

دراسة السياسة القومية للتنمية الحضرية
NATIONAL URBAN POLICY STUDY

ILLUSTRATIVE DEVELOPMENT PROJECT :
QENA - NAGA HAMADI

THE NATIONAL URBAN POLICY STUDY

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FOREWARD

The Illustrative Development Project for Qena/Naga Hamadi was designed to accomplish several major purposes:

- To provide an illustrative example of the kind of initial development strategy appropriate to major settlements and regions in Upper Egypt -- particularly special emphasis cities.
- To provide guidance for important near-term decisions, specific recommendations for future development, and a base for further elaboration.
- To define key roles for Qena and Naga Hamadi and other regional settlements.
- To present an overall development strategy and specific recommendations which are consistent with National Urban Policy Proposals.

This study is considered by the National Urban Policy Study to be extremely important in illustrating the special development issues and recommendations associated with regional development and selective urban decentralization in Upper Egypt. Though the study emphasized the principal future roles for Qena and Naga Hamadi, their future development is strongly linked to the regional development of Upper Egypt. The development strategy is also concerned with growth management issues to preserve arable land in addition to economic and physical opportunities for growth encouragement in desert areas.

The central issue for the future regional development of Upper Egypt (in a period of rapid urbanization and increased industrialization) is the expansion of the industrial base of Upper Egypt cities. Their industrialization is severely constrained by their location, distance from major markets, and many sources of industrial inputs. The expansion of their industrial base will be a major challenge. In the context of the overall NUPS effort, it was not possible to develop for each city a detailed industrial investment plan. The basic industrial strategy which we recommend, however, is an emphasis on the production of goods for the growing regional market as population expands to reduce regional imports and an attempt to tie in new production units to existing (although limited) industry and additional uses of locally available resources.

A principal conclusion of the study is that with sustained support for regional and urban development, a high chance exists for greater than trend population growth and decentralization. Furthermore, the study has concluded that opportunities for desert expansion exist for absorption of nearly all projected population growth forecast for the five settlements.

HARVEY A. GARN
TEAM LEADER

ILLUSTRATIVE DEVELOPMENT PROJECT - QENA AND NAGA HAMADI

I. Historical and Population Background

Human settlements have existed, since Pharaonic times, in what today comprises the Qena Governorate. Thebes, the ancient capital of Upper Egypt, was located approximately 50 kilometers to the south of the City of Qena. The quarries of Hammamat which supplied stone for many of the periods' finest temples are to be found between Qena and the Red Sea. Coptos, the capital and commercial center of Upper Egypt after the fall of Thebes, was located north of the present day city of Quft.

During the Roman occupation, the quarries located in Wadi Qena were worked for their porphyry stone. This stone was transported to Rome and Constantinople for use in palace and state buildings, statues and columns.

Since earliest times, the Qena region has had extensive ties with the Red Sea through the Port of El Quseir. Because of those direct links with the Red Sea, the capital of Upper Egypt passed to Qos (south of Quft) by the beginning of the 11th Century. During this period, El Quseir enjoyed great importance as the pilgrim's gateway to Mecca. Pilgrims would come up the Nile River by boat, cross the hundred miles from Qos or Qena by camel, and from El Quseir go by boat to Jeddah.

During the Ottoman Rule, Qena replaced Qos as the most important city in the region (See Table 1). By the beginning of the 19th Century, Qena had a population of 5,000. Qena became a provincial capital in 1868, but by that time had already entered a period of relatively slow growth. This was due mainly to the opening of the Suez Canal which had the effect of shifting the movement of goods and the pilgrim passage to the north.

By the first census of 1882, Qena had a population of 15,400 while Naga Hamadi's registered 2,000. Since 1881, Qena's population growth has roughly approximated the national average. Between 1882 and 1947, the population of Qena grew at an annual rate of 1.59 percent. The national growth rate over the same period was 1.61 percent per annum. Between 1947 and 1976 Qena's annual population growth accelerated to 2.74 percent. Nationally, the population grew by 2.45 percent. This increased growth can be partially attributed to Qena's expanding role as a provincial and then governorate capital. At a projected annual growth rate of 3.10 percent, NUPS estimated a 1980 population of 106,100.

TABLE 1

POPULATION OF QENA GOVERNORATE & CITIES OF QENA, NAGA HAMADI AND HIW 1882-1980

YEAR	POPULATION (000's)				ANNUAL GROWTH RATE (%)			
	QENA GOVERNORATE	QENA	NAGA HAMADI	HIW	QENA GOVERNORATE	QENA	NAGA HAMADI	HIW
1882	N.A	15.4	2.0	4.9				
1897	N.A	27.0	2.8	6.3	N.A	3.81	2.27	1.69
1907	770	20.1	3.9	8.2	N.A	-2.91	3.37	2.67
1917	840	23.0	4.3	9.2	0.87	1.36	0.98	1.16
1927	900	27.7	6.0	8.5	0.69	1.88	3.39	-0.79
1937	1016	34.4	6.0	8.5	1.22	2.19	0.00	0.00
1947	1106	42.9	8.5	8.5	0.85	2.23	3.54	0.00
1960	1350	57.4	14.3	15.5	1.55	2.95	5.34	4.73
1966	1470	68.5	12.6	14.8	1.43	2.99	-2.09	-0.77
1976	1705	93.9	46.9	22.1	1.49	3.20	14.05	4.09
					N.A	3.10	7.70	N.A

SOURCE : Population Censuses for year noted.

On the other hand, Naga Hamadi experienced several swings in population growth since 1882. Between 1882 and 1907, Naga Hamadi's population grew at a rate of 2.71 per annum. Between 1907 and 1917 growth dropped to 0.98 percent per year only to rebound to 3.39 percent per year between 1917 and 1927. The period between 1927 and 1937 saw no increase in Naga Hamadi's population. These shifts in population growth were most likely caused by world-wide economic depressions which affected the demand for sugar, historically the region's principle crop. Since 1937, Naga Hamadi's population has grown at a yearly rate of 5.41 percent. The growth of the later years of this interval can obviously be traced to the employment related to construction and anticipated employment to be generated by the opening of the aluminum smelting plant. Based on a growth rate of 7.70 percent per annum reflecting this recent growth, NUPS has projected a 1980 population for Naga Hamadi of 63,000.

II. Naga Hamadi's Role in NUPS Strategy,
Projected Investment Allocations and Population Targets

The Qena-Naga Hamadi region 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 Upper Egypt cities rather than other development areas. The broad issues addressed by the Qena-Naga Hamadi exercise include:

1. the selection of economic activities required to induce growth in an area distant from the market resources of the major metropolitan areas;
2. the identification of complementary development activities required in contiguous but geographically different areas;
3. the identification of needed inter-regional infrastructure required to link Upper Egypt with other areas of the country;
4. the improvements required in a technically weak administrative structure to be able to effectively implement a growth inducement strategy.

In order for Qena-Naga Hamadi to achieve these goals within the NUPS strategy, investment allocation and population targets have been estimated for both cities for the period to the year 2000. From an estimated base population of 106.1 thousand for Qena in 1980, NUPS projects a year 2000 population that ranges between 175 and 225 thousand.

