
4. Adwale Mabowonku, "An Economic Evaluation of Apprenticeship Training in Western Nigerian Small-Scale Industry," African Rural Economy Paper No. 17, 1979.

5. Steve Haggblade, J. Defay and Bob Pitman, "Small Manufacturing and Repair Enterprises in Haiti: Survey Results," Michigan State University Rural Development Series, Working Paper No. 4, 1979.
6. Enyinna Chuta and Carl Liedholm, "Rural Non-Farm Employment: A Review of the State-of-the-Art," Michigan State University Rural Development Paper, Paper No. 4, 1979.
7. Omar Davies, Yacob Fisseha and Claremont Kirton, "Small-Scale Enterprises in Jamaica: Initial Survey Results," Michigan State University Rural Development Series, Working Paper No. 8, 1979.
8. Enyinna Chuta, "Techniques of Production, Efficiency and Profitability in the Sierra Leone Clothing Industry," African Rural Economy Working Paper No. 30, 1980.
9. Middleton Wilson, "Some Problems in Operating a Loan Program for Craft and Emerging Small-Scale Non-Farm Enterprises in Jamaica," Michigan State University Rural Development Series, Working Paper No. 15, 1981.
10. Yacob Fisseha and Omar Davies, "The Small-Scale Manufacturing Enterprises in Jamaica: Socioeconomic Characteristics and Constraints," Michigan State University Rural Development Series, Working Paper No. 16, 1981.
11. Enyinna Chuta, Carl Liedholm, Ola Roberts and Joseph Tommy, "Employment Growth and Change in Sierra Leone Small Scale Industry: 1974 - 1980," African Rural Economy Working Paper No. 37, 1981.
12. Peter Kilby, "Small Scale Industry in Kenya," Michigan State University Rural Development Series, Working Paper No. 20, 1982.

Copies of these papers as well as additional information on the Off-Farm Employment Project can be obtained by writing:

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I. INTRODUCTION¹

1.1 Background and Objectives

The Egypt Rural Non-Farm Employment Project was established to assist USAID/Egypt and the Egyptian Government develop appropriate policies and/or projects to support the growth of small manufacturing enterprises in areas of Egypt other than Cairo. The study, which is being undertaken jointly by Cairo University (Fayoum Branch), Michigan State University, and Zagazig University (Moshtohor Branch), was envisaged to be implemented in two phases. The first was made up of a complete census of small enterprises in selected localities; the second, currently in process, involves a more detailed examination of a sample of enterprises over a period of a full year. Phase I had two major goals. The first was to provide comprehensive data concerning the extent and basic characteristics of small enterprises in the areas under study. The second goal was to provide the frame for the selection of particular industries and enterprises for the more detailed analysis in Phase II of the study. This paper presents the results from Phase I of the study.

1.2 Alternative Data Sources

Although there has been an increasing interest by donor agencies and developing countries in small scale enterprises, remarkably little is known about them. Egypt is no exception in

this regard. The data deficiencies are particularly acute for the very small scale (artisan), rural based enterprises. The World Bank's 1977 Survey of Small Scale Industries states, for example, that "information on the artisanal sector is very sketchy" (p.10), while the recent International Labor Organization (ILO) Employment Mission to Egypt (1982) reports that "for rural non-farm activities no systematic data are available" (p.96).

The primary sources of existing data for Egyptian small scale enterprises are those generated by the Central Authority for Public Mobilization and Statistics (CAPMAS), which produces the censuses of establishments, industrial production, and population as well as other surveys. The latest available Census of Industrial Production that includes information concerning "artisans", defined in Egypt as establishments employing less than 10 persons, dates back to 1966/67. Mabro and Radwan rely heavily on this source in their study, The Industrialization of Egypt, 1939-1973; they suggest that this census understates the dimensions of the sector by approximately 15 percent and is particularly deficient with respect to manufacturing activities undertaken within rural households. A more recent survey of the artisanal sector was conducted by the Handicraft Industries and Productive Cooperative Organization (HIPCO) in 1974, but the coverage of this survey was somewhat narrower than the 1966/67 census. The small enterprise surveys conducted by the Rural Non-Farm Employment Project in Fayoum and Kalyubiya governorates are designed to help remedy this limitation in the data,

particularly for the very small rural enterprises employing less than 10 persons.

1.3 Description of Study Areas

The two governorates selected for study are different in a number of important ways. Kalyubiya is immediately adjacent to the greater Cairo urban area; in the new regionalization of the country, for planning purposes, the governorate as a whole is treated as a part of that metropolitan area. The biggest city in the governorate - Shubra El Khayma, with a population of about four hundred thousand - is just north of Cairo and is essentially an extension of the city. The governorate lies astride the main highway from Cairo to Alexandria; transportation and communication links to the outside are good.

The situation with regard to Fayoum is quite different. It is essentially a giant oasis located 60 kilometers southeast of Cairo and is separated from the Nile river valley by 10-30 kilometers of desert. There are two main roads entering the Fayoum, one from Cairo and one from Beni Suef, and a railway system that connects the three largest towns in Fayoum to the Nile river valley. The oasis is irrigated by a canal bringing water from the Nile. Although the transportation network within the Fayoum is poor, there is a good network between Fayoum City and Cairo; buses, taxis and trucks make that run frequently over a reasonably good road.

Table 1 provides comparative statistics on the two governorates. The population figures for Kalyubiya include the

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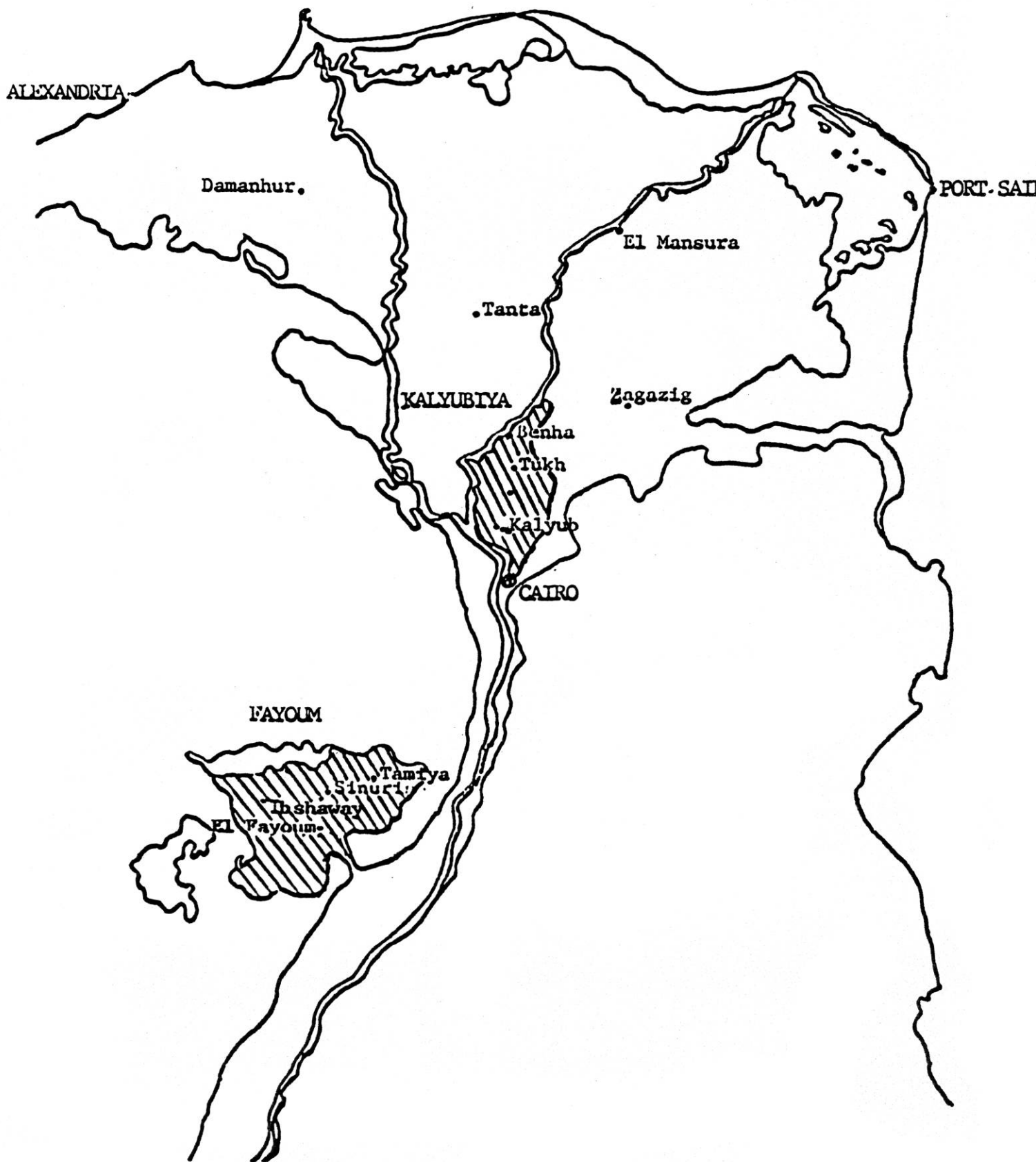


