

ILLUSTRATIVE DEVELOPMENT PROJECT :  
TANTA

## THE NATIONAL URBAN POLICY STUDY

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PADCO, INC.  
WITH  
ENGINEERING CONSULTANTS GROUP  
AND  
SHERIF EL - HAKIM AND ASSOCIATES

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NATIONAL URBAN POLICY STUDY

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February 11th, 1982

Engineer Soliman Abdel Hai  
Chairman,  
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Ministry of Development  
Cairo - A.R.E.

Dear Eng. Abdel Hai,

The National Urban Policy Study is pleased to submit the draft report, "Illustrative Development Project: Tanta" for your review and consideration. This report is considered by NUPS to be extremely important in illustrating the special problems of managing the future growth of Delta Cities and the types of actions necessary to such growth management.

Sincerely,

*Harvey A. Garr*  
Harvey A. Garr  
Team Leader

MG/1f

PADCO INC  
In Association with  
ECG ENGINEERING CONSULTANTS GROUP  
&  
SHERIF EL-HAKIM & ASSOCIATES

بادكو انك  
بالاشتراك مع  
جماعة المهندسين الاستشاريين  
و  
شريف الحكيم ومشاركوه

## FOREWORD

The Illustrative Development Project for Tanta was designed to accomplish several major purposes:

- To provide an illustrative example of the kind of strategic concept plan needed for many Egyptian cities that can be developed in a limited time, provide guidance for important near-term decisions, and produce specific recommendations for future development.
- To illustrate the needed links between a strategy for development of the national urban system (the National Urban Policy) and the strategies to be followed in individual settlements which have key roles to play in the national strategy.
- To define these key roles for individual settlements and trace their implications for site-specific actions.
- To present recommendations for implementing a local strategy which is consistent with the characteristics and current development of Tanta as well as the National Urban Policy.

This study is considered by the National Urban Policy Study Team to be extremely important in illustrating the special problems of managing the future growth of the Delta; where the government's desire to increase agricultural production and maintain arable land for agricultural uses and its desire to expand economic growth through increased industrialization are in many ways competing objectives. Control of land use is difficult because of the strong competing demands for land for housing, industry, both urban and regional infrastructure and farming. As indicated in the following report, the consequence has been haphazard growth that is relatively wasteful of land and, at the same time, not as efficient as it could be from the point of view of either the Government or the resident population.

It is hoped that the Study will serve to re-emphasize the seriousness of the development problems of the Delta Cities and contribute through the implementation of its recommendations (in conjunction with the recommended national policy) to their amelioration.

Harvey A. Garn  
Team Leader

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## I. Introduction

### A. Historical Development of the Tanta Region

Tanta's development has always been influenced by its strategic location within the Delta, which has made it susceptible to actions and decisions taken elsewhere in the country. This is as true now as it has been in the past.

Diverse civilizations have existed in Tanta since ancient times. The Pharaonic, Christian and Islamic civilizations are all represented by magnificent monuments which are sprinkled throughout the region.

The Pharaonic civilization is best represented in monuments found in Sal-Hagar and Bihbit El-Higara. Sal-Hagar is to be found on the eastern side of the Rosetta Branch. It is about 40 kilometers from Tanta and once served as capital of one of the Delta provinces during the reign of the 28th Dynasty. Bihbit El-Higara dates from the Ptolemaic Age and is located about five kilometers from Samannoud.

The early Christian era can be seen in the Coptic churches of Sagha, Tanta and, particularly, Mar Guirguis Church in Mahalla El Kobra.

The Islamic influence in Tanta dates from the founding of the Sidi Ahmed-El Badawi Mosque which today forms the center-piece of the downtown area. The mosque has developed through the ages and is today undergoing its untold restoration.

With this diverse historical past, Tanta entered the nineteenth century as a small rural village with an estimated maximum population of several thousand. The first half of the nineteenth century saw little population growth in Tanta. This period was characterized mainly by the tremendous growth of Alexandria, drawing migrants from the Delta due to government fiscal policies, some of the smaller towns of the Delta Mansoura and Mahalla -- experienced relative decline over the period.

The period between 1846 and 1882 was a time of rapid population growth in the Delta. This was mainly due to tremendous agricultural development which in turn furthered the development of small agricultural mercantile centers. The mercantile centers which grew considerably during the period were Tanta, Mansoura, Damanhour, and the newly created town of Zagazig. Tanta became the principal market of a large area of cotton

plantations. The area of the town itself grew from 73 feddans in 1854-1855 to 180 feddans in 1885, mainly due to the breaking up of family estates. In 1856, Tanta was connected to the railway network. Tanta eventually became the capital of Gharbia province, a position occupied in the days of Mohamed Aly by Mahalla. The transfer of administrative functions led to the decline of Mahalla for a time, which was reenforced by the stagnation or even decline of its industry.

It should be noted, however, that although these mercantile centers of agricultural areas experience considerable relative growth over this period, the absolute size of their populations remained quite low; Tanta's population by the 1882 Census was only slightly over 30 thousand (See Table 1).

Between 1882 and 1897, the cities of Tanta, Damanhour, Zagazig, Delat and to a smaller extent, Mansoura, continued to expand at growth rates higher than the national population. Over the period, Tanta's population grew at an annual rate of 3.58 percent.

Between 1897 and 1907, the Tanta region experienced rapid development in the agricultural sector, but lacked industrial development. It is believed that this led to an actual decrease in population of -0.5 percent per annum. A traveller to the region notes the decline in the importance of the Tanta fair, stating that for most of the years of the period, the fair was not held at all for sanitary and other reasons.1/

The period from before World War I until the onset of rapid industrialization of the 1930's saw limited population growth for Tanta. Between 1907 and 1939, the population grew at an annual rate of 1.86 percent.

Between 1937 and 1960, considerable industrial development took place in the Delta with the establishment of spinning, weaving and dying plants in Kafr El Dawar, Mahmoudia, Shibin El Kom, Mit Ghamr and Tanta. Oil and soap plants were also established in Tanta and Kafr El Zayat. Considerable industrial expansion also took place at Mahalla, with worker housing being constructed there and in Tanta. However, the most rapid growth in employment was in the tertiary sector of the economies of these towns, particularly in banking, finance and retail activities that were generated by the growth in industry as well as agricultural production and processing. Population over the period increased at an annual rate of 2.94 percent.

TABLE 1

POPULATION OF GHARBIA GOVERNORATE AND TANTA CITY

1882-1980

YEAR	POPULATION (000's)		ANNUAL GROWTH RATE (%)	
	GHARBIA GOVERNORATE	TANTA CITY	GHARBIA GOVERNORATE	TANTA CITY
1882	N.A.	33.8		
1897	N.A.	57.3	N.A.	3.58
1907	1107	54.4	N.A.	-0.52
1917	1252	74.2	1.24	3.15
1927	1337	90.0	0.66	1.95
1937	1467	94.6	0.93	0.50
1947	1475*	139.9	0.05	3.99
1960	1720*	184.3	1.55	2.79
1966	1900	230.0	1.67	3.76
1976	2294	284.6	1.90	2.15
1980	N.A.	317.2	N.A.	2.75

\* Governorate population figures should be used with caution due to major boundary changes within the Gharbia and Kafr El Sheikh Governorates during 1937-1947 and 1947-1960 census periods.

SOURCE: Population censuses 1882-1976

Since 1960, Tanta has continued to experience relatively rapid population growth (2.75 percent annual growth between 1960 and 1976) due mainly to continued industrial growth and ever expanding role as a major service center in the Delta.

With the exception of Qaliubia which contains part of the Cairo Metropolitan Area (Shoubra El Kheima), Gharbia Governorate has the highest percentage of urban to total population in the Delta (See Table 2 ). Based on 1976 Census of Population figures, 33.4 percent of Gharbia's population of 2294 thousand was defined as urban.

TABLE 2

PERCENTAGE DISTRIBUTION OF GHARBIA GOVERNORATE POPULATION

BY URBAN/RURAL, 1976

<u>GOVERNORATE</u>	<u>TOTAL POPULATION IN 000</u>	<u>PERCENTAGE OF URBAN TO TOTAL POPULATION</u>
Gharbia	2294.2	33.4
Menoufia	1711.0	19.7
Kafr El Sheikh	1403.5	20.8
Damietta	557.1	25.6
Dakahlia	2732.8	23.9
Sharkia	2621.2	20.2
Qaliubia	1674.1	40.9
Beheira	2517.3	26.0

SOURCE: Population Census, 1976 - CAPMAS

B. Tanta's Role in NUPS Strategy Projected Investment Allocation and Population Targets.

Tanta has been selected to illustrate the site-specific implications of operating within the preferred NUPS spatial framework for an important set of settlement issues which may be addressed effectively by examining Delta cities rather than other development areas. The broad issues addressed by the Tanta illustrative exercise include:

1. managing and controlling any conversion of arable land to urban uses;
2. renewal and infilling of existing urban settlements to achieve greater population absorption at higher settlement densities;
3. the development of regional services to address the needs of both rural and urban populations and to concentrate these services in two to three major services centers;
4. the strengthening of a relatively strong economic base without major encroachment on to arable land.

However, it is readily apparent that an overall Delta management strategy will not be defined solely by a simple set of locally-based plans, projects and policy recommendations for its principal urban centers. For example, if the Delta cities with populations greater than 50,000 in 1976 grew at their 1960-1976 trend rates to the year 2000, their population would be almost two and half times the 1976 total. The consequences of this level of population growth would be disastrous with regard to the loss of arable land. Therefore, a major part of the Delta management strategy must include net out-migration from the Delta coupled with the selection of alternative locations for industry that is non-essential to the Delta but which might be attracted there. Cairo, Alexandria and Suez provide such alternative locations which can accommodate growth on non-arable land. Thus, NUPS recommendations for the major metropolitan areas should be viewed as an essential element of a growth management strategy for the Delta.

Within the Delta, the Delta management strategy focuses a concerted planning effort on several key cities -- Tanta, Mansoura and Mahalla -- to develop growth management techniques to encourage more intensive use of land within the existing built-up area as well as planned urban extension on to arable land only where absolutely necessary. Also, it will determine which industries can and should be encouraged to expand or start up in these areas.

In order that Tanta can play its role within an overall Delta strategy, investment allocation and population targets have been estimated for the period to the year 2000. From an estimated base population of 317.7 thousand in 1980, NUPS projects a year 2000 population that will range between 525 and 575 thousand. The projected population increase works out to effective annual growth rates which vary from 2.5 to 3.0 percent 2/. The proposed NUPS 1986-2000 investment allocation package required to support this projected population is broken down into two categories (See Table 3):

- (1) L.E. 631.0 million for employment generation;
- (2) either L.E. 969.9 or 741.1 million (depending on selection of standard level) for the provision of physical and social infrastructure and housing for the new population, as well as rehabilitation of existing stock and systems.

### C. Regional Service Center Functions

Tanta has been a major service center in the Delta for over one hundred years. With government's decentralization policies of the last 20 years, it is taking on the characteristics of the "capital" of the Delta.

Tanta is strategically located in the heart of the Delta, midway along the transportation corridor connecting Cairo with Alexandria. It is surrounded by a rich agricultural hinterland mainly cultivated in cotton. Within a 60-kilometer radius of the city are found the majority of the Delta's other large urban centers -- Damahour, Kafr El Sheikh, Mahalla, Mansoura, Zagazig, Benha and Shebin El Kom (See Figure 1). Due to its strategic location, it has experienced steady economic growth over the past one hundred years. For example, its food processing, leather, spinning and weaving, agricultural implements assembly plants, and ready-made clothing industries have been expanding at relatively high growth rates. Many of these industries have strong linkages with Tanta's surrounding agricultural hinterland. Tanta also has strong industrial linkages with other nearby industrial centers such as Mahalla, Kafr El Zayat and Zifta. Figures 2 and 3 highlight the flow of goods into and out of Tanta. Present government policy, to consolidate and site the headquarters of public service and infrastructure suppliers in Tanta will strengthen and build upon the many regional functions which Tanta already provides, which include:

- Government Center: capital of the governorate of Gharbia; capital of the five-governorate Delta Regional Planning Authority; one of the country's seven Army Induction Centers.

TABLE 3

## PREFERRED NUPS STRATEGY INVESTMENT ALLOCATION AND POPULATION TARGETS

TANTA, 1986-2000

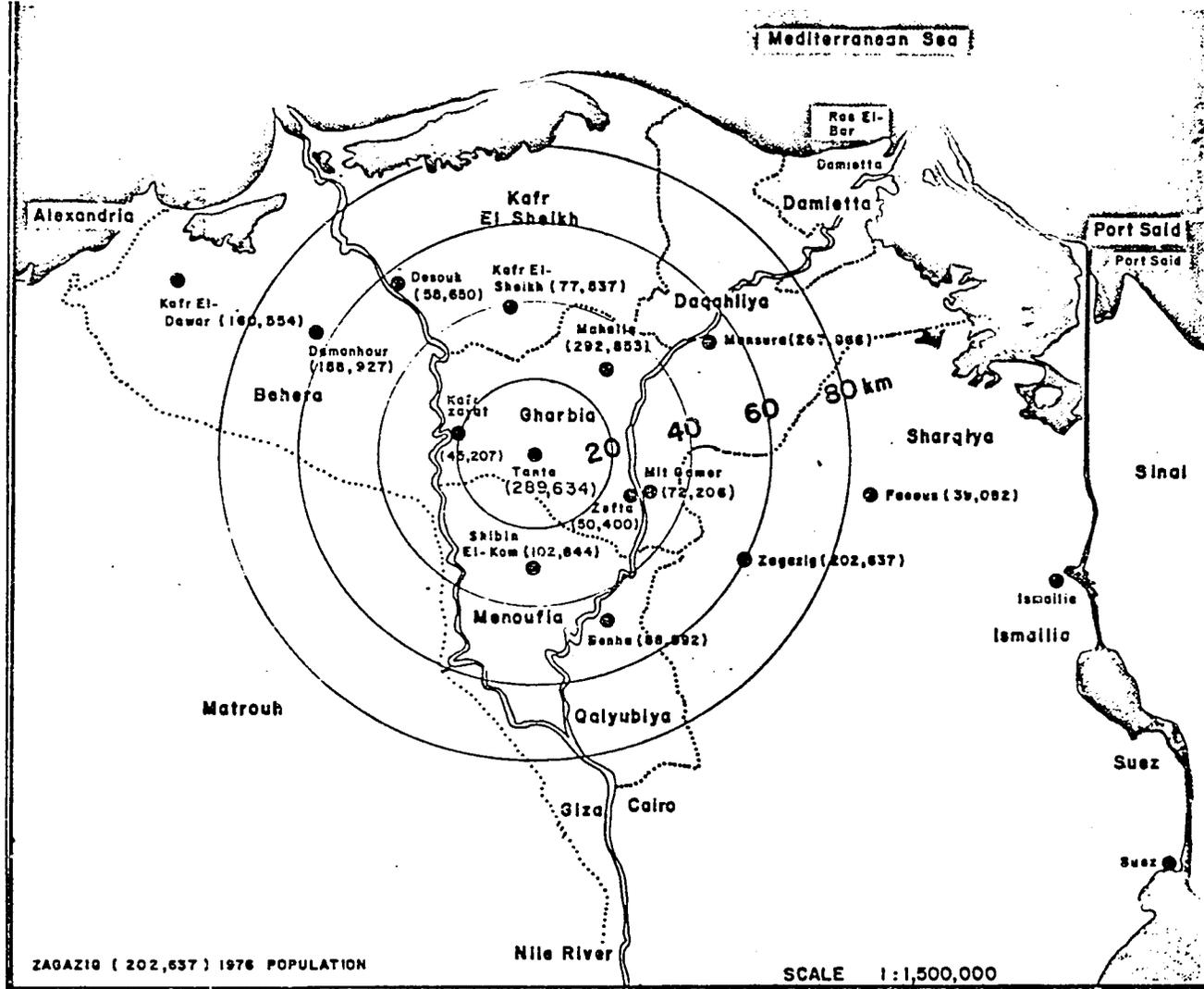
ITEM YEAR OR PERIOD	PROJECTED POPULATION (THOUSAND)		PROPOSED INDUSTRIAL ALLOCATION FOR PERIOD (L.E. MILLION)	PROPOSED INFRASTRUCTURE ALLOCATION FOR PERIOD* (L.E. MILLION)	
	POPULATION CHANGE	ACTUAL		STANDARDS SIMILAR TO EXISTING PROPOSALS	REDUCED SUBSIDY OPTION
1980	--	318	N.A.	N.A.	N.A.
1981-1985	57	--	N.A.	N.A.	N.A.
1986-1990	59	--	130.0	322.4	255.2
1991-1995	68	--	191.0	318.8	241.3
1996-2000	73	--	310.0	328.7	244.6
TOTAL	257	525-575	631.0	969.9	741.1

\* Includes provision of physical and social infrastructure and housing for new populations and rehabilitation of existing stock and systems.

SOURCE: NUPS Elaboration

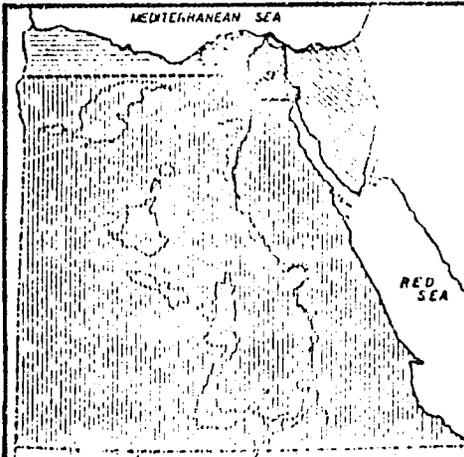
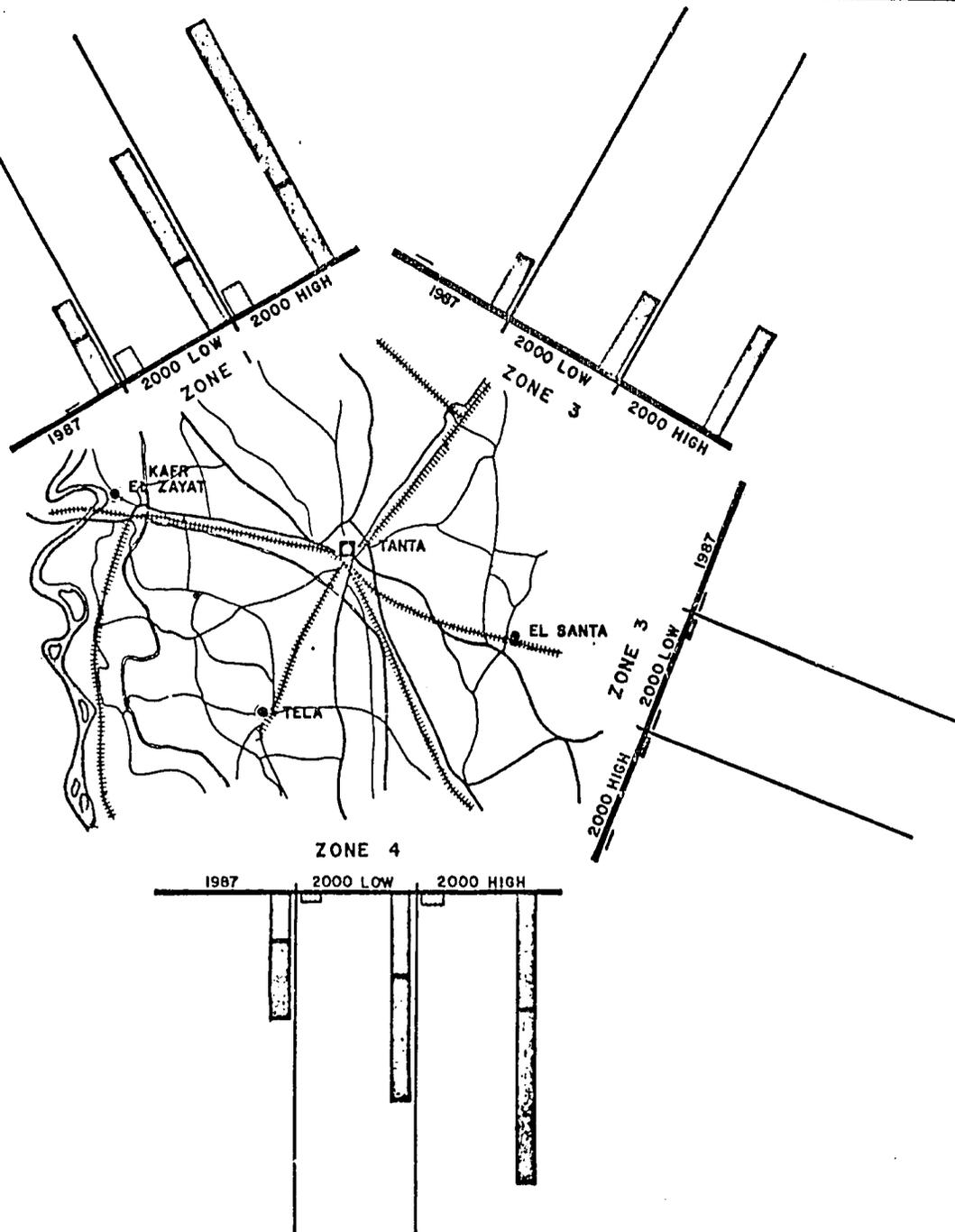
- Transport Center: major road, railway and pipeline node in the Delta; hub of road network radiating out to Cairo, Alexandria, Mahalla, Shebin El Kom, Zagazig and Kafr El Sheikh and headquarters of HBA's middle region; main Delta railway marshalling and repair yard with rail connections to Cairo, Alexandria, Zagazig, and Mahalla.
- Petroleum Refining Center: location of one of four petroleum refineries with pipeline links to other major refineries in Cairo and Alexandria and to a number of industrial users in Mahalla.
- Educational Center: main campus of Tanta University with an enrollment of 29,000 and with faculties of medicine, agriculture, dentistry, business, literature, science; branch of Cairo's Al Azhar University; regional center for the Sadat Council middle - and top-management training center.
- Medical Center: Tanta University which is presently being expanded offers a wide-range of medical services. There are also special hospitals for cancer, respiratory diseases, lepracy, native diseases, and psychiatric care.
- Telecommunication Center: major trunk routing center for the Delta.
- Financial Center: offers full range of banking services and serves as regional center for several banks (i.e. National Bank).
- Religious Center: location of Sidi El-Badawi Mosque, one of Egypt's and the Middle East's most important mosques.
- Tourism Center: linked with weekly visits to Sidi El-Badawi Mosque and the week-long celebration of Sidi El-Badawi's birth in October.