Beginning with the same base year's population of 63 thousand, Naga Hamadi's population is projected to range between 150 and 175 thousand by the year 2000. Effective annual growth for the projected population increases vary from 2.53 to 3.83 percent and from 4.43 and 5.24 percent for Qena and Naga Hamadi, respectively, 1/ The proposed NUPS 1986-2000 investment allocation package required to support the projected population increases in the two urban areas is broken down into two categories (See Table 2): (1) L.E. 382.0 and L.E. 328.0 million, respectively for Qena and Naga Hamadi, for employment generation; (2) either L.E. 274.7 or L.E. 191.4 million for Qena and L.E. 199.7 or L.E. 139.8 million for Naga Hamadi (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.

III. An Overview of the Economy of the Qena-Naga Hamadi Region

The present section examines the Qena-Naga Hamadi region's spatial advantages, its current industrial mix and the possibilities for further diversification. Based on this review, an industrial development strategy will be formulated which recommends a viable industrial mix that will have the greatest impact on inducing economic development in the region, on increasing the region's population absorption capacity and thus on stemming further out-migration. In addition, the final section provides required incentives to facilitate the recommended industrial growth policies thereby setting in motion long-term industrial development.

A. Industrial Locational Advantages

Qena-Naga Hamadi Corridor is located on the main transport route between Cairo and Aswan. This transport link permits easy access to South Upper Egypt, to the major urban centers of Sohag and Assiut in the North, and to Aswan in the South. It is also connected by road to the Red Sea port facilities at Safaga and Quseir. Also, construction is underway on a railroad line between Safaga and Qena. Furthermore, the two urban centers of Qena and Naga Hamadi have access to water transportation by the Nile River. Another basic advantage for the Qena-Naga Hamadi region is the availability of non-agricultural land for industrial as well as urban expansion. Industrial expansion is already taking place along the Qena-Safaga desert road and future possibilities exist for similar expansion along the Naga Hamadi-Armant desert road.

TABLE 2

PREFERRED NUPS STRATEGY INVESTMENT ALLOCATION AND POPULATION TARGETS
QENA AND NAGA HAMADI, 1986-2000

ITEM YEAR OR PERIOD	PROJECTED POPULATION (THOUSANDS)				PROPOSED INDUSTRIAL ALLOCATION FOR PERIOD (L.E. MILLION)		PROPOSED INFRASTRUCTURE ALLOCATION FOR PERIOD 1/ (L.E. MILLION)			
	POPULATION CHANGE		POPULATION CHANGE		QENA	HAMADI NAGA	QENA		NAGA HAMADI	
	ACTUAL	ACTUAL	ACTUAL	ACTUAL			STANDARDS SIMILAR TO EXISTING PROPOSALS	REDUCED SUBSIDY OPTIONS	STANDARDS SIMILAR TO EXISTING PROPOSALS	REDUCED SUBSIDY OPTIONS
1980	-	106	-	63	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1981-1985	22	-	32	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1986-1990	28	-	22	-	81.0	67.0	91.5	67.7	60.8	44.6
1991-1995	31	-	27	-	112.0	103.0	86.8	59.5	65.8	45.3
1996-2000	38	-	31	-	189.0	158.0	96.4	64.2	73.1	49.9
TOTAL	119	175.225	112	150.175	382.0	328.0	274.7	191.4	199.7	139.8

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

SOURCE: NUPS elaboration

D Existing Industrial Mix

1. Large Scale Public Industries

The region's large scale industrial mix is currently limited to agricultural processing and the recently established Aluminum Plant adjacent to Naga Hamadi. Total employment in public industrial enterprises in Qena and Naga Hamadi amounts to 15 thousand, representing 70 percent of total public sector industrial employment at the Governorate level. Table 3 distributes Qena Governorate industrial employment by urban settlement and type of industry for 1980.

The sugar factory at Naga Hamadi is the oldest sugar plant in Egypt, its annual output amounts to 133.3 thousand tons of sugar and 54 thousand tons of molasses. During the production season, which extends from January through May, the plant utilizes all its total employment. During the off-season it only utilizes 50 percent of total employment. Plans are currently underway to substantially renovate its machinery and equipment. The dominance of sugar cane in the Qena Governorate crop patterns has necessitated the establishment of three other similar plants in Armant, Dishna and Quos. The three plants combined are employing around 6,442 workers in the production of 228.8 thousand tons of sugar annually. None of the sugar plants in Qena Governorate have refining facilities. Raw sugar is transported mostly via the Nile for refining at Hawamdia in Giza Governorate. The molasses is also transported outside the region. The largest part is exported to West European countries. In conclusion, the sugar plants are operating at less than their full capacity. This is mainly due to shortages in the supply of raw sugarcane which results from inadequate irrigation systems and deficiencies in the transport network which connects the farms with the sugar plants.

The Aluminum complex adjacent to Naga Hamadi is the first attempt to diversify and expand the industrial base of this region away from agro-based industries. The plant's current output level amounts to 100 thousand tons of aluminum, all of which is in the form of ingots, T-bars, cylinders, slabs and wire cables. The plant's employees are paid relatively higher wages than those in other public sector industries in the governorate. The plant is the largest industrial user of electric power in Egypt. It is currently using 1,831.8 million kwh or 23 percent of the total electric power generated by the Aswan Dam. Electric power to the plant is presently highly subsidized. Plans are underway to expand the complex's output to 166,000 tons of

TABLE 3

INDUSTRIAL EMPLOYMENT IN QENA GOVERNORATE, PUBLIC SECTOR, 1980

<u>URBAN CENTER/INDUSTRY</u>	<u>EMPLOYMENT</u>	<u>%</u>
<u>NAGA HAMADI:</u>		
Aluminum Plant	8000	37.4
Flour Mill	100	0.5
Sugar Factory	3000	14.0
<u>QENA:</u>		
Spinning Mill	3500	16.4
Macaroni Plant	350 *	1.6
<u>OTHER URBAN CENTERS:</u>		
Dishna Sugar Factory	1811	8.5
Qos Sugar Factory	2124	10.0
Arment Sugar Factory	2507	11.7
TOTAL	21392	100.0

SOURCE: Industry Sector Report, First Draft, March 1981, Regional Plan for South Upper Egypt, UNDP.

Figures are estimates based on an average size in other South Upper Egypt Governorates

aluminum by 1982. This expansion will increase its hydroelectric usage to 3,320 million kwh and create an additional 2,000 jobs.

The regional economic impacts of the plant are still limited to the direct employment it has created and the local spending of employees. This is mainly due to the absence of any metallic industry that could use the plant's intermediate output. Currently all raw materials are imported from Australia via Safage and transported by road to the plant site. Also, all the intermediate output is transported outside the region where 25 percent is used by aluminum-derivative industries in Cairo, Alexandria and Port Said and 75 percent is exported abroad, mostly to France. The plant is located on an area of 3,000 feddans of desert land. Half of this area is used for industrial, housing, recreational, training and supporting facilities. The other half is currently used for vegetable cropping and animal breeding, mostly for internal use by the plant's employees. The plant, as it stands now, is a contained and isolated industrial town with no evidence of inducement or complimentary activities in its surrounding area.

In Qena City, the main source of formal industrial employment is limited to the spinning mill which dates from 1960. This mill requires substantial upgrading of its machinery. Its current employment and output levels amount to 3,500 workers and 15 tons/day of cotton yarn respectively. The absence of cotton cultivation in the governorate's crop patterns or a weaving mill to utilize the spun cotton has minimised the impacts, (i.e. direct employment and local spending) of this industry.