TABLE 1:

Selected Characteristics of Provinces Under Study

	Fayoum	Kalyubiya
1. Estimated Total Population, 1979 (000)	1,140	1,674
2. Private Manufacturing Employment, Firms with ten or more Employees (1970/71)	1,727	11,511
3. Private Manufacturing Employment per Capital (2/1)	-3	-3
4. Population Density: Population per Square Kilometer	1.51 x 10	6.87 x 10
5. Rural Population as % of Total	557	1,439
6. Literacy Rate	76	59
7. Availability of Piped Water	26	46
	12	20

Sources and Definitions:

1. CAPMAS estimates
2. CAPMAS estimates
5. 1976 Population Census
6. Percentage of the total population of the governorate recorded as literate, in 1976 population census.
7. Percentage of the total population of the governorate with piped water in the building where they reside, as recorded in 1976 housing census.

city of Shubra El Khayma, which was not covered in this study; excluding that city, the population under study is virtually the same (1.1-1.3 million) in each of the two provinces under study. Lines 2 and 3 make clear that Kalyubiya is far more developed than Fayoum in terms of private, larger scale manufacturing employment; on a per capita basis, the figure for Kalyubiya is some 4.5 times the level for Fayoum. On the other hand, population density is over 2.5 times as high in Kalyubiya (line 4). Line 5 shows that Kalyubiya is considerably more urbanized than Fayoum, reflecting in part the inclusion of Shubra El Khayma in these statistics for Kalyubiya. Lines 6 and 7 give some measures of welfare of the population of each governorate; they show that Kalyubiya has a higher literacy rate and a more extensive piped water supply. These figures suggest that, while the size of the total population under study is approximately the same in the two governorates, the level of urbanization, industrialization, and population density are all higher in Kalyubiya.

II. SURVEY METHODOLOGY

2.1 Questionnaire Content

The survey instrument comprised the two sides of one mark-sense computer card. After identifying the respondent (name, location, primary and secondary products produced), nine questions were asked: the form of ownership of the firm; the sex of the owner; the location of the workshop and the type of building in which it is housed; the work force; the number of machines in use, value of the most sophisticated machine, the total value of all machines and tools, and the use of power; and the seasonality of production. A more detailed paraphrasing of the questionnaire is provided in Appendix 1.

2.2. Industry Coverage

The central focus of the survey was on small manufacturing firms. Small was defined as any firm with 50 or less employees; larger establishments were not enumerated. Mobile or itinerant producers - those without any fixed place of work - were also excluded from the survey. Manufacturing was defined to include all industry groups covered in the International Standard Industrial Classification of All Economic Activities (ISIC) codes 31-39, a somewhat restricted definition of manufacturing; in addition, the coverage was extended to cover ISIC code 951, relating to the repair of manufactured goods. It was felt that, in the Egyptian context, such repair shops are often engaged in manufacturing activities as well. This classification scheme is

also consistent with the system that has been used in most published Egyptian censuses. The enumeration also covered laundries, barber and beauty shops, photographic studios, painters, and construction enterprises, although information from these five industries are not included in any of the tables of this report except in the addendum to table 2. Similarly, it was decided after some discussion to include producers of fool and taamiya in the survey; these enterprises could be considered as either producers of food products (manufacturers) or as restaurants (producers of services). Again, these producers are shown separately in the addendum to table 2 below, but are excluded from all other tables.

2.3 Sampling Approach

The basic sampling approach was one of stratified random sampling within clusters. The clustering was done by villages and towns, and the strata were defined in terms of the population of the various villages or towns. This basic approach was applied somewhat differently in the two governorates.

In the Fayoum governorate, a distinction was made in sampling between towns (defined as any place which is a seat of government at a district, governorate, or national level) and villages (all other locations). Fayoum has five towns, ranging in population from 19,671 to 166,910. All five of these towns were enumerated. With regard to villages, it became evident during the familiarization phase of the study that certain villages were specialized in producing one main non-agricultural

commodity. In these villages, a significantly larger percentage of the working population is involved in small scale manufacturing than in those villages which are not specialized. Drawing upon the local knowledge of team members and others, all Fayoum villages were classified as either specialized or non-specialized. The villages were then further stratified by population size. The purpose of this stratification technique was to lower the variance within strata and increase the variance between strata, thus making it possible to decrease the sample size while maintaining the desired level of accuracy.

From the 156 total villages in the Fayoum Governorate, 143 villages were classified as non-specialized and 13 were classified as specialized. All of the specialized villages were enumerated. The non-specialized villages were further stratified by population size. Within each stratum, villages were selected randomly, and the stratum sampling fractions were increased as population size increased, reflecting the general finding that small villages are rather homogeneous while differences between villages within stratum increase as population size increases.

In Kalyubiya, the sampling approach was somewhat different. Executives of village councils were asked to fill out a brief questionnaire providing information about the extent of non-farm activities in their jurisdictions. The results of this questionnaire showed no clear need for the treatment of certain villages as specialized. Also, while it was clear that commercial activities and services increased in the towns, it was not clear that manufacturing would differ between towns and large

villages. The Kalyubiya survey, then, stratified all localities - villages as well as towns - by population.

The last locality drawn in the random sample in each of two strata in Kalyubiya (3,000-5,999 and 12,000-19,999) were each replaced by localities of similar size known to have had substantial government efforts directed at small enterprises through cooperatives. The survey results suggest that these efforts were neither particularly large nor particularly effective. On the other hand, Shubra El Khayma, a large and highly industrialized area on the northern border of Cairo containing both large and small firms, was excluded from the sample frame and from the survey.

Table 2 shows the resulting pattern of localities selected for sampling. Within any locality selected - village or town - 100% of the small scale enterprises were enumerated. In Fayoum City and most of the towns of Kalyubiya, this involved having the enumerator walk down each street or lane, asking about small enterprises if he had reason to suspect their existence. In the villages of both governorates and all the towns of Fayoum except Fayoum City, the enumerators approached each household asking whether any small enterprise activities were taking place there.

In all the tables of this report, the survey results have been "blown up" using the inverse of these sampling fractions, so they reflect the whole governorate (or in the case of Kalyubiya, the whole governorate excluding Shubra Kayma). The actual number of enterprises sampled by stratum and the sampling fraction inverses are presented in Table 3 below.

Table 2:

TOTAL NUMBER OF VILLAGES AND TOWNS IN FAYOU'1 AND KALYUBIYA AND IN THE SAMPLE

	SIZE OF LOCALITY (POPULATION)					
	0-2999	3000-5999	6000-11999	12000-19999	20000-40000+	TOTAL
FAYOJN						
Specialized Villages:						
Total No. of Villages Selected	0	5	4	4	0	13
Sampling Percentage	-	100%	100%	100%	-	100%
Non-specialized Villages:						
Total No. of Villages Selected	51	48	34	9	1	143
Sampling Percentage	10%	10%	15%	33%	100%	13%
Towns:						
Total No. of Towns Selected	0	0	0	1	2	5
Sampling Percentage	-	-	-	100%	100%	100%
Total, Villages and Towns:	51	53	38	14	3	161
No. Selected	5	10	9	8	3	37
Sampling Percentage	10%	19%	24%	57%	100%	23%

KALYUBIYA						
Total, Villages and Towns:	60	60	47	16	8	193
No. Selected	12	12	10	6	4	46
Sampling Percentage	20%	20%	21%	40%	50%	24%

Source: Survey Data

2.4. Enumeration Procedure

The enumeration began in early April, 1981, and was completed in late July of that year. The enumerators for the Phase I survey included both high school and college graduates, both male and female. They were carefully trained, and took part in both pretesting of the questionnaire and in field trials of the final survey instrument administered to people not in the sample. In general, they were a well motivated and well trained group.

In both governorates, before enumerating a village or town, the omda (mayor) or the local council members were contacted and informed of the purpose of the survey and introduced to the professional staff as well as the enumerators. Their support, which was offered freely in almost every case, gave credibility to our project and facilitated our work.

2.5. Card Printing and Processing Procedure

After the questionnaires had been tested in the field and then revised, they were sent to East Lansing, Michigan for printing. When the original number proved inadequate, a second printing was done in Cairo, with sufficiently satisfactory results to be able to read the results into the microcomputer.

The original processing of the survey results was done largely by hand, as the delayed arrival of the card reader, microcomputer and printer all precluded processing rapidly enough to keep the following stages of project work on schedule. Since

that time, however, all survey results have been processed through the project's microcomputer; all the compilation, cross-tabulations and adjustments to move from sample to population universe figures were estimated making use of that equipment.