Present government policy emphasizes rationalization and decentralization in the provision and distribution of public services in the Delta. This policy is exemplified in recent plans to transfer the distribution headquarters for bottled gas from Cairo and Alexandria to Tanta. In addition, locally-fragmented utilities (i.e. electrical supply in Tanta whose administration is divided between central and governorate levels) will be unified and their base of operations sited in the Delta's main centers. These new policy directions will strengthen Tanta's role as a, if not the major, service center in the Delta.



TANTA'S LOCATION WITH RESPECT TO OTHER DELTA CITIES

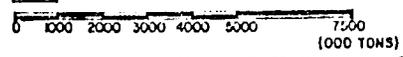
FIGURE 1



- ZONE**
-  ZONE 1
  -  ZONE 2
  -  ZONE 3
  -  ZONE 4

**ALL GOODS TRANSPORTED TO TANTA**  
(1987-2000 PROJECTIONS)

-  ROAD
-  RAIL
-  RIVER
-  MAIN HIGHWAY
-  SECONDARY HIGHWAY
-  RAILWAY LINE
-  CANAL
-  NILE RIVER
-  BELOW 100 000 TONS



SOURCE : NATIONAL TRANSPORT STUDY

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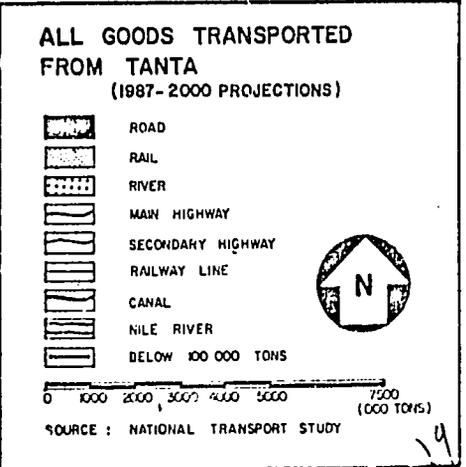
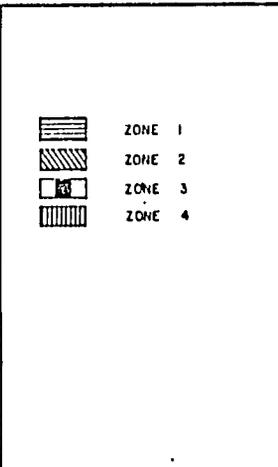
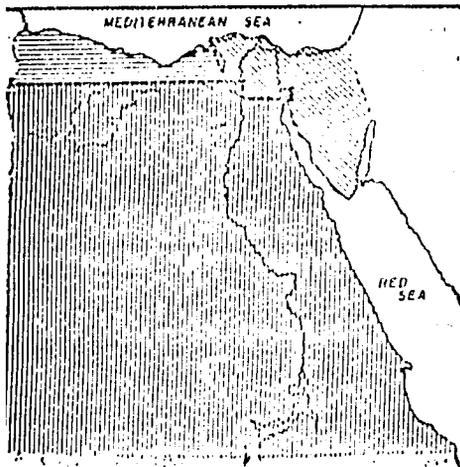
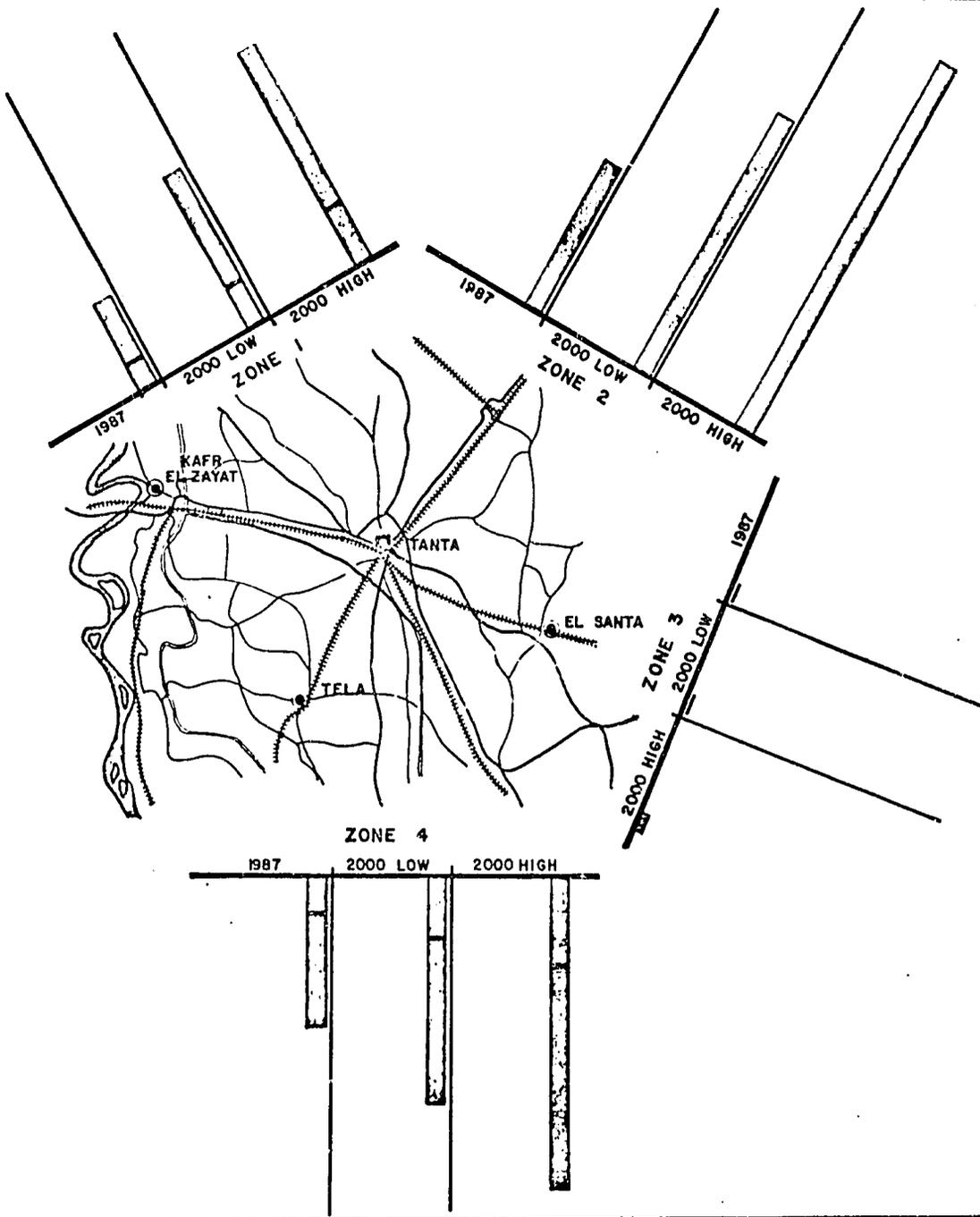


FIGURE 3

D. Center for Rural Hinterland and Smaller Urban Centers

Tanta serves a rural hinterland and network of smaller urban centers which encompass much of the area of Gharbia governorate. The governorate lies squarely between the two branches of the Nile River (the Rashid and the Damietta). It is divided into eight districts (markaz) each with its district capital. Tanta, the governorate's capital, is located approximately mid-way between the two branches. It is the hub of an intra-governorate transport network which connects it with the governorate's other major industrial centers -- Mahalla, Kafr El Zayat and Zifta. In addition to serving as a major regional center for the Delta as a governorate capital, it supplies services to the rural hinterland and smaller district capitals which surround it (See Figure 4 ).

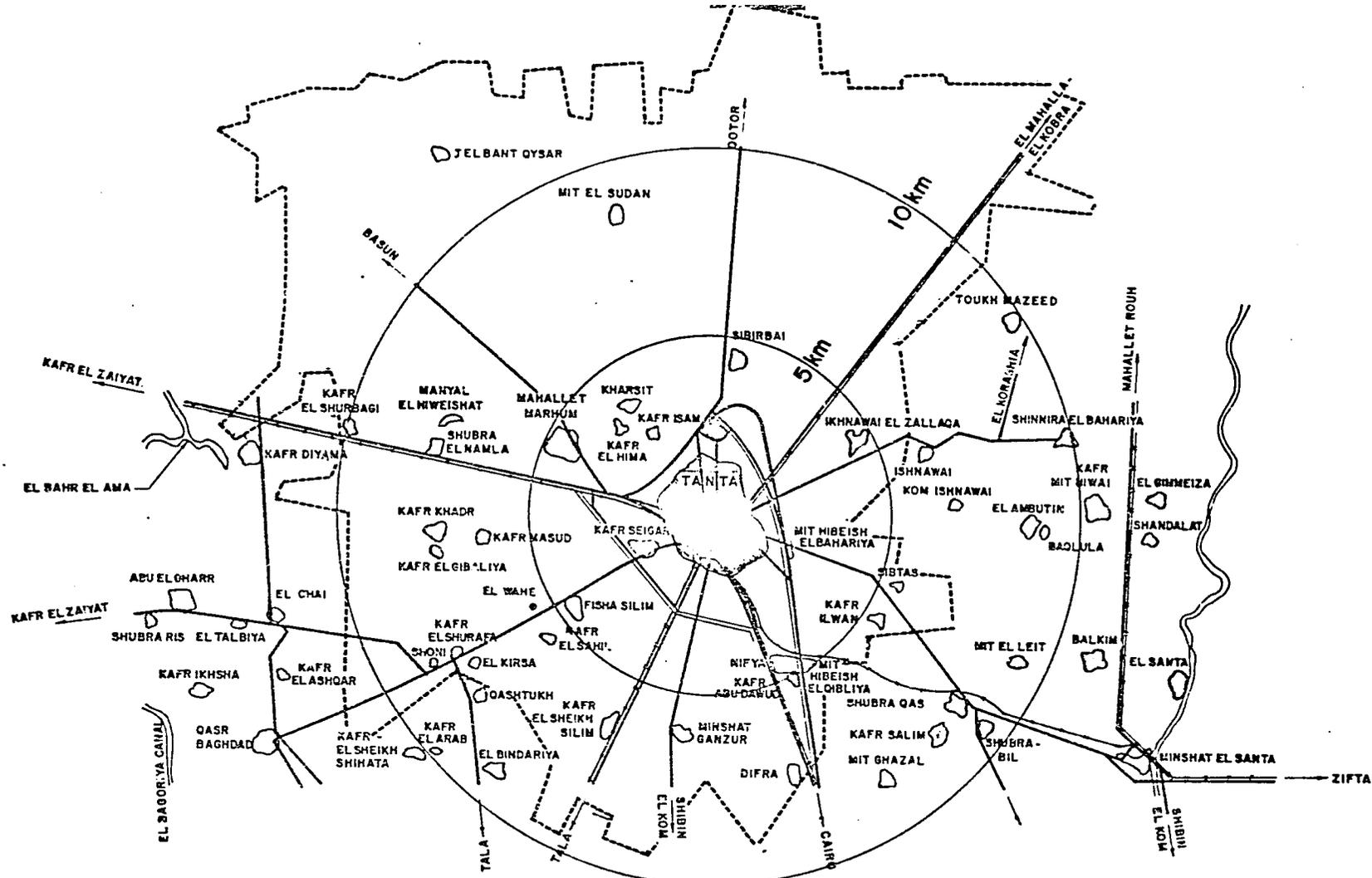
As is the case with most other Delta cities, Tanta is surrounded by many small agricultural villages. These villages are linked to Tanta by a network of secondary and tertiary roads, many of which are not paved. Based on Tanta's location with respect to the region's other main centers, it serves an agricultural hinterland with an area of approximate radius of 10-15 kilometers. The surrounding agricultural villages supply the rudiments of day-to-day living: shelter, food, minor household items and repairs, and, generally, primary education. Other items are quite frequently obtained in Tanta. These include: major household or farm purchases -- whatever minor appliances are required, cooking utensils, construction materials or fixtures, agricultural implements, etc. -- ready-made clothing or fabric, and repairs to appliances, farm equipment and vehicles.

Tanta also serves as an educational and health center for its hinterland. After completing primary and possibly preparatory education at the village level, students come to Tanta to continue their secondary, technical and university educations. Medical services, with the exception of the occasional doctor's office or rural unit, are also supplied from Tanta.

Tanta's industrial and service sectors also serve as a major employer for residents of the surrounding villages. Workers travel to Tanta by local transport in the morning, possibly make a few purchases, and then return to their villages at night.

It should be mentioned that the district capitals which are within Tanta's hinterland do provide a higher level of services than the surrounding smaller villages. However, they continue to view Tanta as a major employment center for their population and a main provider of higher level education, health and other services.

Finally, the other major service center functions supplied by Tanta and described in a previous section (governmental, religious, telecommunications, etc.) will also provide the motive for several other trips to Tanta over the course of a year.



— BOUNDARY OF MARKAZ

TANTA DISTRICT

SCALE 1:100,000



FIGURE 4

## II. Current Industrial Base and Potential Growth

This section aims at identifying Tanta City's current industrial base and its economic growth potential. These points are examined in the context of Tanta's central location in the Delta area, its administrative position as the capital of Gharbia Governorate and its linkages to the rural areas and other major urban centers in the Delta.

### A. An Overview

Gharbia Governorate is centrally located in the Delta zone. The economic base of its urban centers is widely diversified, with a large percentage of its employment in agro-based industries and the supporting activities of trade, transportation and storage (See Table 4 ).

The highly diversified mix of urban employment in Gharbia is the product of its central location in the Delta and the heavy concentration of agriculture-related industries in its major urban centers of Mahalla El Kubra, Tanta and Kafr El Zayat.

Major industries in Gharbia Governorate are textiles, food processing and chemicals. The textile industry is highly agglomerated in Mahalla El Kubra, the largest textile center in Egypt with a total employment of 46.6 thousand. Chemicals are mostly located in Kafr El Zayat and consist mainly of fertilizers and textile related products. Food processing is evenly distributed between Tanta and Kafr El Zayat. These three industrial centers generate 57 percent of the Delta's industrial output and employ 63.1 percent of the region's total industrial employment.

The Governorate's agricultural sector depends on 402.4 thousand feddans of cultivable land. This sector supports a total employment of 299.4 thousand, or 51.46 percent of the total employment in the Governorate. As in most of the Delta governorates, land holding is highly fragmentated (average land holding per rural family in Gharbia amounts to only 1.6 feddans). However, land productivity in Gharbia is relatively higher than in the other Delta governorates. This is especially true for the main crops of wheat, maize and cotton.

TABLE 4

DISTRIBUTION OF GHARBIA GOVERNORATE URBAN EMPLOYMENT

AMONG ECONOMIC SECTORS, 1975

<u>SECTORS</u>	<u>EMPLOYMENT (in 000)</u>	<u>%</u>
Agriculture	119	6.3
Mining	--	0.0
Industry	639	33.6
Electricity & Gas	14	0.7
Construction	77	4.0
Commerce	262	13.8
Transportation	159	8.4
Insurance	42	2.2
Services	482	25.5
All Else	99	5.2
<b>TOTAL</b>	<b>1893</b>	<b>100.0</b>

SOURCE: Employment Sample Survey, 1975, CAPMAS.

B. Tanta Industrial Base

1. The largest public sector industrial establishment in Tanta is a spinning and weaving mill established in 1960. The mill currently employs 4655 workers in the production of L.E. 9.1 million (1980) worth of spinning and textile products of which 21.3 percent is exported. The second largest industrial establishment in Tanta is an oil and soap company established in 1943 and currently employing 3310 workers. By 1978, the company's total production of soap, detergents, oil and animal feed amounted to L.E. 13.9 million, of which 98 percent is directed for domestic use. There also exists an oil and flax company established in 1954 which produces flax fibers, oil, paint and compressed wood. The establishment's current employment is 1274 workers and its output level is L.E. 4.5 million. There also exist an oil refinery, public sector dairy plant and three flour mills. Table 6 provides total employment figures for large scale industries in Tanta.

TABLE 5

DISTRIBUTION OF TANTA LARGE SCALE INDUSTRIAL EMPLOYMENT, 1982.

<u>INDUSTRY</u>	<u>EMPLOYMENT</u>	<u>%</u>
Spinning & Weaving	4655	35.8
Oil & Soap	3310	25.4
Oil & Flax Fiber	1274	9.8
Beverages	358	2.7
Dairy products	208	1.6
Flour Milling	2324	17.8
Rubber Tires	892	6.8
TOTAL*	13021	100.00

SOURCE: Planning Division, City of Tanta

\* Employment figures for the oil refinery are not available.

Most of these large-scale industries are land extensive, mainly due to their requirements for large storage areas. Thus, possibilities for any horizontal expansion are limited to extension on arable land.

2. Small-Scale Industries

The importance of small-scale industry in Tanta, especially with respect to job creation, is equal to that of the large scale sector. Total employment for small-scale industries in Tanta City amounted to 11.8 thousand in 1980. This figure represents 49.3 percent of the city's total industrial employment, a relatively higher ratio in comparison to other

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urban centers of a similar population size. The mix of these industries is diversified, but the categories of food processing, furniture and wood making and auto repair are of prime importance (See Table ). These industries are dispersed throughout the city. The basic problems for the potential expansion of these industries are the lack of finance, and the lack of potential sites.

TABLE 6

SMALL-SCALE INDUSTRIES, TANTA, 1980

<u>INDUSTRY TYPE</u>	<u>No. OF ESTABLISHMENTS</u>	<u>TOTAL EMPLOYMENT</u>
Food & Related Industries	171	1710
Furniture & Wood	394	2218
Light Metallics	629	1254
Auto Mechanic Repair	461	2035
Leather	293	1172
Ready Made Clothes	159	1327
Printing	58	811
Tiles & Construction Material	48	524
Spinning	18	780
TOTAL	2231	11831

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SOURCE: Data supplied by the Planning Division, city of Tanta, 1981.

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C. Present Industrial Development Priorities

Following government's industrial development strategy, priorities are currently directed toward improving the efficiency of Tanta's existing industries, rather than the creation of new ones. Based on limited available data from the Ministry of Planning, total industrial investment allocated to Tanta for the years 80/81 and 81/82 amounted to L.E. 18.0 million. This figure represents 23.5 percent of the governorate's total industrial investment. Investment is directed toward expanding and upgrading the capital stock of Tanta's existing large-scale industries. Table provides the industrial investment for the major urban centers of the Governorates.

TABLE 7

ALLOCATED INDUSTRIAL INVESTMENTS  
GHARBIA GOVERNORATE, 1980-1982  
(IN MILLIONS)

<u>URBAN CENTER</u>	<u>ALLOCATED INVESTMENT</u>	<u>%</u>
Mahalla El Kubra	29.8	38.9
Kafr El Zayat	20.9	27.3
Tanta	18.0	23.5
Others	7.9	10.3
TOTAL	76.6	100.0

SOURCE: Data are compiled for the Delta Annual Regional Plans for 1980/81 and 81/82, the Delta Region Planning Authority, Tanta.