2. Small Scale Industries

The small-scale industries in the Qena-Naga Hamadi region are mostly local resource-oriented and are dispersed in rural as well as urban areas. Small-scale industry is prevalent in the manufacture of bricks, tiles, hand weaving, furniture, mechanical workshops, and molasses syrup. The latter is the region's most dominant small-scale industry. It is mostly located in rural areas adjacent to the sugar cane plants. There exist 345 of these operations supporting a total employment of 1,035 workers (using an average of 3 workers per operation). In Naga Hamadi district alone, 205 of these operations exist. The rest are scattered in other districts. Table 4 gives an indication of the magnitude of small-scale industrial employment in Qena Governorate as a whole, while Table 5 lists those industries which are located in the Naga Hamadi area.

TABLE 4

SMALL SCALE INDUSTRIAL COOPERATIVES, QENA GOVERNORATE

<u>INDUSTRY</u>	<u>COOPERATIVE MEMBERS</u>	<u>ESTIMATED EMPLOYMENT</u>
Furniture	102	612
Photography	46	92
Metallics	23	184
Pottery	93	651
Leather & Shoes	23	115
Hand Weaving	115	648
Molasses Syrup	-	1035
<hr/>		
TOTAL	402	3337
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SOURCE: Labor Directorate, Qena.

TABLE 5

SMALL SCALE INDUSTRIES IN NAGA HAMADI DISTRICT

<u>INDUSTRY</u>	<u>NO. OF ESTABLISHMENTS</u>	<u>TOTAL EMPLOYMENT</u>
Tiles	6	46
Molasses Syrup	205	630
Metallics	63	133
Shoes	64	144
Carpentry	105	285
Flour Milling	5	25
Bakeries	11	161
Tailoring	220	330
<hr/>		
TOTAL	729	1751
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SOURCE: Labor Directorate District Office, Naga Hamadi

The molasses establishments, which follow the same pattern as the sugarcane factories, operate on a seasonal basis from late December until May. They encounter many difficulties including:

- a. The continuous increase in the price of sugarcane, and the cost of transportation as compared to a controlled price for the molasses;
- b. Fierce competition between the sugar factories in acquiring sufficient cane;
- c. Lack of effective marketing channels, especially to foreign countries;
- d. Obsolete machinery and primitive production processes which result in substantial wastage.
- e. High turnover rate in employment due to the seasonal nature of production. The seasonality in production of sugar and molasses is reflected in relatively high unemployment rates during the summer months. This is indicated by seasonal variations in the number of job applicants as shown in Table 6.

In addition to the already noted industries, there exists in Qena Governorate small scale operations of poultry raising and animal breeding. These activities are part of the local government food security program, but are still limited in size. Also there are three animal feedstuff factories at Qena, Dandara and Luxor: producing 19.5 tons/day, or 57.3 percent of the current needs at the governorate level.

3. Short Term Industrial Growth Prospects

Present industrial planning objectives at the national level focus on investment allocations for industries which can build on the existing industrial base and operate efficiently in the region. Based on data available from the Ministry of Industry's 1980-84 Plan and the Planning Division at the Governorate level, the following industrial investment projects have been identified.

- a. Cement Plant: A cement plant is scheduled for completion by the year 1983 on the Naga Hamadi desert plateau. The plant is expected to use local limestone deposits in the production of one-half million tons of cement annually.
- b. Prefabricated Housing: Plans to construct prefabricated housing units from pre-cast concrete and alumi-

TABLE 6

VARIATIONS IN THE NUMBER OF JOB APPLICANTS

(BETWEEN SEPTEMBER 1980 AND AUGUST 1981)

<u>DATE</u>	<u>NAGA HAMADI</u>	<u>QENA</u>
September	464	291
October	285	183
November	538	320
December	855	479
January	336	220
February	181	188
March	173	156
April	151	142
May	205	182
June	182	130
August	292	224

SOURCE: Labor Directorate, Qena Governorate

num is proposed for Naga Hamadi. The total cost of this plant is estimated at US \$ 60 million. Its initial employment is expected to reach 600 workers who will produce 4,000 units to be used in housing the expected increase in employment at the aluminum and cement plants.

- c. Expansion of the Aluminum Plant: The Ministry of Industry has proposed an investment of L.E. 43.7 million for expansion of the aluminum plant which will increase capacity by 66 percent.
- d. Renovation of the Naga Hamadi Sugar Factory: The Ministry of Industry's 1980-84 Plan proposes an investment of L.E. 42 million for modernizing and renovating the sugar plant at Naga Hamadi. This investment, however, will have limited impact on the plant's overall direct employment. It is expected to minimize wastage and increase labor productivity and income.
- e. Shale Brick Factory at Qena: Construction is underway on a shale brick factory at El Mahrousa, 20 kilometers southwest of Qena. The plant's total cost is expected to reach L.E. 7.53 million. Total employment is estimated at 1,136 workers.

In conclusion, there is a lack of significant investment allocations for Qena City in the 1980-84 Investment Plan. This would tend to indicate that the present potential for Qena City's industrial growth must be viewed in the broader context of development of the Qena-Naga Hamadi region. This expansion could be based on inputs produced by the aluminum and cement industries in Naga Hamadi and mining industries in the Red Sea Governorate.

IV. Physical Development

A. Introduction

As pointed out previously, the Qena/Naga Hamadi region was selected as a potential area for growth emphasis in Upper Egypt as part of the National Urban Policy. The following section, therefore, discusses the physical and spatial aspects of the region, its potential for accommodating future population, and the primary issues which must be resolved. Based on the findings of the Study Team, the two principal areas which are suitable for increased urban development include Qena City, and the aluminum factory desert plateau outside of Naga Hamadi/Hiw. Hence, more