III. SURVEY RESULTS

3.1 Overall Magnitude

The results of the Phase I research indicate that there are large numbers of small scale enterprises widely distributed throughout the two governorates of Fayoum and Kalyubiya. As Table 3 reveals, it is estimated that there are over 90,000 small scale establishments generating employment for approximately 140,000 individuals in the two governorates combined.

One of the most significant findings to emerge from these overall estimates is the indication that small scale establishments are much more extensive in Egypt than has been previously recognized in official statistics. The 1966/67 Census of Industrial Production, for example, recorded 144,000 artisanal establishments (i.e., employing 1-9 persons) engaging 283,000 individuals in all of Egypt; the majority of these were urban with only 53,313 of the establishments (37%) and 88,029 of the employment (31%) being rural (cited in Mabro and Radwan [1976,p.119]). If one includes from our survey only those enterprises in localities with fewer than 20,000 inhabitants (i.e., the U.N. definition of rural)² and employing fewer than 10 individuals, then the Phase I results would indicate that there are approximately 84,000 rural, artisanal establishments employing approximately 100,000 individuals in the two governorates in 1981. On this basis, there are more rural, artisanal enterprises in just these two governorates alone in

Table 3:

SAMPLED AND ESTIMATED TOTAL NUMBER OF ENTERPRISES AND EMPLOYEES
IN FAYOUMI AND KALYUBIYA - 1981

Province and Location Size	Sampled Enterprises		Sampling Proportion Inverse	Estimated Enterprises		Employ- ment per 100 Enter. Pop.
	No. of Enter- prises	Employ- ment		No. of Enter- prises	Employ- ment	
FAYOUMI:						
0-2,999	772	891	10.13	7,919	8,472	1.1
3,000-5,999	3,452	3,869	4.76	16,429	17,586	1.1
6,000-11,999	5,385	6,396	2.58	13,916	16,955	1.2
12,000-19,999	9,054	11,229	1.39	12,544	15,671	1.2
20,000-39,999	3,686	4,948	1.00	3,686	4,948	1.3
40,000+	2,818	7,487	1.00	2,818	7,487	2.7
TOTAL	25,167	34,820	2.27	57,212	71,119	1.2
KALYUBIYA						
0-2,999	1,624	2,752	4.76	7,730	13,152	1.7
3,000-5,999	1,981	3,076	5.10	10,108	15,356	1.5
6,000-11,999	1,738	3,111	4.76	8,273	14,809	1.8
12,000-19,999	2,880	4,798	2.50	7,220	12,078	1.7
20,000-39,999	1,364	3,429	2.00	2,728	6,858	2.5
40,000+	1,064	3,900	1.00	1,064	3,900	3.7
TOTAL	10,651	21,066	3.49	37,123	66,153	1.8
GRAND TOTAL	35,818	55,886	2.63	94,335	137,272	1.5

Source: Survey Data

1981 than were enumerated in all of rural Egypt in 1966/67 by the Census of Industrial Production! Even allowing for possible growth in the extent of these enterprises between 1966 and 1981, the degree of underestimation in the official statistics is clearly substantial. Since both the Census of Industrial Production and the Phase I survey used the same definition of establishment (i.e., fixed, identifiable places of work such as shops, factories, workshops, and workrooms in homes) and of the types of activities to be included (i.e., the old ISIC codes 20-39 for manufacturing and related repairs which now corresponds to the new ISIC codes 3100-3900 plus 9510.), the major disparities are largely traceable to failures in locating the relevant establishments, particularly those very small enterprises operating in rural homes and especially dairy production. (Home production of dairy products, mainly butter and cheese, accounted for 64% of the firms enumerated in this survey). Such undercounting of small scale enterprises in official statistics is ubiquitous around the world, and Egypt is evidently no exception. (See Chuta and Liedholm, 1979).

Fayoum, with approximately 57,000 establishments engaging approximately 71,000 individuals, has more small scale establishments and employment generated by them than does Kalyubiya, with approximately 37,000 establishments and 66,000 employed. The nature and composition of these establishments will be examined in more detail in the following sections.

3.2 Sectoral Composition

The sectoral composition of small scale activities is presented in Table 4. A discussion of the major findings and a brief overview of the major industries follows.

3.2.1 Food Products. By far the largest industry subsector in both Fayoum and Kalyubiya is food, which accounts for 60% of total employment in the entire small enterprise sector. Within this subsector, dairy products dominate. Dairy enterprises are typically rural, privately owned and located in the household. Women are the major participants in this activity with 99% of the workers being female. The main products of this industry are homemade butter and cheese with some yogurt being produced in the larger towns. The cheese is bought by both rural and urban consumers and constitutes an important part of the Egyptian diet. Milk from both water buffalo and cattle is used in dairy production, with the buffalo milk being more highly prized due to its higher fat content. Because this industry is so large and important in terms of number of enterprises and employment in the small scale enterprise sector, all the remaining tables in this paper will disaggregate the food subsector into two components, dairy products and other food.

The other main industries in the food subsector are bakeries, butcheries, and milling. Bakeries are relatively large and located in the larger villages and towns. They are highly regulated by the government with wheat flour being rationed from government mills by a quota system and with fixed prices for all

Table 4:

DISTRIBUTION OF ESTIMATED TOTAL OF ENTERPRISES AND EMPLOYMENT BY INDUSTRY

IN FAYOUM AND KALYUBIYA - 1981

SUB-SECTORS	FAYOUM		KALYUBIYA	
	No. of Enterprises	Employment	No. of Enterprises	Employment
Food:Dairy Products	36,555	37,622	23,415	34,519
Bakeries	133	1,042	165	1,213
Butchers	986	1,477	806	1,466
Flour and Rice Mills	84	313	90	345
Other Food Products	160	311	623	1,575
TOTAL	37,918	40,765	25,099	39,118
Textiles, Leather, and Wearing Apparel:				
Tailors, Dressmakers	4,095	5,568	4,594	7,831
Clothingmaking	196	280	176	776
Knitting by Machines	22	22	109	272
Needlework, Hand Knitting	2,131	2,320	552	716
Spinning, incl. Ropes	2,560	2,823	305	711
Rugs	34	192	259	1,193
Mats	832	1,705	341	1,020
Shoe Making, Repair	293	459	506	799
Fish Nets	673	1,417	0	0
Other Textiles	84	152	113	248
TOTAL	10,920	14,938	6,955	13,566
Wood Products:				
Furniture	642	1,659	422	1,084
Doors and Windows	403	701	671	1,254
Agricultural Tools	174	290	62	95
Baskets, Crates, and Rafia Hats	4,314	5,079	364	1,539
Other Wood Products	54	150	224	990
TOTAL	5,589	7,879	1,743	4,962

Source: Survey Data

Table 4: CONTINUED

DISTRIBUTION OF ESTIMATED TOTAL OF ENTERPRISES AND EMPLOYMENT BY INDUSTRY

IN FAYOUM AND KALYUBIYA - 1981

	FAYOUM		KALYUBIYA	
	No. Of Enterprises	Employment	No. Of Enterprises	Employment
Paper and Printing,		146	32	92
TOTAL	30			
Chemicals:				
Essential Oils	62	693	4	116
Other	96	179	11	53
TOTAL	158	872	15	169
Non-metallic Minerals:				
Tiles	22	154	130	742
Mud Bricks	740	1,025	112	155
Red Bricks	29	663	51	774
Other	535	1,720	155	352
TOTAL	1,326	3,562	448	2,023
Metal Products:				
Blacksmiths and				
Welders	192	579	544	1,376
Machine Shops	38	131	84	247
Other	141	250	360	602
TOTAL	371	960	988	2,225
Other Manufactures, TOTAL	62	126	9	17
Repairs:				
Electric Appliances	254	463	252	324
Automobiles	250	714	667	2,065
Bicycles	146	281	263	517
Other	188	413	652	1,075
TOTAL	838	1,871	1,834	3,981
GRAND TOTAL	57,212	71,119	37,123	66,153
Addendum				
Other Services	1,308	1,711	2,814	5,246
Foul and Tamiya	658	926	672	1,469

Source: Survey Data

inputs and outputs. Private wheat and rice millers sell almost no flour or rice to consumers or bakeries but provide milling services to individuals, especially to farmers who bring their own wheat or rice for milling to be used in home consumption.

3.2.2 Textiles. The second largest subsector is textiles with tailoring and dressmaking being the largest industry in the subsector. The typical tailor or dressmaker works by himself in a one-person firm with a sewing machine that is usually manually powered. Products in this industry range from the traditional gallabyas and pajamas to winter and summer suits. The industry is divided quite distinctly by sex with almost all dressmakers being female and almost all tailors being male. Typically the customer will supply cloth to the tailor or dressmaker for whatever type of article he or she wishes to have made, while the tailor usually supplies any necessary buttons, thread, or zippers. In essence, what the tailor or dressmaker is doing in most instances is providing custom services to the customers. Shoemaking and repair is generally done by hand, although sewing machines are used in some of the larger shops. Needlework and hand knitting is basically composed of products such as wool hats, shawls, and embroidery and is almost exclusively done by women in the household. The spinning industry includes rope products made from the fibrous bark of the palm tree, flax string used in mat making, and, to a lesser extent, wool yarn. Almost all of these products are produced in the home by both men and women. The rug making industry is dominated by firms producing

oriental rugs for export, although woven rugs are also produced for the domestic market. The oriental rugs are hand tied with the workforce in this industry being almost totally composed of children.