The Ministry of Industry proposed new industrial investment for Tanta over the period 1980-84 amounts to L.E. 70.1 million. This amount represents 39.9 percent of Governorate's proposed share in industrial investment. The planned increase in the share of what has already been allocated to Tanta for 1980-1982 is due mainly to the proposed location of a large-scale, capital intensive rubber products industry in Tanta. Total proposed investment is on the order of L.E. 41.6 million. Table 8 lists these proposed investments.

TABLE 8

PROPOSED INDUSTRIAL INVESTMENT, TANTA 1980-1984

<u>INDUSTRY TYPE</u>	<u>INVESTMENT IN MILLIONS</u>	<u>%</u>
Textiles	25.79	36.8
Ready-Made Clothes	2.07	2.9
Flax Fiber & Oil	0.60	0.9
Rubber Products	41.60	59.4
TOTAL	70.06	100.0

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SOURCE: Ministry of Industry, General Organization for Industrialization.

### III. Physical Development

Tanta has been selected for special emphasis as a NUPS illustrative project because it presents an excellent opportunity to examine how growth in the Delta can be managed in an efficient and land-conserving way. Specifically, this section looks at the major physical development issues confronting the city, the present spatial structure and land use patterns (especially in the central core area and on the periphery of the city) and the major inter-regional and local infrastructure issues. Future sections recommend a physical development strategy for guiding and planning for Tanta's growth to the year 2000.

Specific information for the present section has been collected from secondary sources and from discussions with governorate and local council officials.

#### A. Development Issues

1. Although master planning has been done for Tanta in the past, most of the development presently taking place is on the periphery of the city's built-up area, along transportation corridors radiating from the city, and in the specific small villages located just outside the city's boundary and is occurring in an unplanned and uncontrolled manner.
2. Care should be taken to ensure that the redevelopment planned for the city's old central core provides a range of housing packages which are in line with what most households can afford to pay and takes into consideration the rights and present livelihoods of existing tenants and landlords.
3. Vertical densification of existing informal peripheral areas of the city should be encouraged while new extensions to the built-up area should be planned at densities which will make efficient use of scarce infrastructure resources and conserve arable land.

#### B. Physical Development Patterns

Historically, Tanta has developed from an agglomeration of small villages (kafr). These villages were originally grouped around what is today the site of Sidi el-Badawi Mosque. From an area of 73 feddans in 1854-55, the city has grown to almost 3500 feddans (1460 hectares) in 1978 based on actual (1942) city boundaries. Growth of the city's built-up area has occurred entirely at the expense of agricultural land. Surprisingly enough (See Annex A) agricultural land still constitutes almost 34 percent of total land area within the city's boundaries. Growth over this one-hundred and thirty year period has taken several forms:

1. expansion of the central core itself;
2. development along major transport corridors radiating outward from the central core in the direction of surrounding small villages; and
3. growth of the small villages themselves which in the course of time have become fully integrated within Tanta's built-up area (i.e., Kafr Seigar, Kafr Satuta, Kahafa).

With the coming of the connection to the Cairo-Alexandria railway and the extension of the railroad to Mahalla in the third quarter of the nineteenth century, directional growth was effectively constrained for the next fifty years. The rail lines restricted growth in a southeasterly and southwesterly direction. Therefore, until the end of the nineteenth century, growth of Tanta's built-up area occurred outward from the original central core in a generally northerly direction along major transportation corridors. Two of the corridors paralleled the rail lines, and a third (present-day El Geish Street) radiated in a northern direction from the central core toward the village of Kahafa. A secondary and tertiary street network developed from these major spines over the last one hundred years. It is only within the last 50-60 years that development has occurred in a southerly direction from the central core. This most recent development trend was impelled by the industrial development of the region taking place along the corridor which connects the downtown with the Cairo-Alexandria highway. Industrial development in the city's southeastern quadrant hastened nearby low-standard residential development as factory workers sought to locate as close as possible to their workplace. This trend caused the central core to leapfrog the confinements of the aforementioned rail lines and begin to push outward toward the villages of Kafr Seogar and Kafr Satuta. This trend continues to the present. Kafr Satuta has been completely incorporated within the city's built-up area and Kafr Seigar (included within the 1966 Census for the first time as a Tanta sub-qism) will be almost completely engulfed in the next 10-15 years.

Present day growth of Tanta is characterized by expansion into agricultural land in all directions. Much of this growth is of an unplanned and haphazard nature. The city's official 1942 boundary is not able to contain this unplanned growth. Several of the small villages just outside of the city's boundaries and strategically located with respect to the Cairo-Alexandria highway or other major highways (Kafr Isam and Kafr El Hima and Mit Ribeish-El Bahariya) are experiencing rapid, uncontrolled growth: The trend is for population infill to continue to occur between these villages and the existing built-up area of the city.

On the northern tier of the city, growth is presently constrained to a certain extent by the Cairo-Alex highway and an irrigation canal. Strip development is occurring along the highway, with infill occurring between it and the built-up area of the city. As in all cases, this infill is occurring on agricultural land. A major extension of the Tanta University Medical Center is taking place in this area. The development of the Medical Center essentially uses the last available piece of land within the city boundaries in the northern part of the city. Both formal and informal growth continues to take place in the northwestern quadrant of the city within a wedge bounded by El Nadi, Nahas and Kafr Issam Streets. Streets are being extended in a westerly direction toward the Cairo-Alexandria highway. A major secondary street network for the area which was called for in either the

1958 Master Plan or the 1970 Update (it was not clear which, due to the sketchy information supplied to the NUPS team), however unrealistic it might have been, has been almost completely invalidated in any case by recent unplanned development. Circulation within the area is extremely difficult, (i.e., streets not yet open or potential rights-of-way blocked by illegally constructed buildings). The situation will only worsen, thus hampering future higher density vertical development, since the area lies along a major growth corridor for extension of the city's built-up area.

North of the downtown area, and to the east of El Geish Street, in an area designated as "New Tanta", high-standard, formal development is occurring at a relatively slow pace. Urban infill has already linked the New Tanta development with the village of Kahafa. The existing grid pattern is being extended to the north and east in the direction of the previously mentioned irrigation canal which is presently acting as a constraint to further development on agricultural land to the northeast.

The area to the south and west of the railways to Cairo-Alexandria and Mahalla contains most of the agricultural land still remaining within the city's boundaries. As mentioned previously, development occurring in this area is generally low-income, lower-standard and illegal. To a certain extent, growth is being "naturally" constrained in this area due to two irrigation canals and a recently completed highway which connects the western entranceway to the city with the highway to Shibin El Kom. The area also contains parcels of government land which are presently being used for public housing projects. Infill is occurring at a rapid rate along the road which connects the village of Kafr Seigar with the city's built-up area. Sporadic development has begun to appear off the main roads leading southward to Tala and Shibin El Kom. This is a dangerous sign since it is occurring outside of the built-up area on some of the city's most fertile agricultural land.

With the industrial development of the 1930's, the city expanded rapidly along El Gala Street, toward the Cairo-Alexandria highway. The city's major spinning and weaving plant, as well as numerous public housing blocks, is located along this street. The area first to be developed was located along the railway to Mahalla and is a district of narrow streets and 3-4 storey buildings. Rapid informal development is occurring between the southern periphery of this area and the industry and public housing located along El Gala Street. A major cemetery which in the past helped to constrain growth in the southeastern quadrant of the city has been expanded. This expansion, however, has not stopped recent illegal development from occurring. Access into the area from any direction is already a major problem due to the unplanned and haphazard nature of this development.

Industrial development has also taken place to the north of El Gala Street. Rapid infill, mainly of an informal nature, is also occurring on the remaining agricultural land between El Gala Street, the rail line to Mahalla and the Cairo-Alexandria highway.

Much recent attention has been focussed on the rapid development taking place just outside the city's boundaries in the villages of Mit Hibeish-El Bahariya. These villages are located to the east of the Cairo-Alexandria highway on the highway to Zifta. Due to its prime location, a substantial amount of industrial and residential development has already taken place. The Tanta Jute and Oil Factory is located in this area. In addition, a new prefabricated housing factory has recently gone into production to supply the major building components for a 2640-unit cooperative housing project. A major new bus repair terminal is also under construction.

### C. Land Use Patterns

The following sections give an indication of the types of land uses and their locations to be found in the city of Tanta (see Figure 5).

#### 1. Residential

The types of residential construction identified for Tanta are similar in construction to those found in Qena and Naga Hamadi. The following simplified classification system will be used for a discussion of the built-up area:

- a. central core
- b. peripheral informal development (illegal)
- c. formal development
  - public
  - older 3-5 storey buildings on edge of central core
  - new 4-5 storey flats.

The old, central core of the city which surrounds the Sidi el-Badawi Mosque is characterized by one- and two-storey structures of unbaked mud bricks. These structures are generally in poor condition. Better quality, formally constructed buildings are found along the area's major thoroughfares. The area is bisected by a system of narrow winding streets. Underutilization of space in the form of warehouses, garages and stables is common. Due to its antiquity, the area is served by a full complement of public services. A portion of this area has recently been selected by the Governorate's Planning Office for redevelopment.



The oldest structures of the small villages which have been incorporated within Tanta's built-up area (Kafr Seigar and Kafr Satuta, Kahafa) exhibit similar construction materials and techniques to those found in the downtown area surrounding the Sidi el-Badawi Mosque.

The area of the city which expanded outward from the original central core over the past one hundred years is constructed on an irregular grid pattern. Main thoroughfares such as El Geish and Shams El Deen Streets define this pattern with narrower secondary streets and alleys providing for internal circulation. Residential construction is generally of 3-5 storey and of burnt brick. Similar type residential development extending from the central core can be seen in the oldest immediately to the south of the railways which bisect the city.

On the fringe of this initial area of expansion can be found Tanta's existing and future higher standard residential districts. This area is to be found to the south and east of the Nadi (Club) and on streets running perpendicular and to the east of El Geish Street. Construction undertaken during the last 30-40 years is usually of burnt brick with ornate external finishings. The newer, formal construction taking place to the east of El Geish Street on the fringe of the built-up area is of reinforced column and beam construction with brick infill. The 4-5 storey structures are finished in stucco and painted. The street pattern is on a regular grid. Both old and new formal residential areas are fully serviced.

On the periphery of the built-up city, especially on the southeastern and southwestern tiers, substantial informal construction without Ministry of Agriculture approval or building permit is occurring on arable land. This illegal development often follows old farm paths. Street widths are much narrower than in the formal sector (often 2-3 meters), building set backs are not maintained and the circulation network is highly irregular or non-existent. Many of the narrowest streets and alleys have never been formally opened. Construction is of burnt brick and usually of three storeys. Most of the construction makes use of a reinforced column and beam structure. This type of illegal construction is also seen in the small villages both within and outside Tanta's boundaries. Surprisingly, a substantial part of recent illegal development has already been serviced with water, sewerage and electrical connections. This is especially true of the informal development closest to the central core. Informal areas presently not served are located in Kafr Seigar and the rapidly expanding villages to the north of the Cairo-Alexandria highway.

Public housing units have been constructed mainly in two locations. The largest concentration is located off El Gala Street near the major spinning and weaving industrial complex. The other is located along the Cairo-Alexandria highway in the Kahafa area. A new area, southwest of the city, of along the Kafr Seigar road is presently being developed for public housing. This land belongs to the government. Past public housing designs have come from Cairo and are of the typical 5-storey walkup variety. The structure is a reinforced concrete column and beam with brick infill. It remains to be seen whether the evolution to locally-produced designs and site plans will improve their quality. Past housing blocks have been sited on available public land with little consideration given to the environmental wellbeing of the future residents.

## 2. Industry (including small-scale and repair shops)

Most of the large-scale industry in Tanta is located along or near El Gala Street between the downtown area and the Cairo-Alexandria highway. Here are found the Coca Cola Bottling Plant, Tanta Oil and Soap Company, Delta Spinning Weaving, Misr Dairy and Food Products. Major new industry is also located along the Zifta highway just to the east of the village of Mit Hibeish-El Bahariya. Other industry is sprinkled throughout the city, generally in locations with good rail or highway access. The Tanta Oil Refinery is located outside the city boundaries to the west of the village of Mahallet Marhum along the Cairo-Alexandria highway.

Small-scale industry and repair shops are concentrated in the old central core and along major arteries radiating from the core. Small-scale industries include all types of metal and woodworking, tailors and shirtmakers, horse-drawn carriages and shoemakers. Repair shops are geared to the repair of cars and trucks, machinery and farm implements. The heart of this particular land use is found along Shams El Deen Street which parallels the Mahalla railway and in the narrow streets of the downtown area.

## 3. Commerce

The old central core owes its present vitality to the wide-range of commercial activities which are located there. The survey work done for the Governorate's Redevelopment Project indicates that over 40 percent of the occupied buildings are strictly commercial or a mix of commercial-residential uses. It would not be too far-fetched to say that anything can be purchased in this area. Most of the shops are of a speciality nature -- household items, fabrics, clothing, furniture, appliances and watches, etc., but private sector department stores also exist. The area owes its vitality not only to the local Tanta trade, but also to the many customers who are drawn from Tanta's rural hinterland. In addition, a major generator of sales can be attributed to the domestic tourism attracted to the Sidi el-Badawi Mosque.

A higher order of commercial activity is noted along El Geish Street. Here are found the public department stores such as Salon Vert, clothing boutiques and the exclusive furniture stores. Another higher quality commercial strip is beginning to appear along El Nahas Street.

#### 4. Transport

Most of the terminals which serve Tanta's inter-regional transport functions are concentrated in a relatively small area on the fringe of the downtown. The rail terminal is located at the foot of El Sekka El Gedida Street which leads to Sidi el-Badawi Mosque. The bus and taxi terminals are all within one block of the rail terminal.

#### 5. Institutional

Major public institutional uses -- government buildings, secondary schools and hospitals, etc. -- are found in the older northern sections of Tanta along major arteries. The City Council offices are located on the fringe of the central core, while the Governorate occupies a relatively new building at the intersection of El Geish and El Nahas Streets. Other major institutional users such as the Ministry of Agriculture, Tanta University and Medical Center are located along El Geish Street. Major secondary schools are also found in this area.

Due to the lack of large parcels of vacant land within the existing built-up area, new institutional uses have been developed on the periphery on agricultural land. The new Medical Center straddles the Cairo-Alexandria highway on the city's northern edge, while a new regional Army Induction Center is under construction at the western extremity of the built-up area to the south of the Cairo-Alexandria railway.

#### 6. Open Space and Recreation

Tanta is almost completely lacking in parks and public recreational facilities. A narrow strip of green area with benches serves as the median strip for El Geish Street. Central squares surrounding the City Council building and Sidi el-Badawi Mosque are too congested and commercially oriented to serve as much of a respite.

The city's stadium and El Nadi Sporting Club provide recreational opportunities for a limited number of the city's residents.

#### D. Infrastructure

Adequate and appropriate levels of local and inter-regional infrastructure and housing are principle requirements if Tanta is to be able to fulfill its role within the NUPS preferred strategy. Due to the limited time and secondary source material available for the Tanta illustrative exercise, only certain key infrastructure issues will be identified and developed in this section. The Egypt National Transport Study done by NEDECO during the period 1979-1981 serves as the main source of inter-regional transportation information. Discussions with local engineers and material supplied to the NUPS team provide the basis for the sections on local infrastructure and housing.

The key issues identified by the NUPS team include:

- i. The requirements, both in terms of financial resources and arable land, implied in carrying out the extension, rehabilitation or new construction of existing transportation networks (roads, railways and pipelines) in order that Tanta maintain and expand its present position as the transport center both for the movement of inter-urban goods and passengers in the Delta.
- ii. The provision and maintenance and adequate capacity and coverage of local infrastructure systems (water, sewerage and electricity) to meet existing demand and provide for projected future populations.
- iii. The provision of adequate and affordable housing (with particular emphasis on cost recovery) to serve existing and future needs.
- iv. The provision of specific infrastructure projects required to implement the proposed physical development strategy (See Section V C).

#### 1. Transportation

Most of the transportation network required for Tanta's continued growth as a major regional service center is already in place. What is needed is better maintenance of the existing systems and specific extension or rehabilitation projects to increase capacity in certain branches of the various networks.

The following sections discuss the present situation with respect to the region's transportation networks and briefly outline current and planned government programs to improve the functioning of the systems.

a. Roads

Tanta, located mid-way between Cairo and Alexandria, is at the hub of the Delta's road network. It is directly linked by this road network to all the Delta's other largest cities (See Table 9 ). It is the headquarters for the Highway and Bridge Authority's Middle Region.

The primary and secondary road network overseen by the Tanta HBA office is deteriorating due to a rapid growth in both the number and magnitude of road loading. Road pavement condition, rather than capacity, is the main problem in most cases. Although the Cairo-Alex. highway by-passes Tanta, congestion is beginning to become a problem, particularly at the city's main entranceways. 3/ The tertiary road network, particularly within the city boundaries of Tanta, presents deficiencies with respect to capacity and access within the city's rapidly expanding peripheral areas. The NEDECO study notes that routine maintenance of roads is presently at a low level due to two main reasons:

1. main roads have deteriorated to the extent that routine maintenance can't offer a real solution;
2. due to a lack of technical and management capacity, an established tradition of routine maintenance standards and procedures is missing.

In order to combat these problems, the HBA, in its Five-year Plan (1980-1984), has earmarked a substantial portion of its budget for the Tanta region to the rehabilitation (maintaining existing cross-section) of existing roads. The HBA envisages upgrading the existing 6.0 meter carriageways from Tanta to Kafr El Sheikh, Bagour (passing through Babel) and Zagazig (passing through Zifta and Mit Ghamr). The proposed modernization program for the Tanta region is apparently in its beginning stages. A new section of road which by-passes Bagour has also recently been opened between Istanha (on the Bagour-Benha highway) and Shebin El Kom.

The NEDECO proposals are even more ambitious. For the period till 1987 which takes into account the HBA's rehabilitation program for the Tanta region, NEDECO proposes an additional 44 kilometer extension of the carriageway between Tanta and Bagour (and on to Kanater El Khairiya) from 6.0 to 7.5 meters. For the period 1987-2000, the study recommends major extension and upgrading of roads within Tanta's region. 4/ The low estimate for a road infrastructure investment includes a list of projects which must be closely evaluated for the Tanta region:

- i. Nile Bridges: Kafr El Zayat (under construction)  
Zifta-Mit Ghamr  
Desouk

TABLE 9

## MAJOR ROAD NETWORK OF TANTA HBA REGION

1979

ROAD SECTION	LENGTH (KM)	CLASSIFICATION	PAVEMENT WIDTH(M)	PAVEMENT CONDITION	TRAFFIC VOLUME		ADT 2000 (EST)	
					ADT '79	ADT '87 (EST)	HIGH	LOW
<u>AGRICULTURE ROAD</u>								
-Benha-Tanta Nile Bridge	46	Primary	4-lanes 2X8m	Good	14,230	25,510	38,790	55,390
-Tanta-Kafr El Zayat Nile Bridge	18	Primary	4-lanes 2X8	Good	N.A.	N.A.	N.A.	N.A.
Tanta-Mahalla	26	Primary	4-lanes 2X8	Fair	6,610	12,740	19,060	25,590
Tanta-Bagour	44	Primary	6.0 m	Fair	3,930	7,910	11,150	15,080
Tanta-Tala	13	Secondary	6.0 m	Fair-Poor	1,980	4,000	6,000	8,000
Tanta-Kafr El Sheikh	50	Primary	6.0 m	Fair	2,710	4,690	5,830	9,000
Tanta-Zifta Nile Bridge	32	Primary	6.0 m	Fair	2,760	5,540	7,320	10,020
Tanta-Dessouk	28	Secondary	6.0 m	Poor	2,290	4,220	5,920	8,120
Tanta-Bossyun	27	Secondary	6.0 m	Poor	2,500	5,000	7,500	10,000
Bossyun-Dessouk	28	Secondary	6.0 m	Poor	2,290	4,220	5,920	8,120

SOURCE: NUPS elaboration of NEDECO data.

ii. Semi-urban distributory road system (Tanta)

4-lane by-pass - 15 kilometers

2 large grade separated intersections

2 minor grade separated intersections

iii. Divided inter-urban highways (extensions of existing roads)

2 x 3 lanes: Benha - Kafr El Zayat (including portions in Tanta region) 153 km

2 x 2 lanes: Kanater El Khairiya - Tanta 75 km

iv. Upgrading to 7.5 highway:

Tanta - Zifta 30 km

Tanta - Basyoun - Desouk 55 km

Tanta - Tala 13 km

In addition to the cost/financing and construction industry capacity implications inherent in any highway program (especially when proposals call for widening to 6 or 8 lanes) for the Delta including Tanta, the costs in terms of lost agricultural land must also be closely examined.

b. Railways

Tanta is well served by the nation's rail infrastructure. It is located on the main double track line between Cairo and Alexandria. It is also served by three single lines: (1) Tanta - Minuf - Qalyub (93 km); (2) Tanta - Zifta - Zagazig (57 km); and (3) Tanta - Mahalla - Damietta (116 km). With a few exceptions, all signalling systems presently in operation are of the mechanical variety. Work is presently underway on the Tanta portion of the Cairo-Alex double line to convert to an electro-mechanical system. Tanta is also the location of one of the Egyptian Rail's (ER) eight marshalling yards.