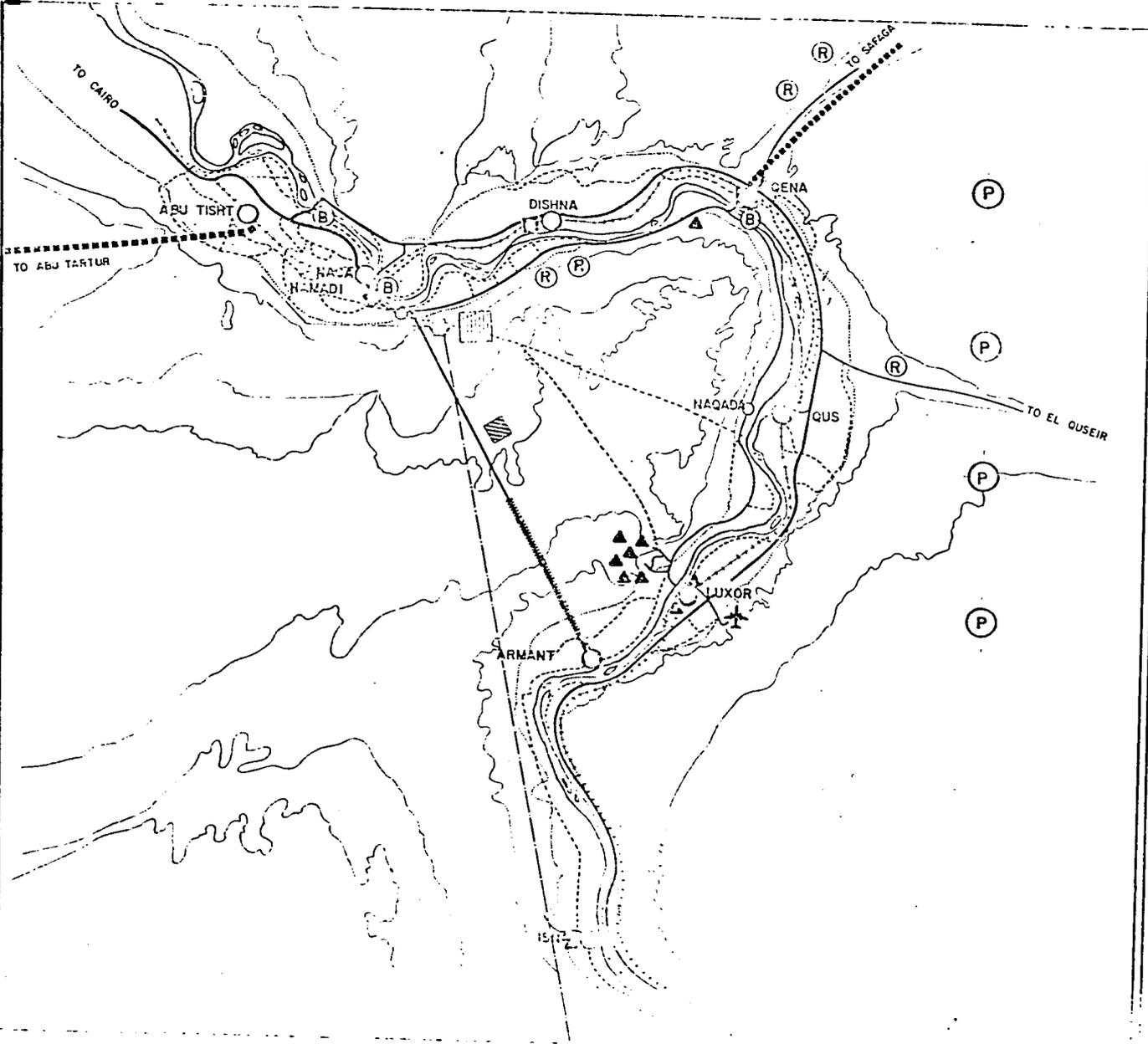
specific detail has been given to these two settlements. Naga Hamadi proper is not recommended for special emphasis as future physical expansion will impinge on arable land. However, discussion of its physical development characteristics was found useful since most of the smaller urban centers in the region and in other parts of the Nile Valley share its development characteristics.

B. Regional Context

Future development prospects in the study area are conditioned by the regional setting (See Figure 1). The Qena/Naga Hamadi region, in this respect is strategically located vis-a-vis northern and southern Upper Egypt and the Red Sea. Its location is a strong asset for its future development. Other key elements which are likely to influence its prospects for future urban growth include:

- The location of a major electrical sub-station at Naga Hamadi has led to major industrial investment in the aluminum factory and to plans for other significant industrial investment;
- Access to the port of Safaga in the Red Sea Governorate which serves as the primary port of entry and export for southern Upper Egypt;
- Planned rail access from the port of Safaga to the Western Desert via the study area for the exploitation and export of phosphates at Abou Tartour;
- The location of two of the five public-sector sugar refineries in the study area and four in the Qena Governorate;
- The existence of a strong transportation base with plans for further improvements;
- Opportunities for mineral exploitation near Qena and Naga Hamadi in addition to other industrial development;
- A strong economic base for tourism in Luxor with some opportunities in Qena, particularly in light of other sites in the Sohag Governorate;
- Siting of a three-faculty university in Qena as well as other regionally important public facilities;
- Substantial opportunity for urban expansion on non-arable areas outside of Qena and Naga Hamadi.

A description of existing, planned and recommended industry which will influence economic development in the study



EXISTING SITUATION AND PROPOSED PROJECTS

SETTLEMENT SIZE

- BELOW 6,000
- 6,000 - 20,000
- 20,000 - 30,000
- 30,000 - 40,000
- 40,000 - 45,000
- OVER 90,000
- GOVERNORATE CAPITAL
- MARKAZ CENTER
- MAJOR TOWN

LEGEND

- ▭ NILE VALLEY
- Ⓡ AGRICULTURAL RECLAMATION
- Ⓟ POSSIBLE PHOSPHATES EXPLORATION
- ▨ ALUMINUM SMELTING PLANT
- ▩ PROPOSED SITE FOR CEMENT FACTORY
- ⚙ SUGARCANE REFINERY
- ▲ ARCHEOLOGICAL SITES
- ✈ AIRPORT
- ⋯ PROPOSED RAILWAY LINE
- ⋯ RAILWAY LINE UNDER CONSTRUCTION
- ⋯ EXISTING SINGLE TRACK RAILWAY LINE
- MAIN HIGHWAYS
- SECONDARY ROADS
- UNPAVED ROADS
- PROPOSED ROADS
- Ⓡ NILE BRIDGE CROSSINGS
- 500 KV OVERHEAD ELECTRICAL LINES
- S S 500 KV

0 2 4 6 8 10 20 KM



area is discussed in other sections. Infrastructure elements are briefly discussed in the following section, with technical details contained in Appendix I of this report.

1. Settlement Hierarchy

The settlement hierarchy in the Qena Governorate development region is not unlike that in other parts of the Nile Valley north of Luxor. As Figure 2 indicates, governorate capitals are substantially larger than intervening settlements. In fact, there is every indication that the growth of governorate capitals is largely due to the levels of public service which they provide. However, the capitals' importance also appears to be a function of their location and distribution. They are all relatively equidistant and reachable by an easy day's travel time from any part of the governorate. They are also relatively strategically placed regionally (i.e. Beni Suef-Fayoum, Assiut-Western Desert, Qena-Red Sea) vis-a-vis other parts of Upper Egypt.

The governorate capitals also offer a greater level of agricultural service and marketing functions. However, intervening centers seem to satisfy most day-to-day requirements. The larger intermediate settlements are usually *markas* capitals which also provide secondary health services, as well as some agricultural service and marketing functions. In Figure 3, the larger settlements in the Qena Governorate are presented graphically as a function of distance, population size, and regional function. Generally Qena and Luxor stand out in population size. They also have major public and agricultural marketing and service functions. There is also a fairly even distribution of these services among intermediate settlements. Luxor, a major settlement, deviates from the suggested Nile Valley urban hierarchy pattern due to its importance as a touristic and archeological site. Recent growth in Naga-Hamadi-Hiw is not reflected, since population data is derived from the 1976 census. In the future, these settlements can be expected to increase in size.

Villages are scattered throughout the governorate and study area in close proximity to cultivatable land. Few free-standing dwellings exist in rural areas.

The Study Team feels that the implied hierarchy of urban development in Qena, Naga Hamadi (desert plateau) and Luxor will play a significant role in reducing out-migration from the region. Presently, there is not enough distinction in the services offered by the area's settlements to provide a real alternative for potential out-migrants to the major metropolitan areas.