3.2.3 Wood Products. Wood products, the third largest subsector, includes a diverse group of industries ranging from furniture manufacturing to basket making. The furniture industry employs almost exclusively male workers and is located in the larger villages and towns. The majority of these firms are 2 to 5 person firms, although there is a substantial number of one person firms. Products range from simple, crude beds and cabinets for rural consumption to the extremely ornate bedroom and living room suites found in many urban Egyptian homes. This industry is highly specialized with individual firms specializing in carpentry, upholstering, woodcarving, woodcutting, and wood varnishing activities. A bedroom suite will typically be handled by as many as four different firms before completion.

The largest group in the wood products subsector is the basket making, crate making and hat making industries. This industry group uses palm tree fronds and palm branches as inputs and employs many more persons in Fayoum than in Kalyubiya. This can readily be explained by the fact that Fayoum is one of the largest date palm producing areas in Egypt. The majority of basket weaving is done by hand in the household by women, although men do participate in the production of certain types of baskets used in agricultural work. The palm fronds are first

woven into long, narrow strips which are sewn together with strips of palm fronds with the aid of a large metal needle. Crate making, on the other hand, is done almost exclusively by men and is found in both governorates. The crates are made from the palm branch and are used to pack fruits or vegetables for transport to urban areas. The demand for crates is especially high during the tomato and apricot harvesting seasons. Some of the differences that will appear between the two areas in this subsector are due to the greater prevalence of basket, crate, and hat making industries in Fayoum.

3.2.4 Chemicals. Chemicals is not a large subsector in either of the two governorates. The essential oils industry is an export oriented industry located mainly in Fayoum. Firms in this industry produce oil extracts from geranium plants as an input into perfume manufacturing. Although this industry is relatively capital intensive, the technology it uses is rather crude. Water and steam instead of organic solvents are used in extracting the essential oils resulting in an oil of poor quality. Medicinal products are also produced in Fayoum from plants such as spearmint. This is a household activity performed by women and uses the same technology as the oil extraction industry but on a much smaller scale. Another interesting activity in the chemicals subsector in Fayoum is the production of percussion caps, a type of fireworks used especially during Ramadan.

3.2.5 Non-Metallic Minerals. Non-metallic minerals is the fourth largest subsector in Fayoum but is much less important in Kalyubiya. Unlike Kalyubiya, Fayoum is surrounded by the desert and has several stone quarries that employ a large number of stone cutters. There are several villages in Fayoum that specialize in pottery production while in Kalyubiya this industry is almost non-existent. It is interesting to note that Kalyubiya has a larger number of tile manufacturers while Fayoum has a much larger number of mud brick makers. Tiles are made basically from cement in firms with a relatively large amount of machinery such as hydraulic presses; these tiles are mainly used as flooring in urban areas. Mud bricks, however, are almost exclusively used in rural villages for housing construction. Red brick factories are found in both governorates and are frequently large, often employing more than fifty workers. Those firms with employment over 50 persons were excluded from the survey.

3.2.6 Metal Products. Kalyubiya has more than twice as many enterprises and workers in this subsector as Fayoum. Although machine shops, blacksmiths, and welders often produce similar products, machine shops are differentiated from blacksmiths and welders by the fact that machine shops own and use metal lathes in their production process while the latter do not. Products from these industries range from production of small hoe heads to sophisticated agricultural implements and precision tools. Repair is also an important activity in these two industries. Coppersmiths, tinsmiths, locksmiths, and jewelers are some of the

industries included in this subsector in Table 4 under "other metal products."

3.2.7 Repairs. The repair industry in Kalyubiya is its fourth largest subsector and is twice as large as in Fayoum. This is especially true of automotive repairs with Kalyubiya having almost three times as many workers as Fayoum. This difference is due to the fact that Kalyubiya is closer to Cairo than Fayoum and has the Agricultural Highway, the main highway in Egypt, running through the entire length of the governorate while Fayoum is relatively isolated from the rest of the country.

3.3 Distribution by Size of Enterprise

The major finding regarding the size of small enterprises in the two governorates is that they are very small. Table 5 shows the number of firms in four size groups categorized by number of laborers for each of the aggregated industry groupings. The one-person firm is typical; 72% of all firms in Fayoum and 49% of all firms in Kalyubiya have only one worker, excluding dairy producers; also, 97% and 64% of the dairy firms have just one worker in Fayoum and Kalyubiya, respectively. Firms with less than ten workers account for 99% of all firms. (These percentages do not change significantly even if the larger firms are included; i.e., those with more than fifty workers.) Similar findings are reported by Ikram who estimates that in 1974, 72% of the artisanal firms in Egypt employed only one worker, while 98% of these firms employed five workers or less (Ikram, 1980).

Table 5:

ESTIMATED NUMBER OF ENTERPRISES BY SIZE
IN FAYOUM AND KALYUBIYA - 1981

	Number of Workers					Total	Workers per Enterprise
	1	2-5	6-9	10-49			
FAYOUM							
Food:Dairy Products	35,591	963	1	0	36,555	1.0	
Other Food	711	552	54	46	1,363	2.3	
Total Food	36,302	1515	55	46	37,918	1.1	
Textiles	8,374	2484	54	8	10,920	1.3	
Wood Products	4,392	1150	43	4	5,589	1.4	
Paper and Printing	2	23	3	2	30	4.8	
Chemicals	54	41	10	53	158	5.5	
Non-metallic Minerals	770	441	46	69	1,326	2.6	
Metal Products	131	225	12	3	371	2.5	
Other Manufactures	25	35	2	0	62	2.0	
Repairs	350	475	10	3	838	2.2	
Total, excl. Dairy	14,809	5426	234	188	20,657	1.6	
GRAND TOTAL	50,400	6389	235	188	57,212	1.2	
KALYUBIYA							
Food:Dairy Products	14,898	8485	27	5	23,415	1.5	
Other Food	609	924	94	57	1,684	2.7	
Total Food	15,507	9409	121	62	25,099	1.6	
Textiles	4,021	2754	99	81	6,955	1.9	
Wood Products	633	927	114	69	1,743	2.8	
Paper and Printing	11	21	0	0	32	2.9	
Chemicals	0	10	2	3	15	11.3	
Non-metallic Minerals	164	181	54	49	448	4.5	
Metal Products	461	493	21	13	988	2.3	
Other Manufactures	3	6	0	0	9	1.9	
Repairs	786	1026	15	7	1,834	2.2	
Total, excl. Dairy	6,688	6342	399	279	13,708	2.3	
GRAND TOTAL	21,586	14827	426	284	37,123	1.8	

Source: Survey Data

The last column in Table 5 shows that the average firm has 1.6 persons per firm in Fayoum and 2.3 persons in Kalyubiya. This is similar to the findings of MSU projects in other countries; in Jamaica, the average small enterprise had 1.8 workers (Davies, et.al., 1979) while in Sierra Leone the comparable figure was 1.6 workers per firm (Liedholm and Chuta, 1976). However, the number of workers per enterprise varies considerably around these averages in different industries. Most of the industries with firm sizes over three workers per firm are either small (paper and printing in Fayoum, chemicals in Kalyubiya), or specialized industries such as chemicals in Fayoum (which is mainly essential oil extraction). In some important industries, the two areas differ somewhat in firm size - textiles, wood products, and dairy products. The relatively different product composition in wood products and textiles explains most of these differences (see Section 3.2). The difference in firm size in dairy products between the two areas remains an interesting research issue.

Table 5 does not show the employment that exists in firms of different sizes. Since a few large firms can employ an equivalent number of workers as many small firms, it is useful to calculate the total employment in each of the four firm-size categories. The results give a picture that is very similar to the previous analysis that focused on the number of firms. Dairy producers are found almost entirely in firms of less than ten workers in both areas - in fact, 99% of the employment is in firms of five or less workers in both areas. However, the

non-dairy small enterprises have some larger firms. Even with this shift in focus from firms to employment, firms with less than ten employees still count for 91% and 86% of the non-dairy small enterprise employment in Fayoum and Kalyubiya, respectively.

3.4. Distribution by Size of Locality

Another conclusion from the survey results is that small enterprises are an important source of employment in rural areas. The small manufacturing firm is not only an urban phenomenon. Perhaps the most striking fact about Tables 6 and 7 is that the absolute number of firms in most industries, in both areas, is remarkably well distributed throughout the six population strata. Even among the products that are considered primarily urban, such as wood products, metal products, and repairs, there is considerable activity throughout the different sized locations, especially in Kalyubiya.