No specific information was available on the rail lines which serve Tanta. However, in discussions with railway officials, it was ascertained that the present condition of the lines serving the Tanta region is indicative of the general condition of the nation's railways. The present network is fully capable of meeting present demand. Extensions of the present network are not justified on economic grounds. NEDECO makes the point that the most important

factor concerning the rail network is the generally poor condition of the lines which show serious problems with respect to track and component (particularly the ballast bed) renewal. The situation is regarded as critical, with further rapid deterioration in the offing if no immediate action is taken.

Much of the blame for the present situation is placed on the lack of routine and preventive maintenance 4/ . It is encouraging, therefore, to note that of ER's total capital budget of L.E. 250 million for the five-year period 1980-1984 almost 70 percent or L.E.68 million is earmarked for maintenance and rehabilitation of the existing network. Maintenance and rehabilitation items include: (1) track and bridge renewal; (2) strengthening of embankments; (3) maintenance equipment; (4) modernization of marshalling yards; (5) remodelling stations and yards; and (6) renewal of freight sheds.

c. Pipelines

Tanta is the location of one of Egypt's four crude oil refineries (the others are located in Alexandria, Cairo, and Suez). A trunk line connects the present network of refineries. The Cairo-Tanta branch is mainly used to send crude oil to the Tanta refinery from Suez, but it is also used to transport products (gasoline, naphta, kerosene, diesel oil, etc.) in both directions according to distribution needs of the separate refineries. The Tanta-Alexandria branch is mainly a product line since Alexandria receives all crude requirements by sea. The line is mainly used to ship products from Alexandria to the Tanta refinery which acts as the main distribution center of petroleum products in the Delta and whose own production is relatively limited. The Tanta refinery is directly linked by a 6-inch pipeline with a number of major industrial users in the Mahalla area and with a central storage depot in Shawa (Dakhalia). The line is also used for the shipment of certain petroleum products.

Gas pipelines are of recent construction, and presently are not linked with Tanta. According to the NEDECO analysis of crude oil pipeline transport requirements for the period 1978-87, no extension in main trunk line capacity affecting Tanta is recommended assuming that a balance can be maintained in production of petroleum products at the Suez and Alexandria refineries. In addition, no extension in pipeline capacity is necessary or projected for the Tanta - Mahalla - Shawa line (present capacity of 310,000). No extension of the natural gas pipeline to Tanta is envisaged for the period 1978-87.

The picture is not as clear for the period 1987-2000 for crude oil and petroleum products pipeline requirements. Unless careful balancing of production in Alexandria and Suez is achieved extension of either or both the Cairo-Tanta and Alexandria-Tanta pipeline branches may be required. Much appears to depend on whether a new refinery is built in Upper Egypt, thus freeing up some surplus from Suez for Tanta.

## 2. Intra-Urban Infrastructure (water supply, sewerage and electricity)

The present section briefly examines the present capacity and the population served by Tanta's major infrastructure networks.

Tanta's current and planned water supply and sewerage networks will provide sufficient service levels for projected populations well into the 1980's. Tanta presently gets its water supply from two sources: the El Kased Canal and 26 artesian wells. The canal water is treated. It is not known to the NUPS team, however, whether the deep well water is treated, and if not, whether treatment is required.

Present capacity of 137.5 million liters per day (96 million from the canal and 41.5 million from the wells) works out to 433 liters per capita per day for the estimated 1980 population. This daily per capita capacity compares very favorably with the national urban average of 169 liters per capita per day or the figures for Cairo and Alexandria of 338 and 288 liters per capita per day, respectively. Four new proposed wells will supply an additional 10.4 million liters per day capacity when they come on line.

According to 1976 Census data, almost 75 percent of Tanta's families had direct access (either in dwelling unit or in building or on plot) to piped water. Local engineering officials estimate that this percentage has now reached 90 percent. They estimate that the population presently not served is located either on the rapidly expanding urban fringe or outside the system's service area.

Sewage treatment in Tanta dates from 1927. The existing plant uses a combined process of aeration, filtration and chlorination. Present capacity is 60 million liters per day. Based on 1980 population estimates, total capacity equals 189 liters per capita per day. This figure is slightly less than the daily per capita flows for Cairo and Alexandria of 200 and 221 liters per capita per day, respectively. No national urban average is available. In addition, a new L.E.3 million treatment plant is almost complete and will come on line in early 1982. This new plant will increase present capacity by almost 17.3 million liters per day. This increase will raise per capita flows to above the Cairo and Alexandria totals.

The 1976 Census registered almost 50 percent of Tanta's total building stock (including residential, commercial and industrial) as having sewerage connections. Local engineering officials estimate the percentage of buildings connected has now reached approximately 60 percent. Similar to the case of water supply those buildings not served are generally located on the periphery of the built-up area or outside the service area of the existing network.

Although no figures dealing with electrical supply capacity were made available to the NUPS team for Tanta, field visits to Tanta's rapidly growing informal peripheral areas took note of the fact that most areas were already served by electricity. The 1976 Census tends to substantiate this finding. As of 1976, almost 80 percent of Tanta's total number of buildings was connected to the electrical distribution system. This percentage is probably higher today.

### 3. Housing Stock

There is very little material available on the quality and quantity of Tanta's housing stock. The 1976 Census counted 25,585 residential buildings for Tanta. The total number of dwelling units for the same year was 62,556 or an average number of dwelling units per residential building of 2.45. For the period 1966-1976, the number of residential buildings grew at annual rate of 4.7 percent. This figure is almost double the annual population growth of 2.20 percent over the same period. While this question will be further discussed in the Section on Administration, it is clear that the majority of these residential buildings are being built illegally on arable land without either Ministry of Agricultural and/or City Council Engineering Department building approval.

Quality of housing was not asked on the 1976 Census. Some insight into the quality of at least a portion of the housing stock can be gleaned from the survey work already done for the Governorate's Redevelopment Project (see description later in this section). Of the 1600 buildings contained within the redevelopment area, over 70 percent were considered to be in poor condition (not defined). While this percentage of poor housing quality is certainly higher than in most other areas of the city, it is indicative of the condition of Tanta's central core and is probably similar to the housing condition of the several small peripheral villages which have been integrated over time within Tanta's built-up.

With respect to public housing, the Ministry of Development's Governorate Department has been responsible for planning and design for the past several years. However, newer housing blocks do not seem any better adapted to local conditions than those which had been built in the past. Designs are particularly lacking in aesthetic qualities and do not afford the user the private space

that is available in informal sector construction. Over the three-year period 1978-1980, the Governorate constructed 1030 housing units. These were mainly of the 2- and 3- bedroom units in 5-storey walkup flats. Rental values are highly subsidized; the 2- and 3-bedroom units rent for L.E.3 and L.E.6 per month respectively.

Two projects which are intended to improve the quality of the city's overall housing stock are presently in the planning and design stage. The following paragraphs briefly review the two projects; Annexes B and C provide a more detailed description.

a. Mit Hibeish Cooperative Housing Project

This private sector project is located on a 27 feddan site along the Tanta-Zifta highway just to the east of the village of Mit Hibeish-El Beheira. The proposed 2640 units are to be accommodated in 110 six-storey blocks located on a 20-feddan section of the total project area. A pre-fabricated housing factory which will supply the projects main construction components occupies the other seven feddans. Apartment sizes of 50 and 70 square meters are planned. The proposed land use budget for the housing part of the project is presented in the following table:

TABLE 10

<u>LAND USE</u>	<u>AREA (m<sup>2</sup>)</u>	<u>%</u>
Residential	57,600	69.3
Community Services (school, markets, government offices, mosque, and shops)	5,600	6.7
Open Space	4,700	5.6
Circulation	15,300	18.4
TOTAL	83,200	100.0

While the distribution of the project's land area appears reasonable, the gross densities resulting from a relatively intense residential land use, in combination with the proposed number and height of housing blocks, are quite high. Calculated gross residential densities of 1555 persons per hectare or 653 persons per feddan are more than double the highest existing density in Tanta's built-up area and are almost 65 percent higher than the density proposed for the

downtown redevelopment area. 6/ In addition, a brief review of the project by NUPS architects has identified certain other areas that should be checked in more detail to assure compliance with Buildings Law No.106 of 1976 and implementing Decree No.169 of 1962. They include total floor area to site area ratio, building heights and distances between buildings and between buildings and the site boundary.

b. Downtown Redevelopment Project

The second major planned project involves the Gharbia Governorate's redevelopment scheme for a portion of the city's old central core area. The project area encompasses 75 feddans and 13,000 residents. It contains mainly one- and two-storey, deteriorated mud brick structures used mainly for commercial and residential purposes. Population in the area is declining and much of the land area is poorly utilized as stables, warehouses and garages. The area is ideal for redevelopment. Survey work dealing with building quality, land use, population and ownership patterns is complete. The Governorate envisages developing the site in 4-5 stages. It has decided to begin the first stage on land owned by itself and the Ministry of Wakf. The first stage entails approximately 200 flats in seven-storey buildings and would cost roughly L.E. 5-6 million. Present stage development is not known. As mentioned previously, the main issues which still must be addressed include the physical standards at which the redevelopment will take place, the whole question of landlord-tenant relations during redevelopment, and the project's financing mechanism.

4. Infrastructure Requirements to Implement a Physical Development Strategy

A physical development strategy often calls for undertaking certain infrastructure works in order to assist in its implementation. This is the case with the recommended development strategy for Tanta (See recommendations section A.3). The proposed infrastructure might include the opening of a new stretch of road or the upgrading of an existing one, the extension of a distribution network for water supply or sewerage, or the construction of a bridge to facilitate growth along a new corridor. These infrastructure items do not necessarily involve major expenditures. The most important factor is their timely implementation with respect to the staging of the development strategy. If the planning, design and construction phases for infrastructure works do not keep pace with, for example, complementary administrative for economic actions, the entire development strategy could be undermined and the desired results not attained.

IV. Administrative Implications of the NUPS Strategy for Tanta

The structure of Gharbia Governorate is based on the severed Local Government Laws which date from 1960, the last being Law No.50 of 1981. The governor is the central government's representative at the governorate level. Gharbia Governorate contains eight districts (markaz) each with a city or village designated as its capital. Tanta is the capital of the governorate, as well as the capital of the district of Tanta. Local Government Law calls for the establishment of local councils whose members are chosen by direct election according to provisions of the law and whose responsibility is to oversee the workings of the respective local units. The following table briefly summarizes the number and composition of the local government councils for Gharbia governorate:

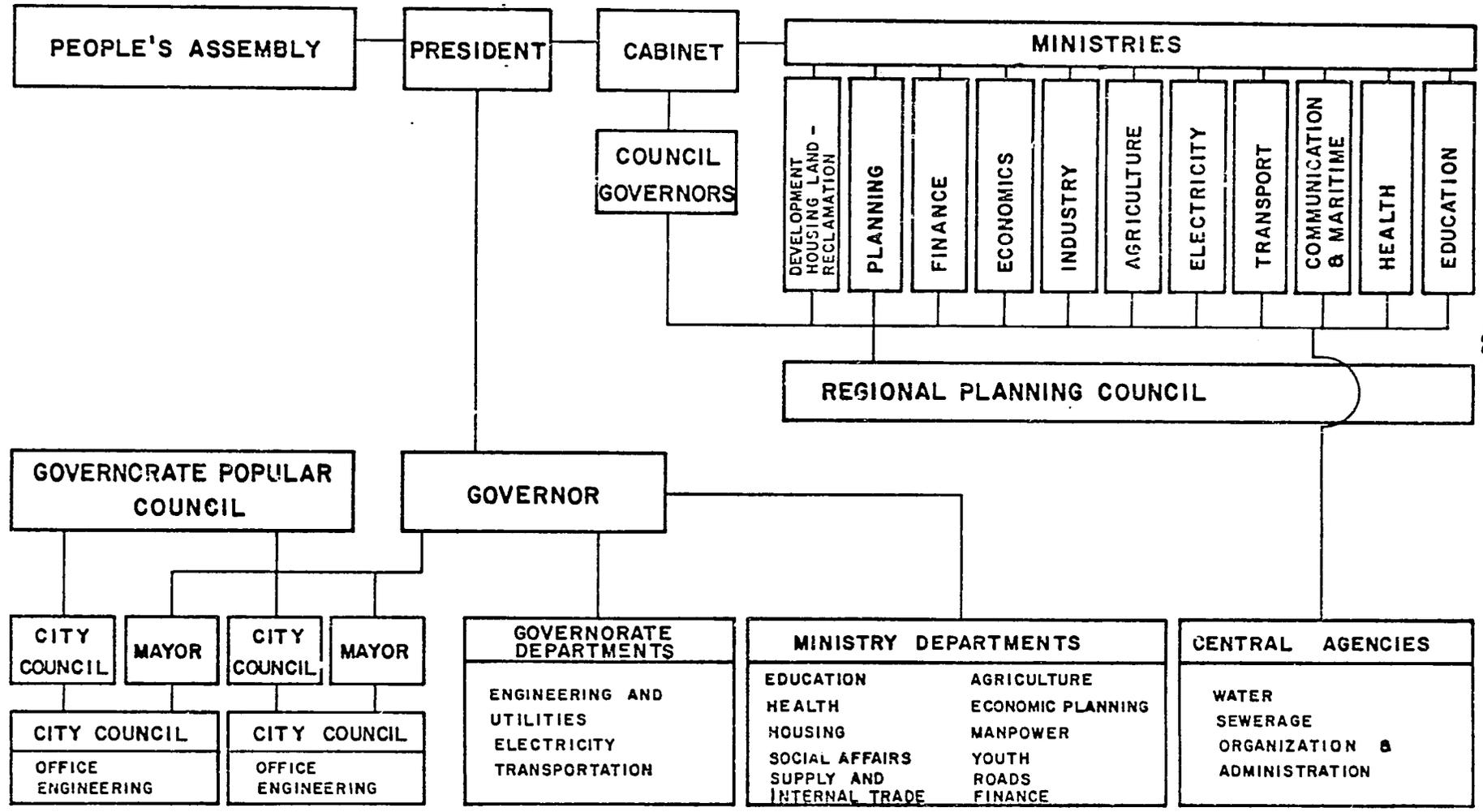
TABLE 11

<u>Local Council</u>	<u>Number</u>	<u>Members</u>
Governorate	1	60
District	8	337
Towns	8	144
Villages	53	901
TOTAL	70	1442

SOURCE: Secretariat General of Local Government.

The present illustrative exercise focuses on the city of Tanta and its role within the Delta. Specifically, the Governorate and the Tanta City Council are examined in detail. It was hoped to find a Tanta District Council which was constituted and functioning. This apparently is not the case. In Tanta, the City Council is responsible for the affairs of the entire district. The Delta Regional Planning Authority encompassing the Governorates of Gharbia, Beheira, Kafr El Sheikh, Dakahliya and Menoufia with its capital in Tanta will also be discussed. Figure 6 presents a schematic of the organizational structure of Gharbia Governorate and its relation to central government.

# SCHEMATIC OF QENA AND GHARBIA GOVERNORATES AND THEIR RELATION TO CENTRAL GOVERNMENT



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FIGURE 6

## A. Administrative Structure

Table ... outlines the functional responsibilities of the principle levels of government affecting implementation of the NUPS strategy in Tanta. It is interesting to compare the table with a similar table presented for the illustrative exercise in Qena-Naga Hamadi. In a few words, the major difference in the functional responsibilities of the two cases is the incipient economic and physical planning capacity which has emerged at the governorate level in Tanta. In Gharbia, the governorate's major functions vis-a-vis the NUPS strategy can be summarized in the following way:

1. It serves as receptor at the local level for central government policies and programs which recently have begun to be carried out at the local level through the planning, design and implementation of programs, and particularly, some physical projects and infrastructure.
2. It has recently begun to prepare, in conjunction with local councils, sectoral investment budgets (BAB3), albeit on a limited scale, for certain programs and projects -- food security, small industries, road repairs and bridges, and public housing; it also collects the add-on tax placed on all import and export taxes, movable properties (stock, bonds, etc.) business profits and the joint revenues assigned to local budgets (real estate, motor vehicle and entertainment taxes).
3. It is responsible, through the Ministry of Agriculture's representative within the governorate, for enforcing Law No.59 of 1973 which prohibits building on agricultural land (within and outside city boundaries) without the Ministry's authorization; it also must approve all building permits for structures with a cost exceeding L.E. 5000.

On the other hand, the Tanta City Council performs limited functions similar to those found in Qena-Naga Hamadi (1) approve building permits for costs less than LE. 5000 and issue all permits for buildings, shops and restaurants; (2) regulate and control building construction; (3) maintain government buildings; (4) maintain streets, parks, and public garden; (5) construct and maintain local roads.

**TABLE 12**  
**MAJOR FUNCTIONAL RESPONSIBILITIES OF GOVERNMENT AGENCIES AFFECTING NUPS**  
**AT LOCAL LEVEL - GHARBIA GOVERNORATE**

LEVEL OF GOVERNMENT	FUNCTION							
	SECTORAL PLANNING, BUDGETING, TAXATION	PROJECT CYCLE FOR PHYSICAL DEVELOPMENT AND INFRASTRUCTURE		MAN POWER AND TRAINING		ENFORCEMENT		
	MINISTRY OF PLANNING FINANCE, ECONOMICS	KEY MINISTRIES*	MINISTRY OF INDUSTRY	CENTRAL AGENCY FOR ORGANIZATION & ADM.	MINISTRY OF MAN-POWER & TRAINING	MINISTRY OF AGRICULTURE	MINISTRY OF DEVELOPMENT, HOUSING & LAND RECLAMATION	OTHER AGENCIES
<u>CENTRAL</u>	Integrate sectoral plans into comprehensive national plan; Allocate investment funds & resources to local gov't units; Prepare guidelines & review draft final budgets for governorates; Establish taxation policy.	Determine all policy matters; Draft sectoral budgets; Establish physical standards; Oversee urban physical planning(GOPP) Plan & design major infrastructure works;	Regulate many public sector companies (incl. licensing); Make major industrial location decisions.	Apply Civil Service Law: i. training; ii. job classification; iii. Organization & methods; iv. other provisions of Civil Service Law.	Recruit & place pool of college graduates & returning servicemen into public service; Develop vocational training programs.	Establish policy guidelines concerning use of agriculture land; Grant final approval for subdivision permits.		
<u>GOVERNORATE</u>	Prepare, in conjunction with local government units, a part of BAB 3 sectoral investment budgets (planning); Review & integrate local council & governorate department BAB 1,2 & 4 budgets (Finance); Undertake general accounting for all local government units (Finance); Collect local central government & special fund taxes (Finance).	Undertake physical planning of small villages surrounding Tanta & redevelopment of city's central core; Plan & design of public facilities (incl. public housing) & minor infrastructure works & system extensions (incl. use of local consultants); Supervise implementation of infrastructure & public facility projects; Operate certain public facilities (health, education, electricity).	Select specific industrial sites (committee incl. local council participation).	Administrate central government policies & programs	Oversee local recruitment & placement; Operate vocational training programs	Review requests for building & subdivision approval on agricultural land & use of topsoil for brick making (joint committee of representatives from governorate departments of agriculture, housing & irrigation).	Approve building permits for dwellings greater than 125 m <sup>2</sup> or J.E.10,000.	
<u>CITY COUNCIL</u>	Develop draft budgets for BABs 1 & 2.	Operate & maintain water & sewerage works; Maintain many gov't buildings, local roads, parks, & gardens.						Issue building permits; Enforce building code & permit violations; License cinemas, restaurants, & other forms of entertainment.

\* Ministry of Development, Housing and Land Reclamation (incl. GOPP, New Urban Community Authority, and Water & Sewerage Authorities); Ministries of Electricity; Transport, Communications & Maritime Transport

The functions of local government in Gharbia, and specifically in Tanta, point up a set of constraints which must be either removed or ameliorated in order to be able to successfully implement the NUPS strategy at the local level. Although we observed large numbers of deficiencies in the Illustrative Development Project for Qena-Naga Hamadi, some needed structural changes have been introduced in Tanta. The purpose of the present section is to identify how the functions of existing offices might be strengthened, modified or expanded in order to carry out the recommended NUPS strategy. Major areas focussed on include the following:

1. While master planning has been undertaken for the city of Tanta (1958 with a 1970 update) in the past, the working relationships between the Governorate Engineering and Utilities office (essentially the governorate physical unit) and the City Council Engineering office are too limited to effectively gain control of the haphazard physical growth occurring on agricultural land on Tanta's periphery and surrounding rural hinterland.
2. The Delta Regional Planning Authority, in conjunction with the Governorate Economic Planning office, has little influence on the budgeting process for major capital investments (such as infrastructure and industry) to be sited in Tanta or Gharbia Governorate.
3. The Ministry of Agriculture's Governorate department and the Tanta City Council Engineering have a poor record in the enforcement of laws which prohibit the illegal subdivision and development of agricultural land.