QENA GOVERNORATE: SETTLEMENT HIERARCHY

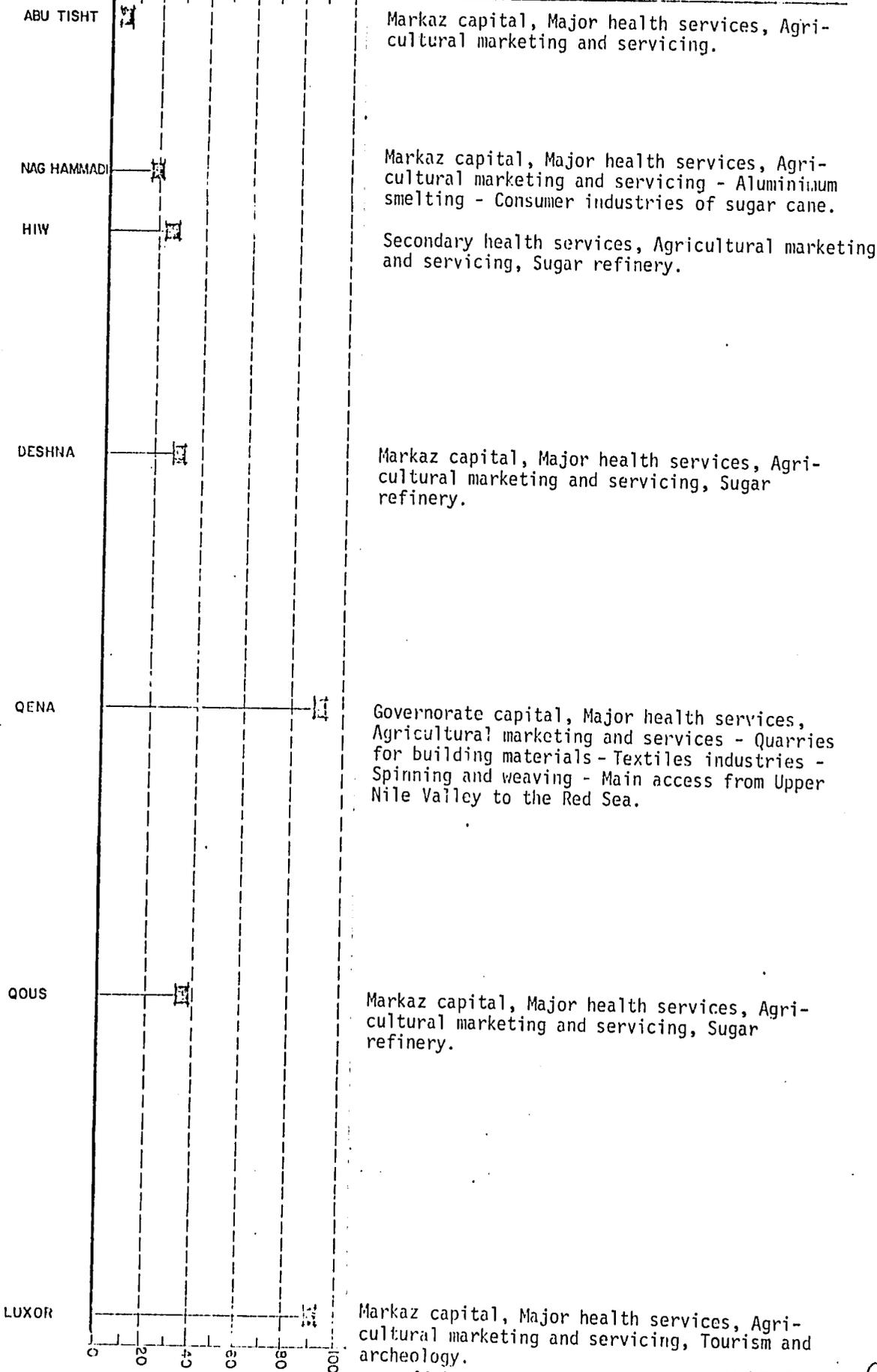


FIGURE 3

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2. Focus: Qena and Naga Hamadi

Qena and the desert plateau outside of Naga Hamadi have been selected for future urban growth emphasis due to their economic and physical growth potential. The city of Naga Hamadi does not offer any opportunity for expansion in non-arable areas. Its proximity to the desert plateau will provide a fundamental link to development efforts and existing and planned infrastructure networks. Its development issues are furthermore indicative of other smaller urban settlements in the Study Area and the rest of the Nile Valley.

For these reasons, specific development issues and more detailed data has been collected for these settlement areas. The following section provides a brief description of physical issues, development characteristics, land use, and growth opportunities.

3. Qena City

a. Physical Growth Issues

- i. Development is occurring in a haphazard fashion along major transportation corridors and in fringe areas. Siting of new industries and public services has been made in an unplanned and piecemeal fashion. The lack of identified secondary and tertiary roads in rapidly expanding peripheral areas has contributed to this problem.

A development strategy, particularly for expansion in the eastern desert area, is required to provide guidelines for future development and to correct past development inadequacies.

Future development of the eastern desert area should attempt to unify industrial and public service uses in order to share common facilities and infrastructure.

- ii. Planning and development control tools such as maps and aerial photographs are out of date or non-existent. These should be obtained immediately and at regular intervals in the future.
- iii. Lack of a development strategy for future growth is resulting in losses of agricultural land. This loss is unnecessary, given Qena's potential for expansion in desert areas.

- iv. Given the past nature of uncontrolled development and deterioration of the old city, major upgrading is required. An assessment of existing infrastructure and planned services such as the new sewer system needs to be undertaken and a package developed for infrastructure to serve old and new development areas devised. Means should also be found to upgrade the existing housing stock and find appropriate housing solutions regarding climate and local construction techniques and materials.
- v. The "New Qena" City does not form a sound basis for the urban expansion of Qena. It ignores the need to restructure Qena's ongoing development and would be extremely costly to implement. (See Appendix 2).

b. Qena Development Characteristics

Unplanned development, on both arable and non-arable land, is occurring in Qena in nearly every direction. Furthermore, no concrete plan exists for orientation for future growth. (See Figures 4 and 5).