The composition of these products change throughout the strata, so that a firm classified in the wood products industry may be a basket maker in the rural areas and a more sophisticated furniture manufacturer in the larger urban areas. Product lines change in textiles, also, as location changes from rural to urban - tailors and dressmakers in rural areas make traditional outfits year after year, while the urban firms make more modern clothes with annual style changes. Likewise, the non-metallic minerals industry has mud brick and red brick firms in the rural areas, and tiles in the urban areas. Therefore, the aggregation can

Table 6:

ESTIMATED TOTAL NUMBER OF ENTERPRISES AND EMPLOYMENT

BY INDUSTRY AND STRATUM: FAYOUM

	SIZE OF LOCALITY (POPULATION)						TOTAL
	0-2999	3,000-5,999	6,000-11,999	12,000-19,999	20,000-39,999	40,000+	
Number of Enterprises:							
Food:Dairy Products	6,650	11,813	8,231	7,899	1,828	134	36,555
Other Food	82	324	434	222	97	204	1,363
Total Food	6,732	12,137	8,665	8,121	1,925	338	37,918
Textiles	775	1,736	3,457	2,676	1,108	1,168	10,920
Wood Products	133	2,045	963	1,420	442	586	5,589
Paper and Printing	0	1	3	0	2	24	30
Chemicals	6	64	60	18	7	3	158
Non-metallic Minerals	112	361	619	138	57	39	1,326
Metal Products	10	11	86	33	42	189	371
Other Manufactures	0	0	0	57	4	1	62
Repairs	51	74	63	81	99	470	838
Total, excl. Dairy	1,169	4,616	5,685	4,645	1,858	2,684	20,657
GRAND TOTAL	7,819	16,429	13,916	12,544	3,686	2,818	57,212
Employment:							
Food:Dairy Products	6,875	11,915	8,360	8,327	1,945	200	37,622
Other Food	136	495	807	413	383	909	3,143
Total Food	7,011	12,410	9,167	8,740	2,328	1,109	40,765
Textiles	1,007	2,007	3,861	4,258	1,464	2,341	14,938
Wood Products	163	2,215	1,187	1,985	658	1,671	7,879
Paper and Printing	0	3	14	0	6	123	146
Chemicals	67	200	322	197	67	19	872
Non-metallic Minerals	143	595	2,173	169	142	340	3,562
Metal Products	10	21	143	79	80	627	960
Other Manufactures	0	0	0	120	5	1	126
Repairs	71	135	88	123	198	1,256	1,871
Total, excl. Dairy	1,597	5,671	8,595	7,344	3,002	7,287	33,497
GRAND TOTAL	8,472	17,586	16,955	15,671	4,948	7,487	71,119

Source: Survey Data

Table 7:

ESTIMATED TOTAL NUMBER OF ENTERPRISES AND EMPLOYMENT

BY INDUSTRY AND STRATUM: KALYUBIYA

	SIZE OF LOCALITY (POPULATION)						TOTAL
	0-2999	3,000-4,999	5,000-6,999	7,000-8,999	9,000-11,999	12,000-19,999	
Number of Enterprises:							
Food:Dairy Products	6,259	7,990	3,556	4,875	724	11	23,415
Other Food	333	314	453	245	216	123	1,684
Total Food	6,592	8,304	4,009	5,120	940	134	25,099
Textiles	657	1,101	2,670	1,350	796	381	6,955
Wood Products	176	194	542	238	430	163	1,743
Paper and Printing	0	11	0	2	6	13	32
Chemicals	0	0	0	0	4	11	15
Non-metallic Minerals	67	56	114	126	54	31	448
Metal Products	81	179	309	136	184	99	988
Other Manufactures	0	0	0	6	2	1	9
Repairs	157	263	629	242	312	231	1,834
Total, excl. Dairy	1,471	2,118	4,717	2,345	2,004	1,053	13,708
GRAND TOTAL	7,730	10,108	8,273	7,220	2,728	1,064	37,123

Employment:							
Food:Dairy Products	9,910	11,259	4,855	7,465	1,012	18	34,519
Other Food	881	608	1,161	593	760	596	4,599
Total Food	10,791	11,867	6,016	8,058	1,772	632	39,118
Textiles	1,280	1,720	4,946	2,574	1,766	1,280	13,566
Wood Products	343	413	1,308	526	1,796	576	4,962
Paper and Printing	0	33	0	7	10	42	92
Chemicals	0	0	0	0	12	157	169
Non-metallic Minerals	343	377	663	263	166	211	2,023
Metal Products	119	428	662	243	464	309	2,225
Other Manufactures	0	0	0	8	6	3	17
Repairs	276	518	1,214	399	866	708	3,981
Total, excl. Dairy	3,242	4,097	9,954	4,613	5,846	3,882	31,634
GRAND TOTAL	13,152	15,356	14,809	12,078	6,858	3,900	66,153

Source: Survey Data

cover up some important differences.

The absolute numbers do not give an exact picture since there are different populations in the different strata. The last column in Table 3 gives ratios that show the employment in small enterprises per hundred persons. In both governorates the trend is significantly downward, implying that small scale industry is relatively more important in the rural areas. For instance, in the smallest stratum ten people are engaged in small enterprises for every hundred persons in Fayoum and that drops to four persons per hundred in the largest stratum.

The same ratio may be calculated with dairy products excluded.³ Without dairy products the downward trend levels off, so that 2-3 people per hundred of population work in small enterprises throughout the different strata. It is significant, however, that this does not turn upward in either area, which would have indicated relatively more small scale industrial activity in the urban areas. Part of the reason for this level trend is likely due to an increase in employment in government, large scale firms, public sector firms, and commercial establishments, all of which employ relatively more people in urban areas. Also, not every household was interviewed in the urban areas, so many home activities, especially in textiles, may have been missed. Nonetheless, the lack of upward trend in this ratio further confirms that small firms are distributed throughout the strata and that they are equally important in the rural areas.

Furthermore, it should be pointed out that three persons per hundred of population may not appear to be a large figure, but the labor force is a much smaller group than is the total population, and the industrial labor force is even a significantly smaller group .

3.5 Ownership Patterns

The overwhelming majority of small enterprises in Fayoum and Kalyubiya are privately owned and operated. As can be ascertained from Table 8, over 99% of all firms fall into this classification. The public enterprises are mainly production and training centers run by the Ministry of Social Affairs. Co-operative forms of small scale enterprise ownership are of negligible importance in these two governorates.

One of the important and perhaps surprising findings from the survey is the indication that large numbers of these enterprises are owned and operated by females. As Table 9 shows, the majority (76%) of the owners in the two governorates are female. Even if the ubiquitous and dominant dairy industry is omitted from consideration, females still own and operate 43% of the remaining small scale establishments. Most female owners are concentrated in industries such as dairy, textiles, and in Fayoum, wood products and non-metallic minerals; in other industries, relatively few female owners are found. Finally, there are more female owners in Fayoum (52%) than in Kalyubiya (29%), a result largely traceable to the higher concentration of the female-dominated industries in Fayoum.

Table 8:

ESTIMATED TOTAL NUMBER OF ENTERPRISES BY FORM OF OWNERSHIP
IN FAYOUM AND KALYUBIYA - 1981

	FAYOUM		KALYUBIYA	
	Private	Co-op	Private	Public
Food:Dairy Products	36,554	1	23,410	0
Other Food	1,360	3	1,673	10
Total Food	37,914	4	25,083	10
Textiles	10,878	2	6,911	21
Wood Products	5,582	5	1,738	4
Paper and Printing	28	0	32	0
Chemicals	157	0	13	2
Non-metallic Minerals	1,178	0	438	10
Metal Products	368	2	988	0
Other Manufactures	62	0	9	0
Repairs	834	0	1,832	0
Total, excl. Dairy	20,447	12	13,634	47
GRAND TOTAL	57,001	13	37,044	47

Source: Survey Data

Table 9:

ESTIMATED TOTAL NUMBER OF ENTERPRISES BY SEX OF OWNER
IN FAYOJM AND KALYUBIYA - 1981

	FAYOJM		KALYUBIYA	
	Male	Female	Male	Female
Food:Dairy Products	276	36,279	3008	20,407
Other Food	1232	131	1304	380
Total Food	1508	36,410	4312	20,787
Textiles	4315	6,605	3434	3,521
Wood Products	1970	3,619	1700	43
Paper and Printing	26	4	24	8
Chemicals	132	26	158	0
Non-metallic Minerals	943	383	424	24
Metal Products	365	6	979	9
Other Manufactures	62	0	62	0
Repairs	826	12	838	11
Total, excl. Dairy	9871	10,785	9712	3,996
GRAND TOTAL	10147	47,065	12720	24,403
				37,123

Source: Survey Data

3.6 Labor Profile

The labor used by small scale enterprises consists of the family members (including the owner as well as relatives), hired workers, and apprentices. In Table 10, the composition of the labor used by small scale enterprises in Fayoum and Kalyubiya is portrayed. An examination of this table reveals that, even excluding dairy producers, family members account for the majority (64%) of the labor used by these enterprises, followed by hired workers and apprentices.