The following sections discuss the existing situation with respect to the previously-mentioned problem areas. The illustrative project's final section recommends how these problems might be ameliorated.

#### B. Physical Planning Framework for Tanta and Surrounding Hinterland

While positive institutional changes have been made in the area of physical planning over the past several years, physical development continues to occur in Tanta and its surrounding hinterland in an unplanned and haphazard manner. A master plan was done for city in 1958 and updated in 1970, but there are no signs that the plan is presently operational. Maps of the city and surrounding villages seen by the NUPS team were, with a few exceptions, out-of-date. In addition, while a certain amount of new development undoubtedly must take place on agricultural land, the siting of new public facilities (including industry and housing) has been done on an ad hoc basis without any relationship to an overall

development strategy for the city. As mentioned previously, severe and uncontrolled growth pressures are also prevalent in specific areas outside of existing (1942) city boundaries. Until recently, there was no local institutional capacity to confront these existing growth management problems.

Within the past several years, central government has authorized two offices within the Gharbia Governorate to undertake physical planning and design activities. These offices are the Ministry of Development's department within the governorate and a separate Utilities and Engineering Office which provides a range of engineering and planning services to the governor's office. These two offices presently work in close coordination. The Tanta City Council Engineering Office does not have sufficient capacity to undertake either planning or design functions and is mainly involved in the supervision of infrastructure and other public facilities and the operation and maintenance of existing infrastructure networks.

#### 1. Utilities and Engineering Office

It must be noted that physical planning at the governorate level in Gharbia is in its incipient stage. This is a problem, and at the same time, its beginning represents potential for the management of Tanta's future growth. It is only within the last two years that the Engineering Office has been authorized to undertake physical planning activities. While it has been building up staff -- professional staff presently numbers 10 engineers with planning experience, it has proceeded cautiously. It coordinates its work with the Ministry of Development's department, but reports directly to the governor. It is presently undertaking the two previously described physical planning projects, one outside the city's boundaries and one within. In addition, to the office's own staff, it borrows female social workers from the Ministry of Social Affairs when field surveys are required. Assistance is also obtained on economic issues from the Governorate's Economic Planning Office. It also provides engineering services to the mayor's office in the form of monitoring local council physical needs and problems.

The glaring deficiency of the Engineering Office's present mandate is that it has not yet been authorized to tackle, alone or with GOPP assistance, general planning for the city of Tanta itself.

Presently, the Engineering Office's main responsibility in the field of planning involves physical planning for the governorate's many small villages. The office has already completed a physical plan for the village of Mit Hibeish-El Bahariya. Not coincidentally, this village's strategic location at the intersection of the Cairo-Alex highway and the Tanta-Zifta highway, has made it a prime candidate for development. Its location outside of the city boundaries on agriculture land has not deterred past local decisions from siting projects in this area. The Tanta Flax and Oil Company dates from the early 1960's and a new pre-fabricated housing factory has recently entered production. A multi-storey cooperative housing project is also in the design stage. The office's analysis and mapping of the existing situation appears to be of a high quality, and the proposed development strategy, if the area is to be developed is reasonable. The problem arises from the fact that the village, located so close to Tanta, can not be planned in isolation. The other major planning project presently undertaken by the Engineering Office involves the previously described redevelopment scheme for a portion of the city's old central core.

On balance however, even if the Governorate Engineering Office were able to develop physical plans for all the rapidly growing villages surrounding Tanta and specific projects within the city's boundaries, this piecemeal exercise would not get at the heart of the problem that Tanta would still continue to grow in an unplanned and haphazard manner. The problem is obviously a difficult one, and involves more than simply building up the Engineering Office's capacity to undertake a comprehensive planning assignment. Problems relating to jurisdictional areas of responsibility ( i.e. "turf") also exist between the governorate and city council levels with respect to who will undertake this planning. The city council has no planning capacity and should not be expected to shoulder this burden. The governor will have to resolve this issue. In the meantime, valuable time is being lost, poor planning decisions are being made, and Tanta continues to grow in an unplanned way.

## 2. Ministry of Development's Governorate Department

The Ministry of Development's Department within the Gharbia Governorate functions in a similar manner to corresponding offices in other governorates. It has major responsibility for overseeing the implementation for all government buildings, public housing, infrastructure, schools, hospitals, etc. constructed in the Governorate. In the Governorate's larger cities, this office monitors construction through the local

city council engineering offices. It serves a coordinative function for all activities of the city council engineering offices found in the Governorate. In addition, it has the responsibility for approving all building permits for structures of greater than 125 square meters of L.E.10,000.

In comparison to the Ministry's Department in Qena and other Upper Egypt governorates, Gharbia's Ministry Department has gradually taken on the responsibility for the planning and design of all government buildings, public housing and minor infrastructure works. In addition to its professional staff of over 50 architects and engineers, it will employ, on occasion, local consulting firms for specialized design requirements.

### C. Economic Planning and Budgeting

The main purpose of the present section is to examine the economic planning and budgeting process for capital investment within the Delta Regional Planning Authority and the Gharbia Governorate Economic Planning Office. For a more general description of how the overall budgetary process for salaries and wages, current expenditures, and capital transfers (BABs 1, 2 and 4) functions at the governorate level, refer to the section in the Qena-Naga Hamadi Illustrative Development Project report on "Economic Planning, Budgeting and Taxation". In order to give the reader an indication of the amount of locally raised revenues potentially available for development projects, the present section also briefly reviews the main conclusions with respect to expenditures and revenues from the 1978 and 1979 Gharbia Governorate budget. A brief description of the Delta Regional Planning Authority's functions and responsibilities is also provided.

#### 1. Revenues

As stipulated by Local Government Law, Gharbia Governorate has three sources of budget revenue: (1) locally collected revenues including revenues from special funds; (2) the Governorate's share of joint revenues which are collected nationally, but counted as local revenue; and (3) central government grants-in-aid or subsidies. As in the case of the other Delta governorates, Gharbia derives little of its total budget from locally raised revenues. Locally raised revenues totalled L.E.6.7 and L.E. 5.8 million, respectively, in 1978 and 1979. What is surprising, based on Gharbia's population and industrial base is that these sums are less than 2.5 times the revenues collected in the Qena Governorate over the same two years. Including all local revenue as presently calculated by the Ministry of

TABLE 13

GHARBIA GOVERNORATE BUDGET REVENUES - 1978 & 1979

REVENUE SOURCE	1978		1979	
	AMOUNT (000's)	%	AMOUNT (000's)	%
<u>RAISED LOCALLY</u>				
Land Tax	1150	2.9	1165	2.5
Building Tax	170	0.4	200	0.4
Entertainment Tax	75	0.2	80	0.2
Vehicles Licences	800	2.1	949	2.1
Joint Revenues*	250	0.6	318	0.7
Utilities Administered by Governorate	2211	5.7	503	1.1
Other Local Fees & Taxes	541	1.4	600	1.3
Quarries	3	0.0	3	0.0
General Revenues	247	0.6	351	0.8
Other Local Revenues	284	0.7	326	0.7
Sub-Total	5731	14.7	4495	9.8
Local Share of Joint Revenues	979	2.5	1287	2.8
Sub-Total Local Revenue	6710	17.2	5782	12.6

cont./

TABLE 13 (CONT.)

GHARBIA GOVERNORATE BUDGET REVENUES - 1978 & 1979

REVENUE SOURCE	1978		1979	
	AMOUNT (000's)	%	AMOUNT (000's)	%
<u>GOVERNMENT</u>				
<u>SUBSIDIES</u>				
Current	28,229	72.4	36,737	80.3
Auction of used property	--	0.0	--	0.0
Sale of lands & Buildings	15	0.0	--	0.0
Other Finance Sources	1,407	3.6	--	0.0
Investment	245	0.6	374	0.8
Share of Loans from Foreign Governments	2,393	6.1	2,882	6.3
Sub-Total Government Subsidies	32,289	82.8	39,993	87.4
Total Budget Revenues	38,999	100.0	45,775	100.0

\* Joint Revenues refer to taxes on business profits and custom duties, and income from stocks, Bonds and similar wealth.

SOURCE: Secretariat of Local Government.

Finance, Gharbia was able to raise only 17.2 and 12.6 percent of total budgeted expenditures for 1978 and 1979 (See Table... It also raises none of its salaries and current expenditures, (BABs 1 and 2). In a brief discussion with Governorate Finance Department officials, it was estimated that Gharbia is collecting on the average L.E. 1 million per year through special fund revenues. These special funds are derived from several sources: (1) two percent tax on rental value of buildings to be used for road maintenance; (2) P.T.10 tax on each kantar of cotton produced; (3) P.T.1 on all water and electrical receipts, and (4) a 15 percent levy on Governorate public sector industry after-tax profits.

## 2. Expenditures

Expenditures for Gharbia Governorate for 1978 and 1979 are presented in Table . Total expenditures for the two years equal L.E.39.0 and L.E.45.8 million, respectively. BAB 3 capital investment makes up a small percentage of this total. Budgeted capital investment at the Governorate level was L.E. 3.9 and L.E. 3.1 million for the two years. These sums represent only 10.0 and 6.7 percent of total budget expenditures. As is common in other governorates, the largest expenditure item is for salaries and wages (BAB 1). This budget item equals 74.0 and 80.7 percent of total expenditures for the two years Governorate Headquarters and the Education Department received over 70 percent of total budget expenditures, and over 85 percent of capital investment for the two-year period. Certain investment items do not appear in the Governorate budget. This is symptomatic of local government's lack of input on major investment decision. Major infrastructure and industrial investments appear in the respective ministries' budget in Cairo. All told, it was estimated by Gharbia Finance officials that capital investment in the Governorate totals on the order of L.E. 10 million per year or roughly 3 time the investment funds budgeted at governorate level.

With the previous sections serving as background, the following sections examine the economic planning and budgeting process prevailing in Gharbia and the Delta Regional Planning Authority.

A very positive first step has been taken in decentralizing certain economic planning and budgeting responsibilities to the local level in Gharbia Governorate. Beginning in 1979, the Delta Regional Planning Authority with its capital in Tanta has begun to coordinate the activities of the governorate Economic Planning Offices. Lamentably, the Delta Regional Planning Authority only covers the governorates of Gharbia, Menoufia Dakahliya, Kafr El Sheikh and Damietta 7/. Working through

TABLE 14

## GHARBA GOVERNORATE EXPENDITURE - 1978 &amp; 1979

ITEM	I. SALARIES & WAGES				II. CURRENT EXPENDITURES				III. INVESTMENTS				IV. CAPITAL TRANSFERS				TOTAL			
	1978		1979		1978		1979		1978		1979		1978		1979		1978		1979	
	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%	L.E. (000's)	%
HEADQUARTERS	5292	18.3	7808	21.1	3296	54.2	2176	38.9	2228	57.0	2674	86.8	150	100.0	176	100.0	10966	28.1	12834	28.0
EDUCATION	15222	52.7	18375	49.8	1214	20.0	1313	23.4	1102	28.2	--	--	--	--	--	--	17538	45.0	19688	43.0
HEALTH	4238	14.7	5543	15.0	1300	21.4	1812	32.4	441	11.3	277	9.0	--	--	--	--	5979	15.3	7632	16.7
HOUSING	592	2.1	630	1.7	61	1.0	62	1.1	--	--	--	--	--	--	--	--	653	1.7	692	1.5
SOCIAL AFFAIRS	580	2.0	717	1.9	125	2.1	140	2.5	138	3.5	52	1.7	--	--	--	--	843	2.1	909	2.0
SUPPLY & INTERNAL TRADE	265	0.9	484	1.3	6	0.1	7	0.1	--	--	--	--	--	--	--	--	271	0.7	491	1.1
AGRICULTURE	2453	8.5	3085	8.4	70	1.1	82	1.5	--	--	--	--	--	--	--	--	2523	6.5	3167	6.9
MANPOWER	218	0.8	277	0.8	7	0.1	8	0.1	--	--	77	2.5	--	--	--	--	225	0.6	362	0.8
TOTAL	28860	100.0	36919	100.0	6079	100.0	5600	100.0	3909	100.0	3080	100.0	150	100.0	176	100.0	38998	100.0	45775	100.0

\* Columns might not add up due to Rounding

SOURCE: Secretariat of Local Government

the governorate Planning Offices which in turn are in direct contact with the local councils, the Under-Secretary of the Planning Authority discusses and assembles information on the needs and priorities of the various local government units in his region. Possibly based on the high quality of the actual Under-Secretary, the system, albeit of limited scope, is apparently functioning quite well, with information flowing up and down the ladder from the Regional Authority to the local councils. The Regional Authority's eight professionals (mainly business majors and economists) undertake studies to determine the region's or a specific local council's needs. Projects would then be designed based on this analysis. It also reviews and appraises projects submitted for budget approval. The Regional Authority often uses specialists from Tanta University to aid in the design and evaluation of projects. Tanta University was cited as a main source of assistance on Food Security programs. The Authority has also used the Sadat Council training facilities in Tanta to organize training sessions for governorate planning office professionals and local council members. The training programs have included courses on basic planning, needs surveys, the planning process, statistics and project appraisal.

Based on an estimated capital investment budget for each participating governorate, the Regional Authority, in close coordination with the individual governorate planning offices, prepares a list of projects for the region's various local councils. The final draft list of projects makes up the draft annual capital investment budget which is presented to the People's Assembly. Proposed changes in the draft budgets are carried out on the basis of the Regional Authority's judgement and on direct discussions with the interested local council.

It is a positive sign that the economic planning and budgeting process has begun to reflect local needs and priorities in Gharbia. 8/ It must be mentioned, however, that this process is in its very early stages. The Under-Secretary readily admits that he has control over, or formal input into, a limited number of budgetary items. The Regional Authority is responsible for a portion of each sector's total budget for Gharbia and the other governorates:

1. Agriculture: Food Security
2. Industry: slaughter houses, ice and brick making
3. Electricity: utilities administered by governorate
4. Transport: local road and bridge maintenance and repair
5. Public Service: security, fire protection, youth clubs, street cleaning and traffic control
6. Housing: public housing funds generated locally through the Economic Housing Fund.

A review of this list shows that major investment decisions are still made in Cairo, outside the purview of the Regional Authority. Types of investment decisions presently not affected by the Regional Authority include all major infrastructure works - water, sewerage, electricity, primary roads, etc. and the decision on whether an industry should come into the region or not. The Regional Authority is consulted informally on many of these decisions, but is presently not a participant in the formal review process.

Furthermore, while the Regional Authority is apparently working quite closely with the Gharbia Economic Planning Office, it is not known how the Authority functions in the other governorates. It was pointed out that, at the present and as the need arises, working sessions are held in the other governorates. However, no full-time staff is presently located outside of the headquarters office in Tanta.

D. Enforcement of Prohibitions on the Subdivision and Development of Agricultural Land.

Based on inspection trips of Tanta City's peripheral areas and agricultural hinterland and on discussions with governorate and local council officials, it is the impression of the NUPS team that the responsible local authorities have lost not only physical, but also administrative control of the conversion of agricultural land to urban uses. Available data tends to substantiate this conclusion both from the standpoint of obtaining approval to build on agricultural land, as well as obtaining the required building permits themselves. The situation is especially critical on the rapidly urbanizing periphery of Tanta City and around several strategically located villages just outside the city's boundaries (Kafr Isam and Mit Hibeish-El Bahriya 9/).

A brief review of the number of Ministry of Agricultural approvals for construction on agricultural land over the period 1975-1981 reveals that the number of approvals granted is miniscule in comparison to the development activity taking place. No formal subdivision permits have been issued within Tanta district over the last 20 years. Yet the subdivision of agricultural land continues on a massive, illegal scale. Based on the analysis of Annex A, it is estimated that approximately 180 hectares of agricultural land solely within Tanta city limits has been urbanized between 1975-1981. The process appears to be that an owner of a piece of peripheral land, faced with the pressures and profitability of converting his land to urban uses, will begin to sell off small parcels while continuing to farm the rest. He will often construct a house for himself -- with or without Ministry approval, while leaving it up to purchasers of the small parcels to seek permission on their own. Most don't.

Over time, this process leads to the illegal and uncontrolled subdivision of large tracts of agricultural land. According to the Ministry of Agriculture figures cited in Table 15, only 80 approvals were given to individuals to construct housing on agricultural land. These approvals totalled almost 46 hectares or over 5000 square meters of land per approval. In two of the reporting subareas within Tanta City (Tanta and Kahafa), the average parcel size for 32 approvals was almost 7000 square meters. On the other hand, one of the fastest growing areas of the city, Kafr Seigar, shows only two approvals over the six-year period for 800 square meters. This low number of approvals and extremely high average parcel size, even within Tanta's city limits, tend to reinforce the conclusion that the original owner of the land (most likely registered with the Ministry of Justice's Land Registration Office) is obtaining approval to build a dwelling unit, but that the purchasers of the sold-off parcels are probably not registering the sale nor obtaining Ministry approval to build their dwelling units.

Over the 1975-1981 period, 309 violations were issued by the Ministry of Agriculture in Tanta district. Interestingly enough, while the number is quite small, the average parcel size per violation at 500 square meters, while still quite large, much more accurately reflects actual plot size in the informal sector.

The picture with respect to obtaining a building permit for residential construction on agricultural land which has been legally or illegally subdivided is not much brighter. According to the Agricultural Law and stated Tanta City Council procedures, proof must be furnished from the Ministry of Agriculture that a change in land use has been approved, before a building permit can be issued. The practice apparently is not observed in all cases. Between 1976 and 1980 (the period over which the City Council has supplied information on permits issued), the Ministry of Agriculture has granted 54 approvals for the use of agricultural land for residential purposes. Over the same period, the Tanta City Council Engineering Department issued 1662 building permits. Even assuming that a certain percentage of these permits were not issued for construction on agricultural land, still leaves a large residual of construction taking place without formal Agricultural Ministry approval. Furthermore, an examination of building permits indicates that a majority of residential construction is taking place illegally without a building permit.

Table 16 gives a quantitative estimate of the amount of informal construction (based on building without a permit) which has occurred in Tanta between 1976 and 1980. Projections of 1976 Census data on number of residential buildings and number of dwelling units were compared with the number of residential permits issued and the number of public housing units constructed. Subtracting the sum of residential permits plus public housing units from the estimated total number

**TABLE 15**  
**PERMITS & VIOLATIONS FOR BUILDING ON AGRICULTURAL LAND**  
**TANTA MARKAZ**

CITY OR VILLAGE	Y E A R																												TOTAL			
	1975				1976				1977				1978				1979				1980				1981				1975 - 1981			
	PERMITS		VIOLATIONS		PERMITS		VIOLATIONS		PERMITS		VIOLATIONS		PERMITS		VIOLATIONS		PERMITS		VIOLATIONS		PERMITS		VIOLATIONS		PERMITS		VIOLATIONS		PERMITS		VIOLATIONS	
	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.
TANTA	0	0.00	N.A.	N.A.	0	0.00	N.A.	N.A.	3	0.64	0	0.00	0	0.00	1	0.18	2	8.64	8	0.25	0	0.00	25	4.24	8	0.41	21	1.08	13	9.69	55	5.75
SIBIRBAY	2	6.68	N.A.	N.A.	1	0.84	N.A.	N.A.	1	0.02	1	0.11	1	0.02	2	0.14	0	0.00	9	0.46	0	0.00	14	0.54	1	0.04	44	2.21	6	7.60	70	3.26
KAHAFA	1	0.11	N.A.	N.A.	1	0.11	N.A.	N.A.	5	7.99	2	0.02	3	1.59	0	0.00	3	1.71	5	0.58	4	0.53	19	0.84	2	0.09	34	0.84	19	12.04	60	2.28
KAFR ISAM	1	0.88	N.A.	N.A.	0	0.00	N.A.	N.A.	0	0.00	2	0.35	2	0.30	10	0.20	1	0.02	4	0.36	0	0.00	0	0.00	0	0.00	6	0.10	4	1.20	22	1.01
KAFR SEIGAR	0	0.00	N.A.	N.A.	1	0.04	N.A.	N.A.	1	0.04	0	0.00	0	0.00	3	1.17	0	0.00	0	0.00	0	0.00	6	0.11	0	0.00	0	0.00	2	0.08	9	1.28
SHUBRA EL NAMLA	1	0.05	N.A.	N.A.	2	0.07	N.A.	N.A.	9	0.42	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0.13	2	0.07	9	3.53	17	0.26	24	4.20	19	0.33
MAHALLET MARHUM	0	0.00	N.A.	N.A.	1	1.55	N.A.	N.A.	2	0.17	3	0.04	1	0.05	0	0.00	0	0.00	0	0.00	0	0.00	12	0.26	0	0.00	18	0.39	4	1.77	33	0.69
EL GOMARIA	0	0.00	N.A.	N.A.	1	0.04	N.A.	N.A.	1	0.05	0	0.00	0	0.00	0	0.00	0	0.00	11	0.19	1	0.06	18	0.39	0	0.00	3	0.07	3	0.15	32	0.65
MIT HEBEISH EL BAHARIYA	1	0.07	N.A.	N.A.	1	0.06	N.A.	N.A.	0	0.00	0	0.00	0	0.00	0	0.00	1	0.60	2	0.03	2	8.39	2	0.03	0	0.00	5	0.11	5	9.12	9	0.17
<b>TOTAL</b>	<b>6</b>	<b>7.79</b>	<b>N.A.</b>	<b>N.A.</b>	<b>8</b>	<b>2.71</b>	<b>N.A.</b>	<b>N.A.</b>	<b>22</b>	<b>9.24</b>	<b>8</b>	<b>0.52</b>	<b>7</b>	<b>1.96</b>	<b>16</b>	<b>1.69</b>	<b>7</b>	<b>10.97</b>	<b>39</b>	<b>1.77</b>	<b>10</b>	<b>9.11</b>	<b>98</b>	<b>6.28</b>	<b>20</b>	<b>4.07</b>	<b>148</b>	<b>5.06</b>	<b>80</b>	<b>45.85</b>	<b>309</b>	<b>15.42</b>

SOURCE: Ministry of Agriculture, Gharbia Governorate.