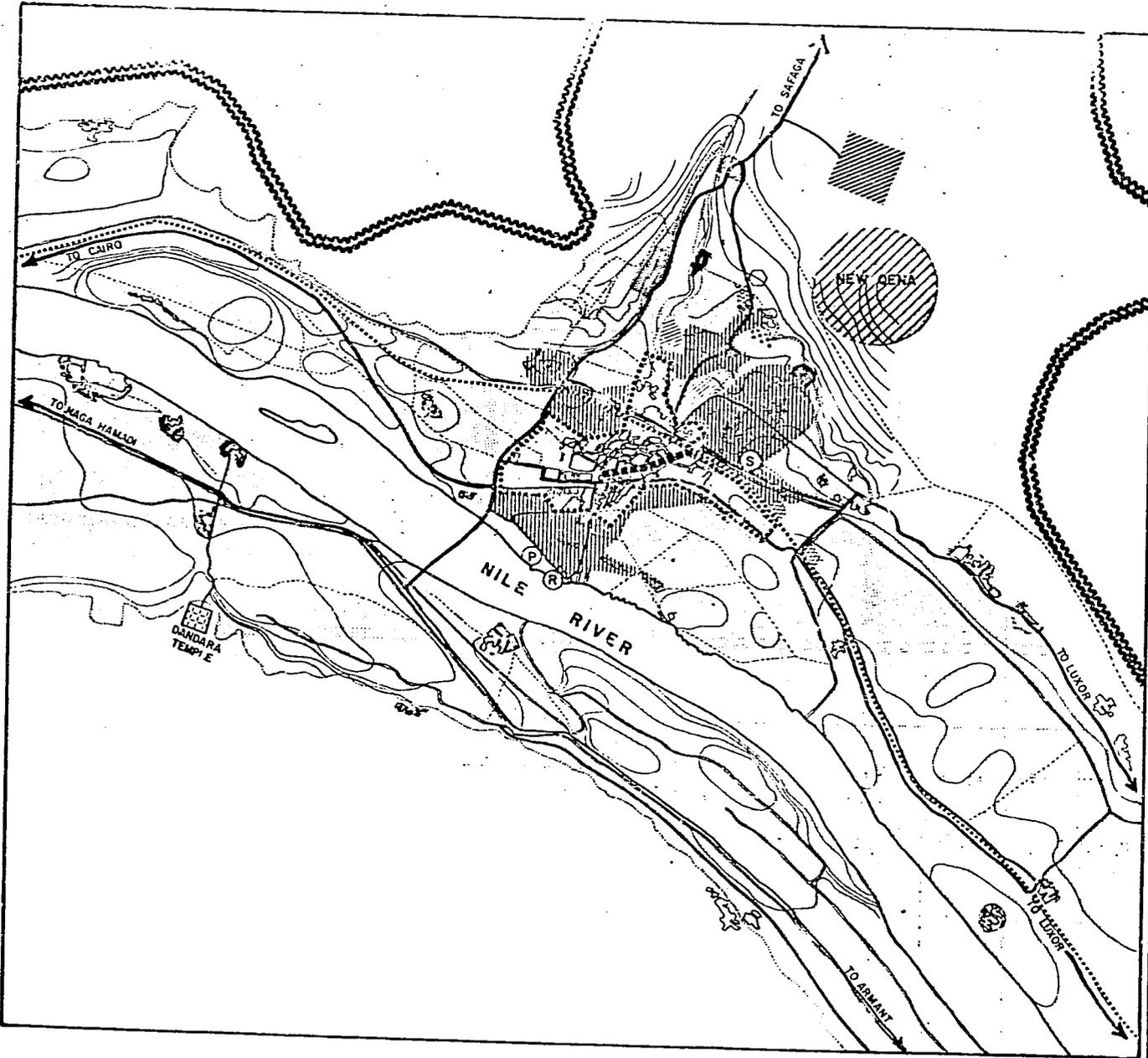
Expansion of the old city into desert areas to the east of the Cairo-Aswan road may be characterized as corridor development along the old Safaga road. This growth has been uncontrolled along both sides of the road, and has tended to expand toward close-in rural settlements.

Development in this area was motivated by:

- need for expansion areas beyond the old city;
- ease of horizontal expansion;
- the new right-of-way for the Cairo/Aswan road;
- the proximity to the old Qena/Safaga road;
- the location of the Sidi Abdel Rahim Mosques;
- semi-control of wadi flooding;
- government investments in industry, housing, and public services.

Development along the new Safaga road is limited. A few small Food Security industries for raising poultry and producing dairy products are located in the old orchard area northeast of the road. Beyond

QENA EXISTING SITUATION



LEGEND

-  MAPPED RESIDENTIAL
-  UNMAPPED RESIDENTIAL
-  PROPOSED RESIDENTIAL
-  AGRICULTURAL
-  UNIVERSITY
-  CEMETERIES
-  DAIRY CATTLE POULTRY PROJECTS
-  MILITARY
-  INDUSTRIAL
-  COMMERCE
-  NEW QENA MARKET
-  RADIO AND TELEVISION RELAY STATION
-  UTILITIES
-  SEWERAGE NETWORK BOUNDARIES
-  TOURISM ATTRACTION
-  SPORTING CLUB
-  STADIUM
-  INLAND WATERWAYS PORT
-  MAIN HIGHWAY
-  SECONDARY ROAD
-  UNFAVED ROAD
-  EXISTING RAILWAY LINE
-  CONTOUR LINES (UNMAPPED)



FIGURE 4

it, on the south side of the road, near the boundary with the Red Sea Governorate, is located the new university.

Beyond the university, along the Safaga road, is located the waterworks-pumping station for the Red Sea Governorate. To the southeast and east of the university the new Qena settlement areas is planned, comprised of 800 hectares of desert land.

Southern corridor development has occurred between the Gomhouria and 26th of July roads, towards the brick factory. Development in this area includes the macaroni factory, private housing and small-scale service establishments.

Development outward from old Qena in a south-westerly direction has been precipitated by access roads to the Nile-port, the sporting club and the area's relatively close proximity to the city center. This area historically was left undeveloped due to Nile flooding. In recent years, a development project of several hectares organized by farmers in the area was constructed with government approval.

To the southeast, development has occurred in proximity to the governorate center (also on arable land) in the direction of the brick factory. Much of the construction in this area is public housing.

To the north, development has occurred between the 26th of July Street and the Cairo-Aswan road including a new hospital and preparatory school. Development there has reached the right-of-way for the new Safaga road.

Northwestern development between the old city and the Cairo/Aswan road was due to the infill of a canal in the area (partially filled by floods from the eastern plateau in the 1950's). A good part of this area is comprised of public and other formal housing and some public services.

The old city of Qena developed on a knoll to protect it from Nile and wadi flooding. It is a tightly organized settlement with few main thoroughfares or vehicular access.

c. Qena: Land Use

1. Residential: The following types of residential development are common in the urban area:

- the old city
- informal development (illegal)
 - o urban structures
 - o rural structures
- formal development (legal)
 - o public housing
 - o urban structures

The old city is the centroid of all other urban development. It is characterized by multi-storey structures in mud and burnt brick. The structures line narrow winding streets (pedestrian paths). Private open space in the structures is confined to the interior of the buildings and takes the form of courtyards or roofs. Very few thoroughfares exist in the old city; rather, numerous cul-de-sacs lead to residential quarters. The maze-like development creates shade for hot months, and cuts down on wind and dust. The cul-de-sacs organize the "neighborhood" spatially. Practically no public open spaces exist in the old city.

Informal development exists in two types: "urban" and "rural". "Urban" informal housing is multi-storey (2-4) in nature, of concrete post and beam construction and burnt brick infill. Brick construction is also prevalent. It resembles formal housing in construction, but is generally illegal in the sense that building permits were not obtained. Informal "urban" housing has occurred primarily at the urban periphery.

Informal "rural" development is primarily of unburnt brick and one to two storeys high. It occupies a large plot with courtyard. Most of this type of development is occurring to the northeast of the city on arable land.

Formal "public housing" is the typical five storey walkup type (post and beam concrete construction with brick infill). Designs for these units are simply plugged into vacant areas. The designs ignore basic characteristics of traditional housing (i.e. courtyards, privacy, climatic control) and are not ideally suited to conditions in Upper Egypt. Particularly in Qena, similar densities could be achieved in the construction of two storey dwellings in available desert areas. Plans for

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the Qena new town development are similar multi-storey flats which are also inappropriate for the same reasons.

Formal "private" housing is of post and beam concrete construction with brick infill. However, buildings tend to be joined in "row" developments with private space at the rear. They thus more closely resemble the traditional structures.

ii. Industry

There are few industries in Qena (spinning mill, macaroni factory, poultry and dairy products, brick factory). These are predominantly found in the northern desert area along either the old or new Safaga road. However, the brick factory is found at the southern limit of the city, while the macaroni factory is located south of town near the railway (also near the flour mill).