The dominance of family workers is not surprising, particularly given the vast numbers of one-person enterprises. Since Fayoum has both absolutely and relatively more one-person enterprises than does Kalyubiya, this undoubtedly explains why family members are a larger segment (73%) of the small enterprise labor force in Fayoum than in Kalyubiya (55%).

Hired workers are the next most important segment, accounting for 27% of the labor used by the small scale enterprises, excluding dairy, in Fayoum and Kalyubiya. The percentage is not dissimilar to the 24% and 17% figures for hired workers generated by similar small enterprise surveys conducted in Jamaica (Davies et. al., 1979) and Sierra Leone, (Liedholm and Chuta, 1976). Hired workers in the two governorates are concentrated in certain industries: metal products, non-metallic minerals (particularly red bricks), wood products (particularly furniture and crates), textiles (particularly mats and tailoring) and bakery products. The percentage of hired workers is markedly

Table 10:

ESTIMATED TOTAL EMPLOYMENT BY SEX AND EMPLOYMENT CATEGORY

IN FAYOUM AND KALYUBIYA - 1981

	Males	Females	Total	Family	Hired	Apprentice
FAYOUM						
Food:Dairy Products	276	37,346	37,622	37,556	50	16
Other Food	2,978	165	3,143	1,695	1,182	266
Total Food	3,254	37,511	40,765	39,251	1,232	282
Textiles	6,982	7,955	14,938	12,971	1,339	628
Wood Products	4,071	3,808	7,879	6,234	1,040	605
Paper and Printing	105	41	146	51	46	49
Chemicals	828	44	872	213	610	49
Non-metallic Minerals	3,026	536	3,562	1,742	1,549	271
Metal Products	953	7	960	471	320	169
Other Manufactures	108	18	126	104	18	4
Repairs	1,857	14	1,871	1,033	477	361
Total, excl. Dairy	20,909	12,588	33,497	24,514	6,581	2,397
GRAND TOTAL	21,185	49,934	71,119	62,070	6,631	2,413
KALYUBIYA						
Food:Dairy Products	472	34,047	34,519	34,168	235	116
Other Food	3,669	930	4,599	2,805	1,658	136
Total Food	4,141	34,977	39,118	36,973	1,893	252
Textiles	7,794	5,772	13,566	8,275	3,439	1,852
Wood Products	4,829	133	4,962	2,399	2,227	336
Paper and Printing	83	9	92	38	50	4
Chemicals	167	2	169	24	137	8
Non-metallic Minerals	1,911	112	2,023	560	1,317	146
Metal Products	2,201	24	2,225	1,152	861	212
Other Manufactures	17	0	17	10	4	3
Repairs	3,960	21	3,981	2,196	1,230	555
Total, excl. Dairy	24,631	7,003	31,634	17,459	10,923	3,252
GRAND TOTAL	25,103	41,050	66,153	51,627	11,158	3,368

Source: Survey Data

higher in Kalyubiya (35%) than in Fayoum (20%), once again reflecting the differing composition of activities in the two governorates.

Apprentices are the least significant component of the small enterprise labor force, with only 9% of the total, excluding dairy. Evidently, the apprenticeship system is not as extensive in Egypt as in other parts of the world; in Africa, frequently fifty percent or more of the small scale enterprise labor force is apprentices (Liedholm and Chuta, 1976). The reasons for the relatively smaller use of apprentices in Egypt, particularly in view of the non-formal educational services it provides, deserve further study.

Females constitute an important part of the small scale enterprise labor force in Fayoum and Kalyubiya, as Table 10 indicates. Including dairy products, women account for 66% of the sector's employment; even without dairy, females still comprise 30% of all workers. It should be noted that these figures differ substantially from those reported in the 1966/67 Census of Industrial Production which states that females account for only 7.4 percent of the artisanal labor force.

The importance of female employment, as with female ownership, varies markedly by industry. Females are highly concentrated in the food and textile groups, and, more specifically, account for more than 50 percent of total employment in such activities as dairy, dressmaking, needlework and handknitting, spinning, and baskets and hat making; females are also engaged to a somewhat lesser extent in producing fish

nets, red bricks, and mud bricks. At the other extreme, virtually no women are employed in such activities as metal working, shoemaking, carpentry, chemical production and repairs.

The role of women in small scale rural enterprises has not always been recognized by observers of the Egyptian scene. Mabro and Radwan (1976), while recognizing that relatively more of female labor is engaged in rural areas, argue that "small manufacturing (artisanal activity) does not seem to offer many opportunities for the participation of women ... in the labor force" (p.127). Although it is true that there are few opportunities at present for female employment in such activities as shoemaking, carpentry, and repair activities, significant opportunities do exist for the participation of women in household manufacturing activities in the rural areas.

3.7 Capital

The questionnaire provides information about a number of aspects of the buildings, machines and equipment employed by small enterprises. As background, Table 11 gives information as to whether the workplace is in the home or away from the home. The table makes clear that there are some industries which are overwhelmingly home industries: dairy products, textiles, and (in Fayoum) wood products. For all other industries, the majority of the producers are not operating out of their own homes, but have a separate workplace. Even in the case of textiles and wood products, there are substantial numbers of producers operating outside their homes. Textiles contains not only the largest

Table 11:

ESTIMATED TOTAL NUMBER OF ENTERPRISES BY LOCATION OF WORK PLACE

IN FAYOU'1 AND KALYUBIYA - 1981

	FAYOU'1		KALYUBIYA	
	In the Home	Away from Home	In the Home	Away from Home
Food:Dairy Products	36,468	87	23,266	149
Other Food	601	762	800	884
Total Food	37,069	849	24,066	1,033
Textiles	9,852	1,068	5,237	1,718
Wood Products	4,749	840	821	922
Paper and Printing	9	21	6	26
Chemicals	88	70	7	8
Non-metallic Minerals	399	927	102	346
Metal Products	78	293	754	234
Other Manufactures	59	3	6	3
Repairs	212	626	503	1,331
Total, excl. Dairy	16,047	4,610	8,236	5,472
GRAND TOTAL	52,515	4,697	31,502	5,621

Source: Survey Data

number of establishments operating within the home, but also the largest number operating outside the home. This latter group includes tailors, shoemakers, and clothmakers. In the case of wood products, makers of baskets and palm hats, included in the largest subcategory of wood products in Fayoum, overwhelmingly operate out of their own homes; however, producers of furniture, doors and windows, and agricultural implements operate primarily from workplaces away from the home. On the whole, it is by no means true that small industries are exclusively cottage or home industries.

Table 12 indicates that the percentage of total producers operating in the open air is very small: 6% and 3% in Fayoum and Kalyubiya, respectively, excluding dairy producers.

Establishments located in mud brick structures predominate in Fayoum, while the majority of workplaces are red brick in Kalyubiya, reflecting the relative levels of income in the two governorates.

Tables 13-15 give information about machinery use: number of machines owned (Table 13), total value of these machines (Table 14), and the value of the single most expensive machine (Table 15). Together, these tables present an interesting and consistent picture. Among producers of dairy products, machinery is virtually unknown in Fayoum, while 95% of the dairy producers in Kalyubiya own no machines; a few dairy households in Kalyubiya have small mechanical churns and separators. Among other industries, over 50% of all producers in Kalyubiya own some kind of machinery: 14.5% own L.E. 200 or more of machinery, while for

Table 12:

ESTIMATED TOTAL NUMBER OF ENTERPRISES BY TYPE OF BUILDING

IN FAYOUM AND KALYUBIYA - 1981

	FAYOUM			KALYUBIYA				
	Out- Side	Kiosk	Mud Brick	Red Brick	Out- side	Kiosk	Mud Brick	Red Brick
Food:Dairy Products	31	29	30,357	6,138	26	0	20,084	3,305
Other Food	105	0	490	762	84	9	583	1,008
Total Food	136	29	30,847	6,904	110	9	20,667	4,313
Textiles	40	10	7,291	3,579	35	2	3,621	3,297
Wood Products	297	0	3,768	1,524	38	6	937	762
Paper and Printing	1	0	7	22	0	1	6	25
Chemicals	3	0	72	83	0	0	4	11
Non-metallic Minerals	800	0	369	157	107	0	154	182
Metal Products	21	0	58	292	43	10	311	624
Other Manufactures	0	1	53	8	0	0	6	3
Repairs	6	18	101	713	14	26	459	1,335
Total, excl. Dairy	1,273	29	12,208	7,146	321	54	6,086	7,247
GRAND TOTAL	1,304	58	42,566	13,284	347	54	26,170	10,552