TABLE 16

ESTIMATE ILLEGAL BUILDING IN TANTA CITY

YEAR	1976 - 1980					NUMBER OF PUBLIC HOUSING UNITS CONSTR. <sup>4/</sup>
	NUMBER OF RESIDENTIAL BUILDINGS <sup>1/</sup>	NUMBER OF DWELLING UNITS <sup>2/</sup>	CHANGE IN NUMBER OF DWELLING UNITS	NUMBER OF RESIDENTIAL PERMITS <sup>3/</sup>	NUMBER OF CORRESPONDING DWELLING UNITS <sup>2/</sup>	
1976	25,585	62,556				
1977	27,095	66,383	3,827	294	720	N.A.
1978	28,693	70,298	3,915	534	1,308	320
1979	30,386	74,446	4,148	307	752	150
1980	32,179	78,839	4,393	527	1,291	560
TOTAL			16,283	1,662	4,071	1,030

<sup>1/</sup> 1976 Census figures are projected at a rate proportional to the ratio between population growth over the 1966-1976 period and that projected to 1980 times the percentage increase in the number of residential buildings between 1966-1976 (i.e. 5.9 percent versus 4.7 percent for the period 1966-1976).

<sup>2/</sup> 1976 Census of 2.45 dwelling units per residential building for Tanta City.

<sup>3/</sup> Tanta City Council Engineering Department, 1981.

<sup>4/</sup> Gharbia Governorate, Ministry of Development Department, 1981.

of dwelling units constructed results in an estimate of almost 70 percent of all units being constructed illegally. Furthermore, if the number of units constructed with building permits but without Ministry of Agriculture approval added in, the percentage of informal building in Tanta would be much higher.

As a result of a discussion with City Council officials concerning building permit requirements and costs, there is little wonder that such a large percentage of all residential building is illegal. Permit applicants must comply with Law No.106 of 1976 as amended by Law No. 136 of 1981. All applicants must submit three copies of all working drawings which, in turn, must be certified by a registered architect. A certified engineer must also supervise construction costing over L.E. 5000. For luxury housing defined as greater than 125 square meters or L.E. 10,000 an additional set of requirements is applied.

Fees for granting building permits are limited by law to L.E. 200. In Tanta, according to discussions with local officials, the fee structure is based on certain percentage of total estimated construction cost. For example, for a unit costing greater than L.E. 5000, the following three percentages are collected: (1) 10 percent of total estimated cost for government housing bonds; (2) one percent for insurance (destination unknown); and, (3) five percent for the insurance for the unit's workers. In summary, for units costing greater than L.E. 5000, the fee in percent of total estimated construction cost equals 16 percent. For a L.E. 5000 dwelling unit cost, the fee equals approximately L.E. 800, not an insignificant sum. Finally, City Council officials revealed that the current permit fee structure presently exceeds the fines for building violations.

V. Recommendations: NUPS Illustrative Development Strategy

Tanta and its region were selected as a means of illustrating the site-specific implications of operating within the preferred NUPS spatial framework. The following recommendations, therefore, emphasize this site-specific bias. However, Tanta's specific role within an overall Delta Management strategy must also be taken into consideration. The NUPS strategy envisages that regional service center functions for the Delta will be consolidated in Tanta, and one or two other major urban centers. Consolidating these services into two or three urban areas will tend to reduce overall expenditures on infrastructure and conserve arable land. Furthermore, given the availability of non-arable land for industrial sites in Cairo, Alexandria and Suez, the major metropolitan areas should also be seen as an essential element of a growth management strategy for the Delta.

A. Industrial Development

The basic issue of Tanta's industrial growth prospects is how to provide a sufficient number of new jobs to meet population projections to the year 2000 and simultaneously minimize loss of arable land. The physical nature of the city imposes a constraint on industrial growth or expansion and highlights the necessity to adopt an industrial development strategy which limits development in agricultural areas to those services and industries which must necessarily be located in Tanta. New industries to be located in Tanta should satisfy most of the following conditions: (1) labor-intensive; (2) possess strong linkages with the agricultural and service sectors; (3) relatively low import content and high export potential; (4) use of local raw materials; (5) low land requirement per worker.

Based on these criteria potential industries to be sited in Tanta can be classified under two groups: desirable and undesirable. It should be stressed that industries listed under the undesirable category are mostly land consuming and would serve a national market. These undesirable industries would probably be better located in other areas, mainly outside the Delta region.

DESIRABLE INDUSTRIES

Food processing  
Textiles  
Ready-made clothes  
Light Metallics

UNDESIRABLE INDUSTRIES

Construction materials  
Basic iron and steel  
Transport equipment  
Electrical equipment and machinery

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Food processing and textiles are Tanta's traditional industries. They possess strong linkages with the agricultural sector and have low import content and high export potential. Short to medium term actions should continue to strengthen these industries and improve their efficiency through new production techniques and skill training.

Light metallic industries could be introduced at a later stage but should be limited to the manufacture of light agricultural machinery and hand tools and spare parts for the textile industries.

The success of any industrial development policy for Tanta requires that local authorities are able to provide attractive locations for new industries (See Physical Recommendations Section). The study team realizes the difficulty in locating new sites for industrial growth. It is recommended that new sites be located both in the inner city and in selected peripheral areas. Opportunity cost implications probably do not warrant the protection of all arable land. However, conversion of arable land needs to have strong justification whenever it is authorized. Furthermore, the efficient utilization of already existing and fenced warehouses for the open storage of grain and cotton should be encouraged. More compact storage facilities would release scarce peripheral land for industrial or other uses.

#### B. Physical Development Principles

The purpose of the present section is to provide an indicative physical development strategy for the city of Tanta and its surrounding hinterland for the period to the year 2000. This development strategy is based on the following underlying principle:

1. only where absolutely necessary will arable land be used for expansion of the city's built-up area;
2. the use of arable land including the provision of urban services at appropriate density levels will be done in the most efficient way possible;
3. urban growth and consolidation should be governed by realistic land use planning.

The principle conclusions reached as a result of the analysis of existing physical development in Tanta include:

1. Physical development both within and outside existing city boundaries is occurring in an uncontrolled and unplanned manner on arable land;

2. A significant amount of the demand for well located peripheral sites on arable land comes from public and government sector users;
3. Tanta would certainly not reach the NUPS year 2000 projected populations without major encroachment on agricultural land outside the city's boundary even though trend growth would be higher. (See the analysis contained in Annex A);
4. Several small, strategically located villages in close proximity to Tanta's major transportation corridors are rapidly expanding their built-up areas on agricultural land.

C. Recommended Physical Strategy

1. Tanta's Existing City Boundaries should be Extended to Include Sufficient Land to Accomodate projected 2000 Populations and Specific Rapidly Growing Villages Located in Close Proximity to Tanta's Present Boundary

Annex A analyzed the effects of project year 2000 population on Tanta's remaining agricultural land. Between 1972 and 1978, Landsat photo analysis indicates that Tanta's built-up area increased by about 3.7 percent annually. For the six-year period, growth of the built-up area averaged over 30 hectares annually. If present trends continue, the remaining 490 hectares of agricultural land within Tanta's existing boundaries could be urbanized before the end of the present decade. More likely what will occur under current practices is that peripheral growth will continue at a differential rate inside city boundaries while major corridor development outward from the city boundaries will accelerate in the direction of the villages of Kafr Isam and Mit Hibeish-El Bahariya.

An extension of existing city boundaries, in addition to strengthening the administrative framework for ordering Tanta's growth (See following section on Administrative Recommendations), provides sufficient land area to efficiently plan for physical development to the year 2000. An extension of Tanta's present boundary implies a continued, albeit reduced, use of agricultural land for development purposes. Based on Tanta's role as a major Delta service center in the NUPS strategy (including a projected population range for the year 2000 of 525,000 to 575,000), this conclusion is most certainly unavoidable. However, the recommended boundary change, in conjunction with specific rational physical development directives, will provide for a more rational future growth of the Tanta region for the following reasons:

1. Less agricultural land will be lost due to induced higher density development within the expanded planning area;

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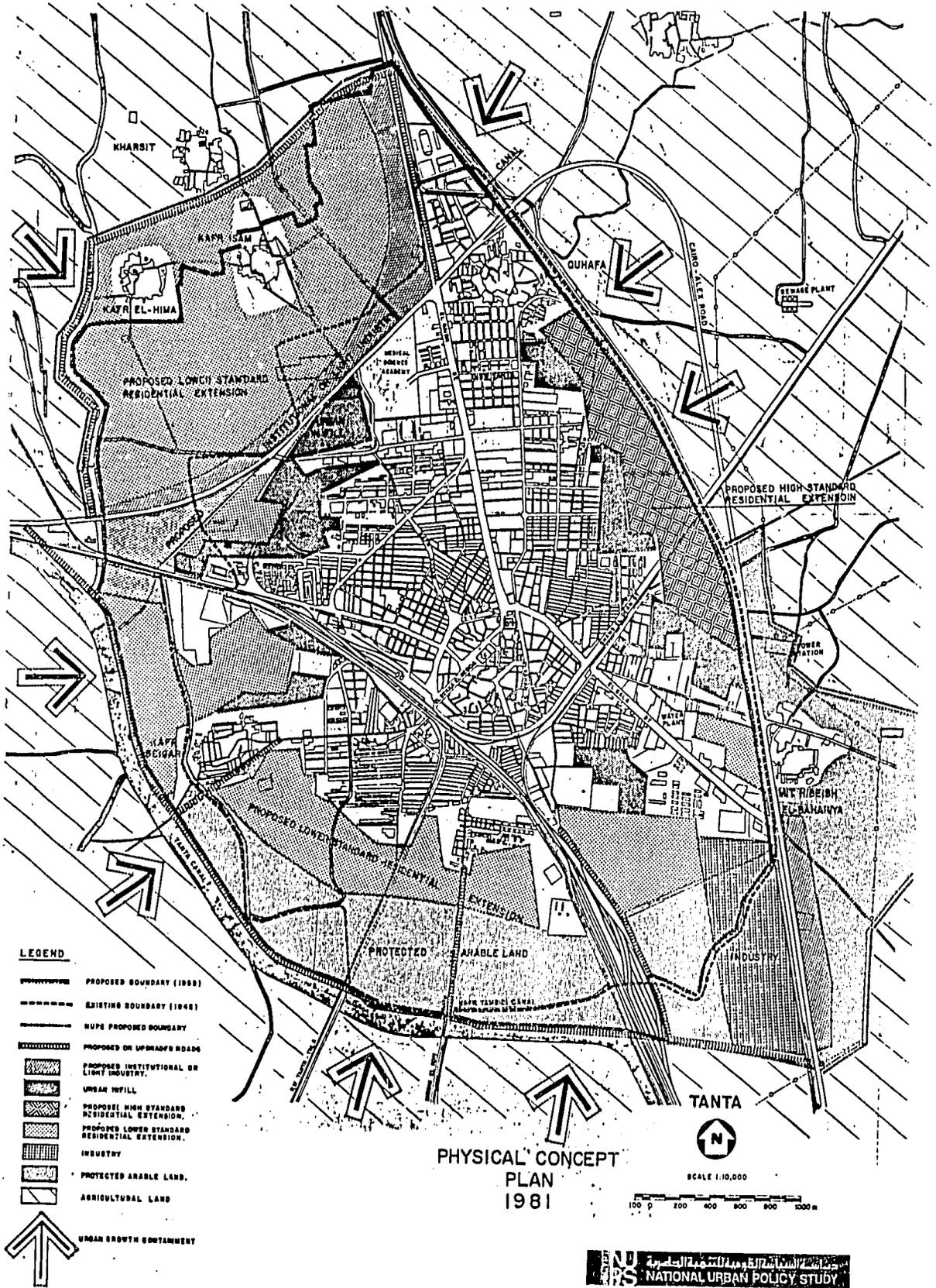
2. Sufficient land area will be provided not only to accommodate Tanta's projected population to the year 2000, but also to meet the demand for institutional and industrial uses;
3. Allocation of scarce financial resources for public services will take place on a more efficient basis;
4. The rapidly growing surrounding villages will be integrated within Tanta's built-up area in a planned manner.

Figure 1 includes the proposed boundary change. With two important exceptions, it reflects the boundary change that is presently being discussed at the governorate level. The major differences are that the proposed NUPS boundary extension includes the villages of Kafr El Hima and Mit Hibeish-El Bahariya. These two villages are located along prime growth corridors for the city and are presently experiencing rapid growth. For these reasons they should be brought within the confines and control of the Tanta municipal boundaries.

The proposed boundary extension would increase the city's total area by 781.5 hectares (7.82 square kilometers), or a percentage increase of almost 55 percent. 650.8 hectares of the new area is agricultural land. Combined with the 493.6 hectares of agricultural land remaining in Tanta in 1978, the proposed boundary change would provide almost 1150 hectares to accommodate the city's population, as well as non-residential needs to the year 2000 (estimated at between 634 and 884 hectares). Total projected development needs to the year 2000 would allow for the reservation of the best agricultural land for future use.

2. Guidelines to Orient Tanta's Growth to the Year 2000 should be Provided in Order to Encourage Vertical Densification of Existing Informal Peripheral Areas as well as to Plan for New Urban Extensions at Densities which will make Efficient Use of Scarce Infrastructure Resources and Conserve Arable Land.

The planned growth of Tanta is underpinned to the implementation of two major development decisions: (1) the upgrading and extension of mostly existing roadway into a limited access highway which would connect the southern approach to the city from Cairo with the western entranceway from Alexandria; and (2) the opening for mainly residential development of the area located between the villages of Kafr El Hima and Kafr Isam and the Cairo-Alex. highway.



The proposed limited access highway is located in the southwestern quadrant of the city and parallels a major irrigation canal for much of its length. Approximately 1.5 kilometers of new roadway and a bridge over the Cairo-Alex. railway would have to be constructed. The upgraded roadway would serve several purposes:

1. The limited access nature of the proposed highway would tend to alleviate the bottlenecks at the city's main entrances, as well as to remove through traffic from presently congested portion of the Cairo-Alex. highway which serves as the city's northwest boundary.
2. In addition to reinforcing the southwesterly growth constraint qualities of the Tanta canal which it parallels, the upgraded roadway would provide access to a small section of land ideally suited for industrial development. This prime land is located between the proposed roadway, the Cairo-Alex. highway and the existing industrial areas along El Gala Street.
3. The limited access highway would tend to alleviate some of the growth pressure on the proposed reservations of arable land which abut the roadway.

The other key development instrument calls for the provision of a circulation network which would induce a preferred development pattern for the area to the northwest of the Cairo-Alex. highway. This area would include the villages of Kafr El Hima and Kafr Isam. The very limited street network which presently exists is causing the area's rapid growth to occur in a haphazard way. The development strategy proposes the planned extension of the city, particularly lower income households, into this area. In order to accomplish this planned growth, a rational circulation network must be provided. The recommended primary road link would extend the prolongation of El Geish Street to the north or the Cairo-Alex. highway, then swing to the west paralleling the proposed new boundary where it would intersect with a feeder road running north beside the Batanuniya Canal. This feeder road would be upgraded and linked through an intersection to the Cairo-Alex. highway. Secondary and tertiary streets would complete the network.

3. Specific Development Zones should be Identified in Order to Accommodate Tanta's Projected Land Requirements to the Year 2000 in a Planned and Orderly Manner

Figure 7 indicates the proposed locations for development zones and arable land reservation. Broad categories have been defined

at this stage for residential, industrial and institutional uses. Residential zones tend to fill in irregular jogs in the existing perimeter of the built-up area. A zone earmarked for heavy industry is well located with respect to the existing concentration of industrial uses along El Gala Street. New institutional, light industrial and warehousing uses are provided for in the city's northwest quadrant along the Cairo-Alex highway. Residual land areas remaining after all development requirements have been taken into consideration will be reserved for agricultural purposes. Projected arable land is found along the southwestern and southeastern perimeter of the city. Its location lends itself to either residential or industrial uses in the 21st century if required.

The area surrounding the village of Mit Hibeish-El Bahariya is a special case. It is recommended that the village and its surrounding area be incorporated into the city for the purpose of including it within comprehensive planning. Based on the availability of land for residential and industrial purposes in other parts of the city, development of the Mit Hibeish area should be discouraged over the planning period. For this reason, agricultural land included with the Mit Hibeish area to be integrated into Tanta City has been designated, and should remain, as protected arable land.

4. The Governorate's Redevelopment Project should Address the Key Issues of Affordability and Landlord-Tenant Relations

Downtown redevelopment is probably the most complicated development project which a government agency can undertake. Care must be taken during the planning and design stage to address all the major issues involved. A basis for doing as is provided by existing or proposed Egyptian laws:

1. Law No. 136 of 1981 (Renting and Sale of Buildings and Relations between Landlord and Tenant);
2. Law No. 14 of 1981 (Cooperative Housing Law);
3. August 1981 Draft of Proposed Planning Law.

Three major issues are:

1. The planning and design of the redevelopment project should provide for a range of housing, commercial and small-scale industrial uses which reflect existing housing and workplace conditions and are compatible with what most households can afford to pay;

2. The area's prime commercial and small-scale industrial location probably dooms to failure any attempt on the part of local officials to relocate any but the most obvious uses (i.e., stables, certain warehousing uses, etc.) outside of the redevelopment area. The relocation of households and commercial/industrial uses within the project area as demolition and reconstruction take place is much more feasible. First-stage development by the Governorate on land it already owns recognizes this fact. It is planned that occupants for the completed first-stage would come from the next phase, and so on. It is hoped that future stages of development can proceed in the same manner. Maintenance of the area's existing commercial/small-scale industrial base should be a priority of the redevelopment scheme.
3. Redevelopment plans must take existing landlord-tenant relations into consideration.

The Governorate should presently be undertaking the following tasks in order to ensure the successful implementation of the project:

1. Prepare a sufficiently detailed plan for the project area which gives prospective builders guidance in the following areas (Article 39 of Proposed Planning Law):
  - Land use;
  - Building height and architectural features;
  - Plot size and dimensions;
  - Modifications to street or utility networks;
  - Historic preservation conditions regarding Sidi El-Badawi Mosque.
2. Organize actual landlords and tenants into building groups which would coincide, as much as possible, with the planned phasing of the project and would provide sufficient lead time for individual or business decisions;
3. Encourage participation in the redevelopment scheme through attractive packaging and advertising. Expropriation should only be used as a last resort, but it should be employed where progress is threatened by a recalcitrant landowner. If elected by the land owner, compensation could take the form of an equivalent share of real estate in a completed building (Article 51 of Proposed Planning Law);
4. Arrange financing if already not underway, for the project's first-stage. The Proposed Planning Law (Article 42) would allow the Governorate to borrow from a bank or other financial institution. Approval for the borrowing must be obtained from the Tanta Popular Council;

5. Provide additional incentives for landlord participation by allowing a return which more closely approximates alternative investments. This could be realized by fixing annual rents on the basis of a percentage of land and superstructure value equal to two points above the market borrowing rate at the time of transaction (Law No.136 of 1981 presently establishes this rate at seven percent).
5. In Order to Provide the Time Required to Refine and/or Modify the Recommended NUPS Development Strategy, an Immediate Moratorium should be Instituted on the Issuance of any Building Permit (Residential or Industrial) for Construction Outside of Tanta's Existing 1942 Boundary.