There is a need to bring future industrial programs into a single area in order to economize on infrastructure and rationalize development in desired areas.

iii. Commerce

The heart of small-scale commerce is in the old city along the Sidi Abdel Rahim thoroughfare. Larger-scale commerce has occurred in the planned extensions to the old city, near the rail terminal to the east and to the west and south. Commerce is primarily confined to the major streets.

Other small scale commerce is sited along major streets such as the Cairo/Aswan road and around the square on which is located Sidi Abdel Rahim Mosque

iv. Public Institutions

The government center is located to the southwest of the old city in an area of planned extension. The city council building is located to the east of the old city on a thoroughfare where other public institutions are found. Schools and hospitals are found primarily to the east and north of the city as well as in the old city. In the western desert area, these institutions are located along the old Safaga road.

v. Open Spaces

The principal open spaces are found in front of the rail terminal, in the city's eastern extension and around the Sidi Abdel Rahim Square.

The stadium is located along the Cairo/Aswan road. No parks exist with the exception of the sporting club, but open space does exist along Mustafa Kamal Street.

vi. Services and Small-Scale Industry

Services and small-scale industry are found scattered throughout the old city, in some parts of the urban extensions, and particularly along the road parallel to the railway south of Sharia Mohata.

4. Naga Hamadi

a. Physical Growth Issues

- i. Most recent physical growth within the Naga Hamadi city boundary has been controlled due to a plan for physical expansion which was produced about 15 years ago. Unplanned informal growth has occurred primarily in fringe areas just to the north of the city.
- ii. Future growth of Naga Hamadi needs current planning. The planned urban extension (to the southeast) is now saturated.
- iii. Expansion of the urban area will inevitably result in loss of arable land. Selection of areas for future growth should be made from vacant land and less productive arable land. Growth management of the urban area and its periphery are thus required.
- iv. Within the District of Naga Hamadi, opportunity for substantial development on non-arable areas can only take place upon the desert plateau where the aluminum factory is located.
- v. A strategy for development of the entire desert plateau near the aluminum factory is required. Efforts should be made to plan for an integrated community including the factory, cement plant, electrical company, and other housing in order to avoid duplication of public services and to optimize "urban service" potential.

- vi. The new town (Salaam City) which is planned on the desert plateau makes no attempt to integrate development there. It also appears to be very high standard with no attempt to design for local social, economic, cultural, or climatic needs. Further review is necessary before implementation of this project takes place (See Appendix 2).
- vii. In both Naga Hamadi (and Qena) local conditions must be taken into consideration in the design of housing, schools, hospitals, etc. Designs presently come from Cairo and are simply plugged into the local environment. An overall development plan should reflect these local conditions and requirements.

b. Naga Hamadi Development Characteristics

In the past 15 years, most urban development has been accommodated in a planned southwesterly urban extension to the city (40 feddans). Unplanned development has primarily occurred to the north along the Cairo road and in northern/central fringe areas. Less unplanned growth, however, has occurred than in Qena. (See Figures 6 and 7).

The physical elements which have influenced the spatial configuration of Naga Hamadi include:

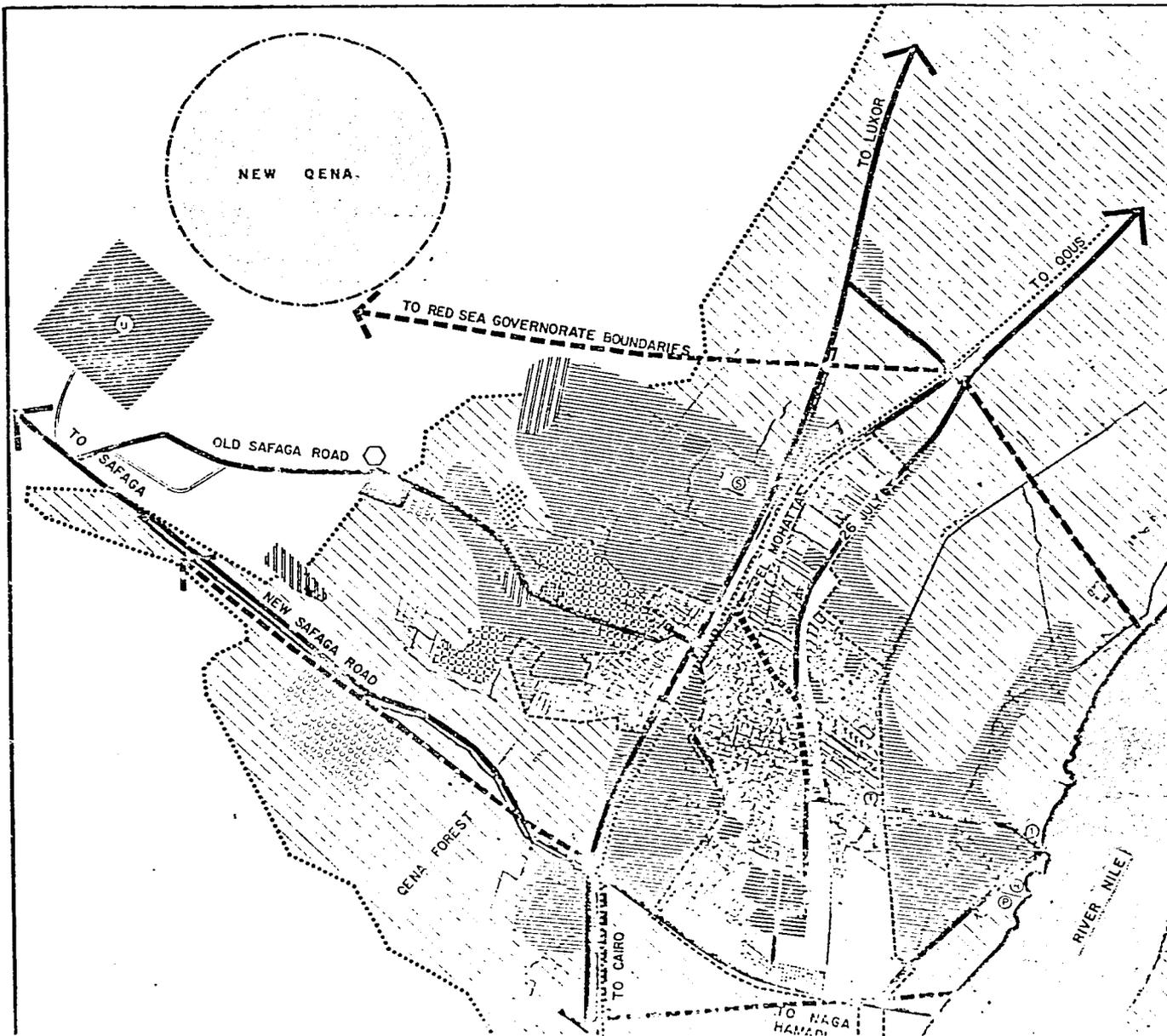
- the Nile to the east;
- the Cairo/Upper Egypt road (along the Nile);
- the Cairo/Upper Egypt rail line (which divides the city into north and south districts);
- installation of the sugar factory (node for southern development);
- the western ring road and western extension (currently defines the western limits of the urban area).

Another element which could have influenced spatial development is the Naga Hamadi bridge. No development, however, has taken place on the eastern bank.