Source: Survey Data

Table 13:

ESTIMATED TOTAL NUMBER OF ENTERPRISES, BY NUMBER OF MACHINES OWNED

IN FAYOUMI AND KALYUBIYA - 1981

	FAYOUMI				KALYUBIYA			
	0	1-3	4-7	8+	0	1-3	4-7	8+
Food:Dairy Products	36,439	116	0	0	22,237	1,170	3	5
Other Food	1,137	222	3	1	1,184	461	39	0
Total Food	37,576	338	3	1	23,421	1,631	42	5
Textiles	7,206	3,705	4	5	1,786	5,075	70	24
Wood Products	5,410	174	5	0	1,383	266	93	1
Paper and Printing	12	16	2	0	1	31	0	0
Chemicals	98	59	1	0	4	8	3	0
Non-metallic Minerals	1,189	136	1	0	275	169	4	0
Metal Products	251	106	14	0	556	395	31	6
Other Manufactures	62	0	0	0	5	4	0	0
Repairs	644	192	1	1	1,223	575	30	6
Total, excl. Dairy	16,009	4,610	31	7	6,417	6,984	270	37
GRAND TOTAL	52,448	4,726	31	7	28,660	8,154	273	42

Source: Survey Data

Table 14:

ESTIMATED TOTAL NUMBER OF ENTERPRISES BY TOTAL VALUE OF MACHINERY AND TOOLS

IN FAYOUM AND KALYUBIYA - 1981

	Below					
	L.E.50	50-99	100-199	200-499	500-2000	2001+
FAYOUM						
Food:Dairy Products	36,491	37	12	7	7	1
Other Food	1,169	23	35	46	60	30
Total Food	37,660	60	47	53	67	31
Textiles	7,867	2,297	651	87	13	5
Wood Products	5,462	37	48	20	13	9
Paper and Printing	10	2	2	3	6	7
Chemicals	98	0	0	0	2	58
Non-metallic Minerals	1,278	3	0	30	4	11
Metal Products	258	17	24	20	23	29
Other Manufactures	62	0	0	0	0	0
Repairs	654	48	42	52	33	9
Total, excl. Dairy	16,858	2,427	802	258	154	158
GRAND TOTAL	53,349	2,464	814	265	161	159
KALYUBIYA						
Food:Dairy Products	22,781	420	49	44	71	0
Other Food	877	293	160	129	100	125
Total Food	23,658	713	209	173	171	125
Textiles	1,640	2,095	2,610	463	108	39
Wood Products	1,060	249	201	97	40	96
Paper and Printing	1	8	1	8	4	10
Chemicals	0	0	8	2	2	3
Non-metallic Minerals	254	21	22	28	58	65
Metal Products	454	120	132	105	83	94
Other Manufactures	5	3	1	0	0	0
Repairs	724	439	341	225	85	20
Total, excl. Dairy	5,015	3,228	3,476	1,057	480	452
GRAND TOTAL	27,796	3,648	3,575	1,101	551	452

Source: Survey Data

Table 15:

ESTIMATED TOTAL NUMBER OF ENTERPRISES,
BY VALUE OF MOST EXPENSIVE MACHINE (IN L.E.)

IN FAYOUM AND KALYUBIYA - 1981

		Below:					
		L.E. 50	50-99	100-199	200-499	500-2000	2001+
FAYOUM							
Food:Dairy Products	36,495	37	11	7	4	1	
Other Food	1,179	24	30	65	55	10	
Total Food	37,674	61	41	72	59	11	
Textiles	7,907	2,405	570	37	1	0	
Wood Products	5,476	43	43	15	11	1	
Paper and Printing	10	3	3	4	8	2	
Chemicals	98	0	0	1	2	57	
Non-metallic Minerals	1,279	4	1	28	14	0	
Metal Products	263	19	30	24	35	0	
Other Manufactures	62	0	0	0	0	0	
Repairs	673	47	51	47	20	0	
Total, excl. Dairy	16,947	2,545	728	221	146	70	
GRAND TOTAL	53,442	2,582	739	228	150	71	
KALYUBIYA							
Food:Dairy Products	23,164	170	76	0	5	0	
Other Food	1,223	74	138	92	93	64	
Total Food	24,387	244	214	92	98	64	
Textiles	2,345	2,786	1,594	172	45	13	
Wood Products	1,440	109	58	47	33	56	
Paper and Printing	7	2	5	15	3	0	
Chemicals	4	0	8	0	3	0	
Non-metallic Minerals	318	12	16	56	33	13	
Metal Products	611	94	98	71	76	38	
Other Manufactures	8	1	0	0	0	0	
Repairs	1,297	225	198	69	38	7	
Total, excl. Dairy	7,253	3,303	2,115	522	324	191	
GRAND TOTAL	30,417	3,473	2,191	522	329	191	

Source: Survey Data

3.3% the value of machinery owned is worth more than L.E. 2000. In Fayoum, the corresponding figures are far lower: only 25% own any machinery at all, while only 2.8% own more than L.E. 200, and less than 1% have L.E. 2000 or more of machinery. Looking at the industry breakdowns, the major machine-using sectors include bakeries and flour mills, furniture, blacksmiths and machine shops, textiles, and repair shops. The biggest users of larger machines in Fayoum are in the perfume industry (classified as chemicals), virtually all of whom have a relatively large investment in machinery.

Table 16 adds one more dimension to this picture, in indicating whether or not the respondent firms make any use of power (electricity, fuel oil, gas, water or wind) in the production process. It is impossible to use power without also having at least minimal amounts of machinery, unless it is used only for lighting; one can have machinery using only human or animal power, on the other hand, so those using power generally comprise a subset of those with machines. These relationships are summarized in Table 17. Looking at the industry detail in that table, it is clear that although textiles comprises the single largest machinery-using sector in each governorate, the majority of these producers do not use power-driven machinery. As in other dimensions, Kalyubiya is more advanced in this regard than Fayoum: 38% of the machinery-using textile producers make use of any power in the production process in Kalyubiya while only 14% do so in Fayoum. In the non-dairy food industries, these relationships are reversed; only a small percentage of all

Table 16:

ESTIMATED TOTAL NUMBER OF ENTERPRISES, BY USE OF POWER
IN FAYOUM AND KALYUBIYA - 1981

	FAYOUM		KALYUBIYA	
	Use of Power	Use no Power	Use of Power	Use no Power
Food:Dairy Products	20	36,535	102	23,313
Other Food	156	1,207	403	1,291
Total Food	176	37,742	505	24,594
Textile	527	10,393	1,943	5,012
Wood Products	61	5,528	226	1,517
Paper and Printing	16	14	21	11
Chemicals	60	98	11	4
Non-metallic Minerals	70	1,256	100	348
Metal Products	106	265	334	654
Other Manufactures	0	62	0	9
Repairs	163	675	568	1,266
Total, excl. Dairy	1,159	19,498	3,606	10,102
GRAND TOTAL	1,179	56,033	3,708	33,415

Source: Survey Data

Table 17:

USE OF MACHINES AND POWER
IN FAYOUM AND KALYUBIYA - 1981

	Total No. of Enterprises	No. of Enterprises That Have Machines	No. of Enterprises That Use Power
FAYOUM			
Food:			
Dairy Products	36,555	116 (0.3)	20 (17)
Other Food	1,363	226 (17)	156 (69)
Total Food	37,918	342 (1)	176 (51)
Textiles	10,920	3,714 (34)	527 (14)
Wood Products	5,589	179 (3)	61 (34)
Paper and Printing	30	18 (60)	16 (89)
Chemicals	158	60 (38)	60 (100)
Non-metallic Mineral	1,326	137 (10)	70 (51)
Metal Product	371	120 (32)	106 (88)
Other Manufactures	62	0 (0)	0 (0)
Repairs	838	194 (23)	163 (84)
Total, excl. Dairy	20,657	4,648 (23)	1,159 (25)
GRAND TOTAL	57,212	4,764 (8)	1,179 (24)
KALYUBIYA			
Food:			
Dairy Products	23,415	1,178 (5)	102 (9)
Other Food	1,684	500 (30)	403 (81)
Total Food	25,099	1,678 (7)	505 (30)
Textiles	6,955	5,169 (74)	1,943 (38)
Wood Products	1,743	360 (21)	226 (63)
Paper and Printing	32	31 (97)	21 (68)
Chemicals	15	11 (73)	11 (100)
Non-metallic Minerals	448	173 (34)	100 (58)
Metal Products	988	432 (44)	334 (77)
Other Manufactures	9	4 (44)	0 (0)
Repairs	1,834	611 (33)	568 (93)
Total, excl. Dairy	13,708	7,291 (53)	3,606 (49)
GRAND TOTAL	37,123	8,469 (23)	3,708 (44)

Note: Figures in parentheses show percentages: this number as a percentage of the one in the next column to the left.