The NUPS team believes that Tanta's future development should take place within a well-defined planning area that can accommodate expected growth. The NUPS strategy meets this criterion. In order to provide sufficient lead-time to prepare the development strategy, a moratorium on all development outside the city limits is recommended. This provision is aimed particularly at the development, both legal and illegal, presently occurring outside the northwest quadrant of the city beyond the Cairo-Alex. highway and including the villages of Kafr El Hima and Isam and the village of Mit Hibeish-El Bahariya. The moratorium should have a limited duration, say one year, to permit time for strategy development; but sufficiently short to force strategic choices to be expeditiously made.

The functioning pre-fabricated housing factory and adjoining cooperative housing project in the village of Mit Hibeish-El Bahariya drew the special attention of the NUPS team. It represents all that is wrong with present physical development in the Delta. This conclusion is based on several reasons:

- i. The factory and proposed housing project are being constructed on agricultural land without Ministry of Agricultural approval.
2. It is located outside of the existing 1942 city boundary, and surprisingly enough, is also outside of the boundary extension proposed by the Governorate.
3. While the site has obvious locational advantages, it would be better used for other than residential or heavy industrial purpose.

Management of the Delta's future growth eventually comes down to government taking a firm stand on the indiscriminate use of agricultural land. The line should be drawn in Mit Hibeish. Since the pre-fabricated housing factory has been constructed and is in production, it would be counterproductive to halt production and dismantle the factory at this stage. Future developments of this type, however, should severely restricted. The

housing project is another matter. NUPS recommends, since construction has not yet begun, that development be stopped and that any building permits which have been issued should be rescinded. The 15-feddan housing project can and should be carried out within Tanta's city limits on land which has been reserved and developed for this purpose. It is the responsibility of the Governorate working with the City Council to make this land available. Excellent sites are available within three kilometers of the factory. Transportation of pre-fabricated components should not present many more problems than those which would have been encountered with transportation from the factory to the initially proposed site.

#### D. Administrative Recommendations

The Gharbia local government structure has only recently begun to undertake the functions required for successful implementation of the NUPS preferred strategy for Tanta. While major policy decisions originate, and should continue to be formulated, at the central level in Cairo; the Gharbia governorate has begun to play an increased role in the development of projects for physical infrastructure and public buildings. It has begun to take the lead in the physical planning of the small villages which surround Tanta. Furthermore, the Ministry of Planning's governorate office, working in close coordination with the Delta Regional Planning Authority, has initiated, albeit on a limited scale, planning and budgeting for certain sectoral capital investment projects to be sited in the governorate. Middle and upper level professionals and managers are usually from the Delta with staffing problems not being nearly as severe as is the case with Upper Egypt. One major area of concern to the NUPS team is the inability of the combined efforts of the Governorate and City Council to halt illegal development on agricultural land and effectively plan for the future growth of Tanta and its surrounding villages. Certainly limited local revenues remains a constant problem and a severe constraint to implementation of the NUPS strategy.

The major thrust of the administrative recommendations, therefore, focuses on strengthening specific Governorate functions presently in an embryonic stage, in addition, to concentrating and prioritizing Governorate and City Council efforts in the areas of prohibiting illegal use of arable land and illegal building. Improvements to the region's administrative structure should further the following principles:

1. Provide for a planned and orderly growth for Tanta through the efficient use of no more arable land than is needed and scarce financial resources for public infrastructure;
2. More fully integrate appropriate Governorate departments within the framework for decisions which will continue to be taken at the national level, but whose implementation has spatial and economic implications for the local level;

3. Reinforce city and village council participation in decisions being taken at the governorate level regarding the planning and budgeting of small-scale development projects;

The following sections highlight what are believed to be the most critical administrative areas where intervention is necessary to implement a growth management strategy for Tanta to the year 2000. While in most areas, the problem issues identified are specific to the Tanta region, the NUPS team believes that the recommendations are sufficiently general to be applicable to the other urban areas in the Delta. Specific areas of recommendation include:

- Strengthen and expand the existing Governorate physical planning capacity so that it can take on prime responsibility for growth management planning of Tanta and its surrounding hinterland;
- Include the Delta Regional Planning Authority and the appropriate Ministry of Planning governorate office as necessary participants in major infrastructure and/or industrial location decisions taken at the central government level;
- Facilitate and strengthen Governorate and City Council capacity to implement and coordinate a physical development strategy for Tanta to the year 2000.

1. Strengthen and Expand Existing Governorate Physical Planning Capacity to undertake Growth Management Planning for Tanta and its Hinterland.

The following steps should be taken in order to provide for the necessary management capacity to implement the recommended physical development strategy.

- a. Gharbia's Governor should immediately issue a mandate to the Governorate Planning Office (Engineering and Utilities Office) to take responsibility for all physical planning activities in Tanta and its surrounding hinterland. All future planning should be coordinated where possible, with the Tanta City Council officials, but final responsibility must rest with the Governorate office. In order to undertake this greatly expanded role, its present staff will have to be broadened and enlarged. While the Social Affairs Office and Tanta University can still be relied upon to play an important role in major survey work to be undertaken, the office itself must develop its own capacity to orient and direct this work. At least one or two urban sociologists/anthropologists with experience in low income areas should be hired for this task. The same is true of economic capacity. The planning office should include at least one economist or financial analyst with solid economic/financial project appraisal experience. What is required is a multi-disciplinarian team with the technical capacity to address the wide-range of issues involved in growth management for a major Delta city.

While the Planning Office is preparing to take on its new responsibilities, specific logistical activities can be undertaken concomitantly.

- b. A new set of aerial photos should be immediately flown for the city and its surrounding hinterland. The photos should preferably be of a scale of 1:5000. From these aerial photos, a complete up-to-date set of topographic maps should be prepared. Mapping should indicate major land uses, housing types and infrastructure networks. In order to structure city-wide planning on a more rational or homogeneous aerial basis, a breakdown of the city into planning district might be considered. The sub-urban district used by CAPMAS in its census work and adopted by the NUPS team in its analysis of Annex A could serve as a model.
- c. Once the planning mandate for the city of Tanta has been issued, the Planning Office should begin to prepare its own physical development strategy for Tanta using as an indicative example the NUPS physical development strategy presented in the previous section. The GOPP should be consulted, and as a model and training vehicle for other Delta cities, should probably directly participate in the preparation of this document. The NUPS proposed strategy should be reviewed and modified as deemed necessary. The preparation of the development strategy should be based on a rapid assessment of the existing situation and should not entail more than 3-4 months work. A full-blown master plan is not envisaged, nor necessary, at this stage. Master planning could be undertaken at a future date if necessary. What is required, in the short-run, is as accurate as possible (given the time constraints) assessment of the physical growth situation, an estimate of future land requirements (residential, industrial, institutional, etc.), and a set of normative directives as to how future growth should occur. The result of this planning exercise, which can be refined or modified by more detailed, future investigation, should be a document including the corresponding mapping which would guide Tanta's physical growth to the year 2000. This document should be given legal status initially through a Governor's decree and later through the proposed Physical Planning Law. The Planning Office, working through the Governor, would take the lead in steering the recommended city boundary change through the central government bureaucracy.

One final major responsibility of the Planning Office, in conjunction with the enforcement capabilities of the Ministry of Agriculture and the City Council Engineering Office, will be to ensure compliance with the approved physical development guidelines. (See the last section on how enforcement can be facilitated).

2. Include the Delta Regional Planning Authority and the appropriate Ministry of Planning Governorate Offices as necessary Participants in Major Infrastructure and Industrial Location Decisions taken at the Central Government Level.

Previous sections have noted the limited portion of total capital budgeting that is actually taking place at the local government level. Among others, local government presently has budgetary responsibility for Food Security project, governorate utilities and public housing schemes. It does not presently seem possible, nor desirable, to decentralize major economic planning and budgeting functions directly to the local level. Decisions, in addition to the planning and design, regarding major infrastructure projects (such as water supply, sewerage, electricity and primary roads) and industrial location should continue to be made in Cairo. However, it is crucial to a coordinated growth management strategy for the Delta that representatives of the Delta Region Planning Authority (preferably an authority which would include all the Delta's governorates) and the appropriate governorates participate in the discussions leading up to this type of decision. Based on local needs and priorities, and working in close coordination with the governorate physical and economic planning units, it would be the responsibility of the Regional Planning Authority to supply information to the central level concerning initial physical feasibility and economic justification, and specific advantages or disadvantages associated with proposed projects, programs or new industry for the Delta. Many project-oriented decisions which are presently being taken in Cairo without formal local consultation have direct and adverse effects on the consumption of arable land and present haphazard development of the Delta's main centers.

3. Facilitate and Strengthen Governorate and City Council Capacity to Implement and Coordinate a Physical Development Strategy for Tanta to the year 2000.

Implementation of many of the proposed components of a physical development strategy for Tanta (i.e., expanded city boundary, development zones, etc.) will require careful coordination between different local government agencies. The proposed development strategy assigns special uses to the city's remaining agricultural land. Such uses include lower- and higher-standard residential, heavy and light industrial, and institutional. A certain portion of remaining agricultural land is to continue in production serving as a reserve for future use. Compliance with the development zone planning concept must be enforced through the coordinated actions of several local government agencies. Main responsibility for enforcing compliance will rest with the Governorate Planning Office working in conjunction with the local representatives of the Ministries of Development and Agriculture. The Tanta City Council Engineering Office and the

Ministry of Industry in Cairo will also play important roles. Siting of all new public buildings and industry should obviously conform to the proposed plan.

Once the general physical development strategy for the city is completed, detailed planning of specific development zones can begin on a priority basis. For example, planned areas for extension of lower-standard residential development will certainly be of prime concern. Detailed planning for a zone designated residential should provide a circulation network which will encourage and facilitate development at higher densities than prevailing on Tanta's periphery. Installation of major infrastructure in advance of site occupancy is not recommended on cost grounds. The proposed Physical Planning Law (Articles 65, 66) allows for such a possibility by exempting compliance with certain of the law's provisions (in this case, the upfront installation of public utilities). If development can be induced to occur according to a preconceived plan, the installation of public utilities can be phased at a later date to coincide with site densification. Costs should be only marginally higher than if the work was done before site occupancy. The process approximates the present functioning of the informal sector, but with the major difference that development occurs legally and results in an efficiently planned community with infrastructure additions where there is existing demand.

Subdivision approval should be given for only those areas which have been designated residential in the development strategy. It is possible that the Planning Office could work out an agreement with the Ministry of Agriculture's Governorate representative, whereby large tracts of agricultural land found within residential development zones, could secure subdivision approval without having to resort to the time-consuming process presently required. This procedure would obviate a major source of present illegal building, at the same releasing enforcement staff to concentrate on other priority areas.

Building permits would continue to be issued by the Tanta City Council Engineering Office. However, under the proposed development strategy the permits would be issued only in residential zones and protected agricultural zones to farmers building their sole dwelling unit. Building permits would not be issued in other development zones. Application for building permits should be encouraged by bringing the fee more into line with actual costs incurred in servicing the permit. Approval procedures which call for all drawings to be certified by a registered architect and all construction over L.E. 5000 to be supervised by a professional engineer should be rescinded. These measures only discourage poor families from obtaining a building permit, and probably add little to the structural integrity of the constructed units.

In effect, what is accomplished by designating special residential development zones and by easing the requirements for obtaining subdivision and building approval is to allow the Governorate authorities the opportunity to focus their enforcement efforts on priority areas. Enforcement on priority areas would have to be jointly coordinated by the Planning Office, the Ministry of Agriculture and the City Council Engineering Office. Present staff should be able to handle this assignment since it will not be spread as thin as in the past. The proposed Physical Planning Law (Articles 68-73) provides for increased penalties in comparison to the existing law. The proposed law has the added advantage that these penalties cannot be suspended and can be collected through administrative measures, rather than court order. The Governor will have to apply the full weight of his office to speed up court proceedings where demolition of an illegal building is being sought.

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ANNEX ANUMERICAL ANALYSIS OF THE EFFECTS OF PROJECTED 2000  
POPULATIONS ON TANTA CITY'S REMAINING AGRICULTURAL LANDIntroduction and Background

The present annex attempts to evaluate the quantity of land required to expand Tanta's built-up area in accordance with year 2000 projected populations. Out of necessity, any expansion of Tanta's built-up area is on arable land. NUPS projects that the year 2000 population will range between 525,000 and 575,000. The analysis described in the following sections is based mainly on the results of population censuses for the years 1960, 1966 and 1976 and Landsat photos taken of the Tanta area in 1972 and 1978. Tanta's sub-kisms, used by the census office and the local police for districting purposes, have been chosen as an areal accounting device.

Table A.1 reviews the population and growth rates of Tanta's sub-kisms between 1960-1976. The 1976 Population Census registered 284,600 residents for the city. Three general groupings of growth rate are noted:

1. The old, central core sub-kisms generally declined in population or grew at very small growth rates between 1960 and 1976 (Sidi Marzouk, Kafr Sharkia, Sabri);
2. The first tier of older sub-kisms surrounding the central core and not containing land for expansion grew at rates of between 1.0 and 1.5 percent for the same period (Borsa, Dawaween, Ali Aga);
3. The remaining peripheral sub-kisms (with available agricultural land) grew at rates of approximately 2.75 to 3.75 percent between 1960 and 1976 (Kobri El Mahata, Wabur El Noor, Salahana, etc.). Kafr Seigar grew at a rate of 6.8 percent between 1966 and 1976 (no census data available for 1960).

The entire city increased in population at an annual rate of 2.75 percent between 1960-1976.

Based on the sub-kism boundaries Table A.2 divides Tanta's sub-kisms into their built-up and agricultural land components for the years 1972 and 1978. Total land area within the city remained constant over the period 1972-1978 at 1457.9 hectares. Of this total, 964.3 and 776.7 hectares were built-up in 1978 and 1972, respectively. Old records show that the area of Tanta's core occupied 180 feddans or 75.6 hectares in 1875. The change in built-up area between 1875 and 1978 represents an 2.50 percent increase per annum. For the period 1972-1978, the built-up area increased at an annual rate of 3.67 per-

TABLE A.1

COMPARISON OF POPULATION AND GROWTH RATES, 1960-1976 \*

KISM	SUB-KISM	TOTAL POPULATION			GROWTH RATE (%)		
		1960	1966	1976	1960-1966	1966-1976	1960-1976
TANTA 1	Borsa	10,943	10,526	13,666	-0.65	2.65	1.40
	Dawween	19,372	19,965	23,884	0.50	1.81*	1.32*
	Kafr Siegar	-	8,118	15,662	-	6.79	-
	Kobri El Mahata	27,259	33,987	45,472	3.74	2.95	3.25
	Sidi Marzouk	8,789	8,952	8,404	0.31	-0.63	-0.28
	Midan Saah	14,502	15,369	11,625	0.97	-2.75**	-1.37**
	Wabur El Noor	20,306	24,520	34,045	3.19	3.34	3.28
SUB TOTAL		101,171	121,437	152,758	3.09	2.32	2.61
TANTA 2	Sabri	4671	4,225	4056	-1.66	-0.41	-0.88
	Kafr Shoukr	8686	9,233	8804	1.02	-0.47	0.08
	El Amarai	16159	20,062	25,325	3.67	2.36	2.85
	Salahana	7766	9932	14,019	4.19	3.51	3.76
	Ali Akha	28,401	31,145	33,220	1.55	0.65	0.98
	El Malaga	17445	20,933	27,383	3.08	2.72	2.86
	Kahafa	-	12,011	17,278	-	3.70	-
	Urban Population Outside of Admin. Boundary	-	-	1793	-	-	-
	SUB TOTAL		83,128	107,541	131,878	4.38	2.06
TOTAL		184,299	228,978	284,636	3.68	2.20	2.75

\* Taking into account a possible boundary shift between Dawween and Midan Saah, the combined population increase for the two sub-kisms over the period 1966-1976 was 0.05 percent.

\*\* The two sub-kisms grew at a combined annual rate 0.30 percent between 1960 and 1976.

SOURCE: NUPS Elaboration of 1960, 1966 and 1976 population censuses.

TABLE A.2  
AREAL DISTRIBUTION OF TANTA'S SUB-KISMS 1972 AND 1978

SUB-KISM	AREA (HA)-1978			AREA (HA)-1972		
	TOTAL	BUILT UP	AGRICULTURAL	TOTAL	BUILT UP	AGRICULTURE
<b>TANTA 1</b>						
Borsa	18.51	18.51	0.00	18.51	18.51	0.00
Dawaween	45.21	45.21	0.00	45.21	45.21	0.00
Kafir Seigar	206.21	107.91	98.30	206.21	59.47	146.74
Kobri El Mahata	245.49	92.37	153.12	245.49	65.92	179.57
Sidi Marzouk	16.38	16.38	0.00	16.38	16.38	0.00
Midan Sada	26.64	26.64	0.00	26.64	26.64	0.00
Wabur El Noor	246.13	199.95	46.18	246.13	138.03	108.10
<b>TANTA 2</b>						
Salahana	111.0	67.66	43.34	111.00	54.43	56.57
El Amarai	206.72	110.68	96.34	206.72	91.33	115.39
Kafir Sadrakia	20.51	20.51	0.00	20.51	20.51	0.00
El Malaga	122.36	101.46	20.90	122.36	101.46	20.90
Sabri	14.64	14.64	0.00	14.64	14.64	0.00
Ali Agha	50.76	49.41	1.35	50.76	49.41	1.35
Kahafa	127.32	92.94	34.38	127.32	74.75	52.57
<b>TOTAL</b>	<b>1457.88</b>	<b>964.27</b>	<b>493.61</b>	<b>1457.88</b>	<b>776.69</b>	<b>681.19</b>

SOURCE: NUPS Elaboration.

cent. Excluding two new major developments (The Tanta University Medical Center and the Army Regional Induction Center) totalling over 23 hectares, Tanta's built-up area grew at an annual rate of 3.25 percent. All present expansion of the city comes at the expense of agricultural land. Total agricultural land remaining within the city's boundaries equalled 493.6 hectares in 1978, or roughly 34 percent of the total area. This figure declined from 681.2 hectares in 1972, a loss of 187.6 hectares.

It is interesting to note in Table A.3 that of the total amount of agricultural land lost to development between 1972 and 1978, 51.2 hectares or over 27 percent went for other than private residential uses (i.e., individual dwelling unit construction). As mentioned previously, the central government in the form of the Medical Center and the Induction Center was the prime user. Other non-private users included a new cemetery, a slaughterhouse and a market, public housing and a tire factory.

Based on estimated populations for 1978 (the last year of the Landsat photos) and the areas presented in a previous table, gross densities were calculated for the sub-kisms' total and built-up areas (See Table A.4). As can be seen from the table, built-up area densities range from 169 to 778 persons per hectare. The highest densities are found in the sub-kisms surrounding the old central core, with the lowest densities (roughly 150-300) generally found on the city's periphery. The city's oldest areas have gross densities ranging from 250-500 persons per hectare. Parts of the central core which have experienced declining populations between 1960 and 1976 and which have deteriorated physical structures have been selected for redevelopment by the Governorate's Engineering Department.

#### Capacity to Accommodate Projected 2000 Population

The present section deals with the capacity of the area (1457.9 hectares) within Tanta's current boundaries to accommodate projected 2000 population through absorption and/or expansion. Table A.5 contains this analysis. Beginning with the 1978 population estimates for Tanta's sub-kisms, each sub-kism's population is projected to the year 2000 on the basis of an assumed high and low annual growth rate. The selected growth rates, which were adjusted by trial-and-error, reflect 1960 through 1976 growth trends and yield 2000 populations which range between 525,000 and 575,000. On the basis of various assumptions dealing with absorptive capacity (See Table A.5 for a detailed description of assumptions), an estimate of total population absorbed by sub-kism to the year 2000 is calculated. The difference between projected 2000 population and the 1978 population plus absorbed population is allocated, where possible (i.e., available agricultural lands) to expansion of the built-up area. Projected absorptive capacity by sub-kism is checked against a maximum absorptive density that might be anticipated. This check substantiates that proposed absorption can, in fact, take place.

Land requirements for expansion is another matter. Gross densities on land projected to be occupied through expansion to the year

TABLE A.3  
USES OF AGRICULTURAL LAND, 1972-1978  
(EXCLUDING PRIVATE RESIDENTIAL)  
TANTA CITY

<u>TYPE</u>	<u>HA.</u>	<u>FEDDANS</u>
New Cemetery	4.58	10.90
Slaughterhouse Market	7.48	17.80
Public Housing - 1	10.51	25.01
Rubber Factory	2.97	7.07
Army Induction	10.97	26.11
Public Housing - 2	1.29	3.07
Public Housing - 3	1.16	2.76
Median Center	12.26	29.18
TOTALS	51.22	121.90

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SOURCE: NUPS Elaboration.