Source: Survey Data

producers make use of machinery, but of those that do, most use power-driven machinery. The differences between the two governorates in terms of levels of development is highlighted in the total figures, particularly those focusing on non-dairy producers. In Kalyubiya, approximately 50% of all producers make use of machinery, and half of those using machinery also use power. In Fayoum, only about a quarter of all producers use any machinery, while 25% of those with machinery also use power.

3.8 Seasonality

The final question in the survey was designed to give a measure of the extent of seasonality among small producers. It provides only a partial measure, since there is no indication of the extent of variation in levels of production within an enterprise over the year, only whether the firm produced at all or not during different months. With that qualification, the figures are striking. In the dairy industry, the degree of seasonality is large and marked, following the seasonal variations in milk supply from water buffalos. During the "off-season" (April-September), on the average only 30% of the dairy producers were operating; most of these are farmers with cows, which produce milk even during the hot Egyptian summer. During the remaining 6 months of the year, an average of 90% of all firms were in production each month. A second industry showing considerable seasonality is the perfume industry. For that group of 62 firms, 99% were in operation during the periods May-July and November-December while no firms reported being in

operation during the other seven months during the year.

Perhaps more surprising than the variations in these two industries was the lack of marked seasonality in production among all other industries studied. Among 16,000 producers in the other major industries covered by the survey, the number of firms in operation never fell below 92% of the total in any one month, averaging 96% over the year. In no individual industry group did this ratio ever fall below 88%. This low degree of variation in this measure of seasonality stands in striking contrast to small enterprises in other countries. It reflects perhaps a relatively low degree of interdependence between small producers and the proximate agricultural sector in terms of labor flows, product flows, or input flows. However, it must be pointed out that this measure of seasonality is only a partial measure and any firm conclusion concerning seasonality in the level of production, in consumer demand for these products, or in linkages between small producers and the agricultural sector must await further results from the Phase II survey.

IV. SUMMARY AND CONCLUSIONS

The Phase I survey results have established that there are very large numbers of small scale enterprises widely distributed throughout the governorates of Fayoum and Kalyubiya. An important finding of the survey is the indication that official statistics have significantly underestimated the number of these establishments, particularly those employing less than 10 workers in rural areas. Indeed, these artisanal firms, virtually all of which are private, account for the vast majority of private sector industrial enterprises in these governorates.

These enterprises are generally very small, with the average firm engaging fewer than two persons; 76% of the surveyed small scale establishments in the two governorates are one-person enterprises, and 98% employ fewer than 10 individuals. Since the majority are one-person enterprises, family members comprise the largest component of the labor force. Hired workers account for 27% and are concentrated in certain industries. Apprentices comprise a surprisingly small 9% of the total labor force.

A particularly significant survey finding is the important role played by women in these activities. Even excluding dairy industries, females own and operate 43% of the small scale enterprises and comprise 30% of the sector's labor force.

The industries represented among these small producers are diverse and varied. One major group comprises those product lines which are essentially family oriented: dairy products, baskets and ropes, and dressmaking and tailoring. These

activities take place largely within the household; machinery use, particularly power-driven machinery use, is limited. Women play a particularly large role in these industries, although men predominate in tailoring and play a major supporting role in basket production. Average numbers of workers per establishment are rarely more than two (mother and daughter sometimes make cheese together) and generally averages only slightly above one.

Other small industries covered in the survey generally operate outside the home, rely much more heavily on hired workers, and have on average more workers per firm; beyond those generalities, though, they, in turn, are a highly diverse group. They are diverse in terms of size, ranging from the larger producers of tiles or bricks down to the small carpentry or repair shops. They are diverse in terms of capital use and technological sophistication, ranging from the production of crates in firms with no machinery, to the production of essential oils for perfumes with a considerable capital investment but a relatively simple technology, and further, to the production of metal products in highly sophisticated machine shops.

To some extent, the separation between family enterprises and all others corresponds with the division of industries by location; household enterprises tend to be located primarily in villages and smaller towns, while other types of producers are more important in the larger urban areas. The agreement is far from perfect, however, as there are also substantial numbers of household enterprises in towns, both large and small, while some types of non-household enterprises (e.g., the manufacture of

agricultural implements, or the production of crates) have spread to even the smallest villages. One point made clear by this data is that the forces at work in determining the patterns of location and growth of different types of industries are highly complex.

The information presented here is largely descriptive; it makes clear that the level of activity among small producers in rural areas is far larger and more diverse than was previously recognized. At this stage, the policy implications of these findings are more indicative than conclusive. One important policy implication is that industrial policy formulation must take account of the needs of this large group of small rural producers; the establishment of a large scale, government subsidized dairy factory could have disastrous effects on employment and income for thousands of village producers. The finding that private sector production is so widespread, as well as the important role of women in the operation of the sector, helps open up new opportunities for policy support in terms of target groups. The limited strength of the apprenticeship system may suggest both a need and a constraint in terms of possible training schemes. Formulation of sensible policies requires analysis of production patterns and costs, marketing arrangements, labor and financing problems, production trends and future growth prospects. The development of such insights is the central focus of Phase II of the Egypt Rural Non-Farm Employment Project.

FOOTNOTES

1.) The authors acknowledge with thanks the assistance of Professors Carl Liedholm and Donald Mead in the preparation of this report.

2.) A rural-urban breakdown using the official definition of rural (i.e., excluding district, markaz, and rural governorate capitals) will be forthcoming shortly. The results should not change markedly, however, using this alternative definition.

3.) The employment per hundred population without the dairy products industry is as follows:

Strata	Fayoum	Kalyubiya
0-2999	2	3
3000-5999	3	2
6000-11999	3	2
12000-19999	5	2
20000-39999	3	3
40000+	3	2
Overall Average	3	2

Appendix 1

The questionnaire is paraphrased in English below. Inside the parentheses is a description of allowable answers to each question. The questionnaire first requires that the enumerator fill in three numbers:

A village number,
Product number for primary and secondary products, and,
An enterprise number.

The enumerator then asked the name of the respondent and sketched a map showing the location of the workplace or took the address. After this there are nine questions as follows:

1. Form of ownership (three choices: private, cooperative, or public).
2. Sex of the entrepreneur (two choices: male or female).
3. Place of business (two choices: near or in the home, or away from home).
4. Type of building (four choices: arisha, kiosk, mud brick, or red brick).
5. Type and number of workers employed (numbers entered for male, female, total, and also for the number of family, hired, and apprentices working in the firm at the time of the survey).
6. Total number of machines (boxes numbered 1-8, and 9 or more).
7. The value of the most sophisticated machine, and the total value of all equipment and tools (For both parts of the question there are choices to be made from the following categories: less than L.E.50, L.E.50-99, L.E.100-199, L.E.200-499, L.E.500-2000, greater than L.E.2000. The question concerns current book value; i.e., original cost less depreciation. In some cases the valuation was done by enumerator consensus concerning values of frequently observed pieces of equipment such as sewing machines).
8. Use of power (choices: yes or no).
9. Seasonality of production (12 choices, one for each month. Respondents were asked whether any production took place during each month, if so, the enumerator fills in the box for that month).

Appendix 2
Towns and Villages Surveyed

Population Stratum	Fayoum	Kalyubiya
0-2,999	Maasaret Ahrafa Kafr Ameera Manshat El Gazaar Maagoon El Hamidiya	Kafr Shorafa El Kibili Kafr Farsees Kafr El Sheikh Ibrahim Kafr Nekhla Mansheit Diyab Kafr Hamman Khalwit Sinhura Kafr Saleem Kafr Haddadin Kafr Abou Zahra Kafr Saad Kafr Ali Sharaf El diin
3,000-5,999	Kasr Biad Forqas El Ruba El Maqatlah El Fahmiya El Siliyeen* Abgeeg* Garfis* Aalam* Manshat Abdela*	Kafr El Gimal El Moniera Zawiet El Naggar Namoul El Zaha Weiem Kafr Azab Houneim Geziret El Ahrar El Manzala Kafr El Regalat El Shuback Kafr Atalla Tersa*
6,000-11,999	Biahmu El Adwa El Azeeziya El Gharoq El Gharoq Qably Manshat Beni Osman Kaaby El Gideeda Naqalifa El Nazla	El Asheesh Kafr Abyan Shalakan El Hessa Damallu Tant El Gezira Geziret Beli Kafr Shokr** El Khoussous Kafr Mansour
12,000-19,999	Manshat El Doctor El Gimal Kahk El Mishrak Qably Tatoon Tubhar* El Meniya* Fidimeen* El Agameen*	Moshtohor Arab Eleat Tanaan El Ramla Aghour El Kubra Syndiyown*

20,000-39,999	Sanhur Itsa** Ibshaway** Tamiya**	El Kalag Meet Kanana El Khanka** Tukh**
40,000+	Sinuris** Fayoum City**	Kalyub** Benha**

* Specialized Village

** Markaz Town

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