TABLE A.4

## DENSITY OF TANTA'S SUB-KISMS 1978

SUB KISM	POPULATION 1976	POPULATION GROWTH RATE 1960-1976	ESTIMATED POPULATION GROWTH RATE 1976-1980	ESTIMATED POPULATION 1978	GROSS DENSITY (1978)	
					TOTAL AREA AREA(PERS/HA)	BUILT-UP AREA(PERS/HA)
TANTA 1						
Borsa	13,666	1.40	1.4	14.400	778	778
Dawween	23,884	1.32	1.0	24.400	540	540
Kafr Siegar	15,662	6.79*	7.9	18.200	88	169
Kobri El Mahata	45,472	3.25	4.4	49.600	802	537
Sidi Marzouk	8,404	-0.28	-0.5	8.300	507	507
Midan Saah	11,625	-1.37	0.5	11.700	439	439
Wabur El Noor	34,045	3.28	4.2	37.000	150	185
TANTA 2						
Salahana	14,019	3.76	4.0	15.200	137	225
El Amarai	25,325	2.85	4.0	27.400	133	248
Kafr Sharkia	8,804	0.08	-0.5	8.700	424	424
El Malasa	27,383	2.86	3.0	29.100	238	287
Sabri	4,056	-0.88	-0.5	4.000	273	273
Ali Agha	33,220	0.98	1.0	33.900	668	686
Kahafa	17,278	3.70*	4.0	18.600	146	200
Urban Population Outside of Admin. Boundary	1,793	-	-	-	-	-
		2.75	300.500	206	312	

\* Growth Rate for Period 1966-1976

SOURCE: NUPS Elaboration.

TABLE A.5

## CAPACITY OF EXISTING (1972) TAXTA CITY BOUNDARIES TO ATTAIN PROJECTED 2000 POPULATION

SUB KISH	ESTIMATED 1978 POPULATION	ESTIMATES AVERAGE ANNUAL COMPOUND GROWTH RATE TO 2000		ESTIMATED 2000 POPULATION		SOURCE OF POPULATION INCREASE, 1978-2000			POTENTIAL POPULATION INCREASE OF 1978 BUILT-UP AREA THROUGH ABSORPTION	REQUIREMENT OF AGRICULTURAL LAND TO MEET EXPANSION NEEDS (HA) 8/		CAPACITY TO ATTAIN PROJECTED 2000 POPUL. WITHIN EXISTING CITY BOUNDARY 9/			
		LOW	HIGH	LOW	HIGH	ABSORPTION LOW & HIGH	EXPANSION LOW	HIGH		LOW	HIGH	ABSORPTION	LOW	EXPANSION	HIGH
Borsa	14,400	<u>1/</u>	<u>1/</u>	14,400	14,400	-	-	-	-	-	-	-	-	-	-
Dawween	24,400	<u>1/</u>	<u>1/</u>	24,850	24,850	450	-	-	450	-	-	-	-	-	-
Kafr Seigar	18,200	6.4	7.2	71,300	84,000	19,550 <u>3/</u>	33,550	46,250	30,350 <u>6/</u>	167.75	231.25	YES	NO	NO	
Kabri El Mahata	49,600	3.1	3.6	97,100	108,000	1200 <u>4/</u>	46,300	57,200	1200 <u>4/</u>	231.50	286.00	YES	NO	NO	
Sidi Marzouk	8,300	<u>1/</u>	<u>1/</u>	8,300	-	-	-	-	-	-	-	-	-	-	
Midan Saah	11,700	0.5	0.5	13,100	13,100	1400	-	-	2950	-	-	YES	-	-	
Wabur El Noor	37,000	3.1	3.6	72,400	80,600	33,000 <u>3/</u>	2400	10,600	53,000 <u>6/</u>	12.00	53.00	YES	YES	NO	
Salahana	15,200	3.5	4.1	32,400	36,800	8,450 <u>3/</u>	8750	13,150	15,200 <u>6/</u>	43.75	65.75	YES	NO	NO	
El Anarai	27,400	2.8	3.3	50,300	56,000	11,300 <u>3/</u>	11,600	17,300	22,350 <u>6/</u>	58.00	86.50	YES	YES	YES	
Kafr Sharkia	8,700	<u>2/</u>	<u>2/</u>	8,200	8,200	-500 <u>2/</u>	-	-	-	-	-	-	-	-	
El Malaga	29,100	2.7	3.1	52,300	57,000	6,400 <u>3/</u>	16,800	21,500	16,550 <u>6/</u>	84.00	107.50	YES	NO	NO	
Sabri	4,000	<u>2/</u>	<u>2/</u>	5,850	5,850	1,850 <u>2/</u>	-	-	-	-	-	-	-	-	
Ali Agha	33,900	<u>1/</u>	<u>1/</u>	34,650	34,650	-	750	750	-	1.35 <u>1/</u>	1.35 <u>1/</u>	-	YES	YES	
Kahafa	18,600	3.5	3.9	39,700	43,200	13,950 <u>2/</u>	7150	10,650	23,250	35.75	53.25	YES	NO	NO	
	300,500			524,850	574,950	97,500	127,200	177,200	165,300	634.10	884.60	-	-	-	

1/ Sub-districts with gross densities at or exceeding 550 persons/ha and with no appreciable agricultural land for expansion.

2/ Assumes a final density after development of 400 persons/ha.

3/ Assumes year 2000 gross density of 350 persons/ha of 1978 built-up area.

4/ Assumes year 2000 gross density of 550 persons/ha of 1978 built-up area.

5/ Assumes annual growth rate to year 2000 of 0.5%.

6/ Based on maximum attainable gross density of 450 persons/ha in built-up area.

7/ Assumes a maximum gross density of 400 persons/ha for expansion on agricultural land within city boundaries.

8/ Assumes a gross density of 200 persons/ha for expansion on agricultural land 1978-2000.

9/ Compares projected absorption with potential absorption, and the land requirements for expansion with the amount of available agricultural land in 1972. (See Table \_\_\_).

SOURCE: NUPS Elaboration.

2000 are estimated at 200 persons per hectare. This figure is considered reasonable given the 1978 densities of Tanta's most recent, rapidly expanding sub-kisms (Kafr Seigar, Wabur El Noor, and Kahafa) which vary from roughly 170 to 200 persons per hectare. Depending on whether the low or high 2000 population projection is used, land requirements for expansion to 2000 vary from 634 to 835 hectares. These land requirements imply an annual growth rate for the built-up area of 2.32-3.00 percent. This range compares favorably with the city's historical growth trends. However, the available 1978 land area of 439 hectares will not accommodate the projected demand for new areas of expansion. The immediate conclusion is that Tanta would probably not reach 2000 populations without major unplanned encroachment on agricultural land outside the city's boundary.

#### Proposed Tanta City Boundary Change

In order that Tanta can accommodate projected 2000 population in a planned and orderly manner, an extension of existing (1942) boundaries is recommended. With a few exceptions, the proposed changes follow closely the proposed boundary changes of 1958 which have not yet been approved by the Ministry of Agriculture. The major differences involve the inclusion of the villages of Kafr El Hima and Mit Hibeish El Bahariya within the recommended boundary extension. These two villages are developing at a rapid pace and should be brought within the confines and control of the municipal boundaries.

The proposed boundary modifications can be seen in Figure 7 while Table A.6 details the additional area to be included within the new boundaries.

The proposed city boundary would increase the city's total area by 781.5 hectares, 650.8 hectares of which would be agricultural land. Combined with the 493.6 hectares of agricultural land remaining within Tanta's boundary in 1978, the proposed boundary change would provide almost 1150 hectares to accommodate the city's population, as well as non-residential needs to the year 2000 (estimated at between 634 and 884 hectares) and well into the first decade of the 21st century.

TABLE A.6

## AREAS FOR PROPOSED TANTA CITY BOUNDARY CHANGES

SUB KISM	TOTAL	AREA WITH EXISTING (1942) TANTA CITY BOUNDARY (HA)		ADDITIONAL AREA BASED ON PROPOSED BOUNDARY CHANGES (HA)			TOTAL AREAS INCLUDED WITHIN PROPOSED NEW TANTA CITY BOUNDARIES (HA)		
		BUILT-UP	AGRICULTURE	TOTAL	BUILT-UP	AGRICULTURE	TOTAL	BUILT-UP	AGRICULTURE
Borsa	18.51	18.51	0.00	0.00	0.00	18.57	18.51	18.51	0.00
Dawween	45.21	45.21	0.00	0.00	0.00	45.21	45.21	0.00	0.00
Kafr Seigar	205.21	107.91	98.30	100.04	3.64	95.40	306.25	111.55	194.70
Kobri El Mahata	245.49	92.37	153.12	19.95	2.71	17.25	255.45	95.08	170.37
Sidi Marzouk	16.38	16.38	0.00	0.00	0.00	0.00	16.38	16.38	0.00
Midan Saah	26.64	26.64	0.00	0.00	0.00	0.00	26.64	26.64	0.00
Wabar El Noor	245.13	199.95	45.18	30.95	6.58	24.28	277.09	206.53	70.45
Salahana	111.00	67.66	43.34	0.00	0.00	0.00	111.00	67.66	43.34
El Awarai	206.72	110.68	96.04	62.02	5.48	56.54	263.74	116.16	152.58
Kafr Sherkia	20.51	20.51	0.00	0.00	0.00	0.00	20.51	20.51	0.00
El Milega	122.36	101.46	20.90	0.00	0.00	0.00	122.36	101.46	20.90
Sabri	14.64	14.64	0.00	0.00	0.00	0.00	14.64	14.64	0.00
Ali Aga	50.76	49.41	1.35	0.00	0.00	0.00	50.76	49.41	1.35
Kahafa	127.32	92.94	34.33	16.93	13.13	3.80	144.25	105.07	38.18
SUB TOTAL	1457.88	964.27	493.61	229.91	31.64	198.27	168.79	995.91	691.88
PROPOSED NEW SUB KISMS									
Kafr Isam	N.A	N.A	N.A	179.25	33.41	145.84	179.25	33.41	145.84
Kafr El Hima	N.A.	N.A.	N.A.	158.57	9.13	149.54	158.67	9.13	149.54
Mit Hebeish	N.A	N.A	N.A	213.67	56.57	157.10	213.67	56.57	157.10
EL Baharia									
SUB TOTAL	1457.88	964.27	493.61	551.59	99.11	452.48	551.59	99.11	452.48
TOTAL	1457.88	964.27	493.61	781.50	130.75	650.75	2239.38	1095.02	1144.36

SOURCE: NUPS Elaboration

ANNEX B

CENTRAL CORE REDEVELOPMENT PROJECT - TANTA\*

1. Existing Situation

Project Area: : 74.89 feddans (314,575 m<sup>2</sup>)  
Project Population : 13,453 persons, 2792 families (1976)  
Family Size : 4.82 persons/family  
Gross Density : 428 persons/ha. or 180 persons/feddan

CONDITION OF EXISTING BUILDINGS

Quality	Number of Buildings	Percent of Total Buildings (%)	Area of Buildings (m <sup>2</sup> )	Percent of Total Building Area (%)	Percent of Total Area (%)
GOOD	236	14.8	38,476	20.2	12.2
FAIR	217	13.5	26,900	14.2	8.6
POOR	1147	71.7	124,772	65.6	39.7
TOTAL	1600	100.0	190,148	100.0	60.5

SOURCE: Gharbia Governorate Utilities and Engineering Office.

\* Summary of document prepared by Gharbia Governorate Utilities and Engineering Office.

LAND USE

Use Category	Number of Occupied Buildings by Use	Percent of Occupied Buildings by Use (%)	Area of Buildings (m <sup>2</sup> )	Percent of Total Project Area (%)
Residential *	931	73.8	94,270	29.9
Commercial	242	19.2	63,357	20.1
Workshop	29	2.3	6,307	2.0
Industrial	26	2.1	10,097	3.2
Government	5	0.4	11,900	3.8
Education	3	0.2	1,292	0.4
Religious	11	0.9	3,532	1.1
Garage	14	1.1	400	0.1
Vacant (Gov't)	--	--	13,000	4.1
Vacant (Pri.)	--	--	14,337	4.6
Circulation	--	--	96,690	30.7
<b>TOTAL</b>	<b>1261</b>	<b>100.0</b>	<b>314,575</b>	<b>100.0</b>

\* includes 30 workshop-residences, 11 industrial-residences and 288 commercial residences.

SOURCE: Gharbia Governorate Utilities and Engineering Office.

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NUMBER OF STOREYS OF BUILDINGS

Number of Storeys	Number of Buildings	Percent of Total Buildings
1	608	37.9
2	565	35.3
3	301	18.8
4	101	6.3
5	25	1.6
6	2	0.1
<b>TOTAL</b>	<b>1602</b>	<b>100.0</b>

SOURCE: Gharbia Governorate Utilities and Engineering Office

Public Services

1. Education - 2 government primary schools with total of 14 classrooms;  
1 private primary school with 4 classrooms.
2. Health - 1 public health office (offers no medical services).

2. Proposed Redevelopment

Project Area : Existing street pattern to be maintained  
Population : 28,000 persons  
Additional Population Required : 13,000 (based on 1980 population estimates)  
Family Size : 5.2 persons/family

Gross Density : 950 persons/ha. or 400 persons/feddan  
Additional Units Required : 13,000/5.2 = 2500 units

### Staged Development

- 1st Stage : 800 units constructed on government land and to be occupied by existing project area families  
2nd Stage : 800 units to be occupied by existing project area families.  
3rd Stage : Same as 2nd Stage.  
4th Stage : Units constructed as needed to absorb families from other areas.

### Services

- Education : 2 primary schools with total of 12 classrooms  
1 preparatory school with 12 classrooms.  
Health : 1 patient outclinic  
1 mother-child care clinic  
Commercial : In addition to reserving ground floors for workshops and commercial activities, 2 supermarkets.

### Utilities

- Sewerage : upgrade collector network to minimum 8 inch pipe diameter  
Water : upgrade distribution network to withstand pressure of 25 meter head.  
Electricity: replace overhead transmission lines with underground cables.

### Rough Estimates of Costs and Physical Parameters for Project's First Block of Flats to be Constructed on 800 Square Meter Irregularly Shaped Parcel of Government-Owned Land.

- Location :  
Site Area : 800 m<sup>2</sup>  
Apartment Size : 70-80 m<sup>2</sup>  
Total Number of Units: 59 units distributed between ground and 6 floors;  
9 units per floor with 4 units and shops on ground.

Land Cost : L.E. 150,000 (est.) or L.E. 188/m<sup>2</sup>  
On-Site Infrastructure : N.A.  
Construction Cost : L.E. 75/m<sup>2</sup> of floor area (est.)

ANNEX C

MIT HIBEISH COOPERATIVE HOUSING PROJECT

The following annex reviews the physical parameters of a proposed cooperative housing project which will be constructed in the village of Mit Hebeish-El Bahariya and briefly analyzes its affordability by a family at the median income for Tanta.

- Location : On the Tanta-Zifta highway approximately 1.5 kilometers to the east of the intersection of this road with the Cairo-Alexandria highway.
- Site Area : 27 feddan site (25 feddans according to information supplied by El Ghalig Pre-Fabricated Housing Company divided into 19.8 feddan or 83,200 square meter housing project area and 7.2 feddan (30150 square meter) area for a pre-fabricated housing component factory.
- Apartment Size : Units of 50 and 70 square meters.
- Total Number of Units : 2640 units; 1560 of 50 square meters type and 1080 of 70 square meter type. 110 housing blocks (ground plus 5 floors).

Community Service and Open Space:

Community Services (school, supermarket, and market, government offices, mosque and shops) 5617 m<sup>2</sup> (6.75% of total housing project area)

Open Space 4663 m<sup>2</sup> (5.60% of total housing project area)

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TOTAL 10280 m<sup>2</sup> (12.35% of total housing project area)

Internal Circulation : 14292 m<sup>2</sup> (18.38% of total housing project area).

Residential : 57628 m<sup>2</sup> (69.26% of total housing project area).

Gross Residential Density : Assuming 49 persons per unit @ 2640 units equals 12,396 potential residents divided by total housing project area at 8.32 hectares equals a gross residential density of 1555 persons/hectare.

Land Cost : L.E. 32,000/feddan or L.E. 7.62/m<sup>2</sup> which is to be recovered in the following manner:

50 m<sup>2</sup> flat @ L.E. 150

70 m<sup>2</sup> flat @ L.E. 200

On-Site Infrastructure: Recovered at a rate of L.E. 100 per flat. This total equals L.E. 3.17/m<sup>2</sup> of total housing project area.

Construction Cost : L.E. 61.3/m<sup>2</sup> of floor area (using subsidized prices for cement and steel) or L.E. 73.5/m<sup>2</sup> at unsubsidized prices.

Total Unit Costs

Flat Size (m <sup>2</sup> )	Costs(LE)			Total (LE)
	Superstructure	Infrastructure	Land	
50	3065	100	150	3315
70	4291	100	200	4591

Financing Terms (Cooperative Housing):

Interest = 4 percent/year

Repayment Period = 30 years

Downpayment 50 percent

Median Household Income/Month for Tanta (1980): L.E. 85/month

Monthly Cost to User (Cooperative Housing Financing Terms):

Flat Size (m <sup>2</sup> )	Repayment Amount (LE)	Monthly Payment (LE)	Percent of Median Household Income(%)
50	1657.5	7.91	9.3
70	2295.5	10.96	12.9

Full Cost Recovery Financing Terms:

Interest = 12 percent

Repayment Period = 30 years

Downpayment = 10-12 percent

Monthly Cost to User (Full Cost Recovery Financing Terms):

Flat Size (m <sup>2</sup> )	Repayment Amount (LE)	Monthly Payment (LE)	Percent of Median Household Income (%)
50	2983.5(10% downpayment)	30.69	36.1
	2817.8(15% downpayment)	28.98	34.1
	2652.0(20% downpayment)	27.28	32.1
70	4131.9(10% downpayment)	42.50	50.0
	3902.4(15% downpayment)	40.14	47.2
	3672.8(20% downpayment)	37.78	44.4

SUMMARY:

With respect to the subsidized financing terms applied to the purchase of cooperative housing at the Mit Hibeish project, the 50 and 70 square meter units are affordable at the median household income assuming a 20 percent rule-of-thumb of household income available to be spent on housing. The percentages in this case equal 9.3 and 12.9 percent respectively. On the other hand, at a more realistic market financing terms (30 years, 12 percent interest, 10-20 percent downpayment) and using the 20 percent rule, neither of the units is affordable at the median income for any of the financing options. Percent of household income required for the 50 square meter flat varies from 32.1 to 36.1 percent, while for the 70 square meter flat, it varies from 44.4 to 50.0 percent.

## FOOTNOTES

- 1/ Quoted in Cuningham, Today in Egypt, London, 1912, p.286.
- 2/ For comparative purposes, Tanta's population grew at an annual rate of 2.75 percent for the period 1960-1976.
- 3/ Congestion is presently a major problem at Kafr El Zayat where the Cairo-Alex highway crosses the Nile. A new bridge is presently under construction and will not be completed until 1983. The Nile crossing from Zifta to Mit Ghamr is also severely constrained due to the bridge's narrowness (one-way traffic permitted at any one time).
- 4/ NEDECO presents rough national high and low investment requirements which amount to L.E. 2.06 and L.E. 1.36 billion, respectively. They argue that the 2000 high figure must be considered as not possible to finance, but argue that the low scenario, while difficult, is potentially reachable. They base this assumption on an 1987 L.E. 48 million investment level and an annual growth rate in investment of five percent between 1987 and 2000. The accumulated 1981-2000 investment estimate equals L.E. 1.15 billion which is approximately 85 percent of the L.E. 1.36 billion estimate. They temper their estimates by noting many uncertain long-term projections, rough cost estimates, and implementation time for certain inter-dependent projects.
- 5/ Of the 3060 kilometers of Class I and II track, 1250 kilometers requires complete track renewal (rails, ballast, and sleepers) and the remainder requires rehabilitation of the ballastrock. In addition, of all rolling stock, about 20 to 30 percent is beyond repair, but still occupying track and yards, thus hampering operations.
- 6/ Gross densities are calculated on the basis of 4.9 persons per unit for 2640 units equals an estimated future population of 12,936.
- 7/ Major policy decisions regarding agriculture, industry and the provision of infrastructure should ideally be considered for the eight-governorate Delta region as a whole, including Sharkia, Beheira and Qalybia.

FOOTNOTES (CONT.)

- 8/ The Regional Authority for Upper Egypt which is located in Aswan (and covers Qena Governorate) has had difficulties in staffing up and presently is represented by only the Authority's head. It has had to rely on the governorate planning offices, which have very limited capacity themselves, for its technical support.
- 9/ The situation has deteriorated to such an extent that a 25-feddan development including a pre-fabricated housing factory and 25000 unit cooperative housing project is proceeding to implementation on what was agricultural land without Ministry of Agriculture approval.