New elements beginning to have an effect on the spatial configuration include:

- the new Cairo-Aswan road;

QENA LAND USE PLAN

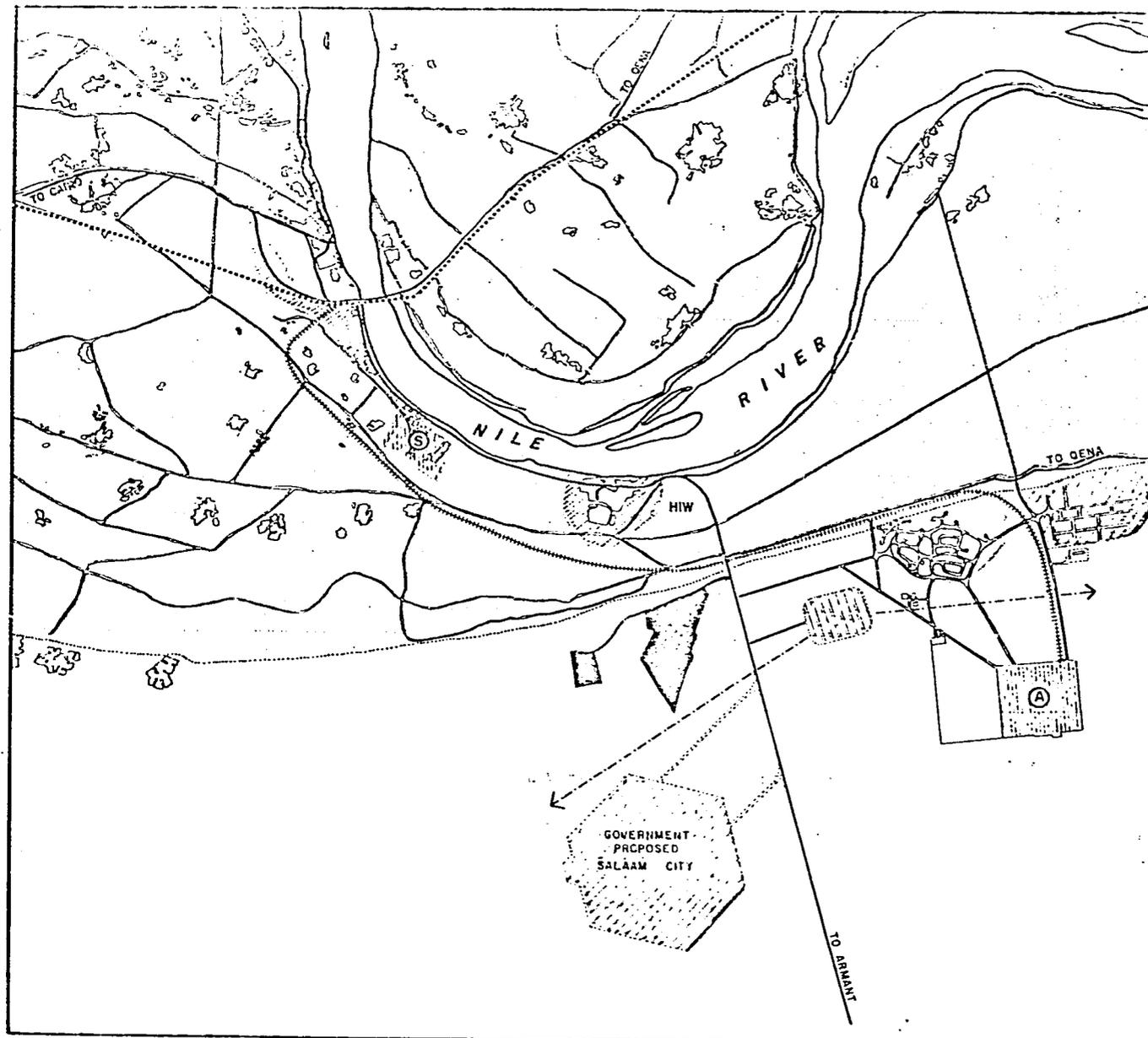


- MAPPED RESIDENTIAL
- UNMAPPED RESIDENTIAL
- NEW QENA (PROPOSED SITE)
- AGRICULTURAL
- HOSPITAL
- INDUSTRIAL
- EDUCATIONAL
- QENA UNIVERSITY SITE
- CEMETERIES
- RELIGIOUS
- MILITARY
- GOVERNMENTAL
- NEW QENA MARKET
- COMMERCIAL
- SEWERAGE NETWORK BOUNDARIES
- QENA CITY BOUNDARIES
- DESERT BOUNDARIES
- SPORTING CLUB
- QENA STADIUM
- THEATER AND CINEMA
- UTILITIES
- INLAND WATERWAYS PORT
- RADIO AND TELEVISION RELAY STATION
- DAIRY, CATTLE, POULTRY PROJECTS
- MAIN HIGHWAY
- SECONDARY ROAD
- RAILWAY LINE



0 500 1000

FIGURE 2



NAGA HAMMADI, HIW EXISTING SITUATION

LEGEND

-  MAPPED RESIDENTIAL
-  UNMAPPED RESIDENTIAL
-  PROPOSED RESIDENTIAL
-  AGRICULTURAL
-  CEMETERIES
-  500KV OVERHEAD LINES
-  500 KV SUB-STATION
-  INDUSTRIAL AREA
-  ALUMINUM SMELTING PLAN
-  NAG HAMMADI SUGAR REFINARY
-  MAIN HIGHWAY
-  SECONDARY HIGHWAY
-  SINGLE TRACK RAILWAY LINE
-  ALUMINUM PLANT PRIVATE RAILWAY LINE

0 1 2 KM



FIGURE 6

- the new train terminal;
- rail spurs to serve the aluminum factory;
- new service roads serving the aluminum factory.

Since most residential growth (in Naga Hamadi proper) has been accommodated in the planned extension, it presents a marked contrast to the uncontrolled development which has occurred in Qena (see discussion in Administration Section).

Opportunities for future population growth in the city need to be examined. Possible solutions include infill and increased densities of the existing built-up area or planned expansion on less productive arable areas.

The bulk of population growth for the district, however, should be tied to economic activities on the desert plateau.

c. Naga Hamadi: Land Use

i. Residential

As is the case in Qena, Naga Hamadi shows similar types of old city, informal, and formal residential development. In Naga Hamadi, however, little distinction can be made between rural and more urban informal housing. Most informal housing is in the northern sector (a type of corridor development) or in central fringe areas. It ranges between 2-3 storeys of burnt brick construction. Some single-family low income informal development primarily of mud brick construction, has occurred north of town in a filled-in canal.

Formal housing is mostly located in the new planned extension. It is primarily 2-3 storeys of concrete post and beam construction and brick infill. Some public housing is located in this area as well as near the railway. Other formal housing is provided by the sugar factory for its employees.

The old city occupies a relatively small area and shows some of the characteristics of Qena's central core (i.e. few thoroughfares, dwelling units bordering pedestrian walks with private spaces to the interior), but on a much smaller scale.

ii. Industry

The only large industry in Naga Hamadi proper is the sugar factory. While small industries are located in the old city and in the planned extension.

iii. Commerce and Services

The principal areas of commerce and services are along the main road in the old city and along 35th and 59th streets in the planned extension.

iv. Public Institutions

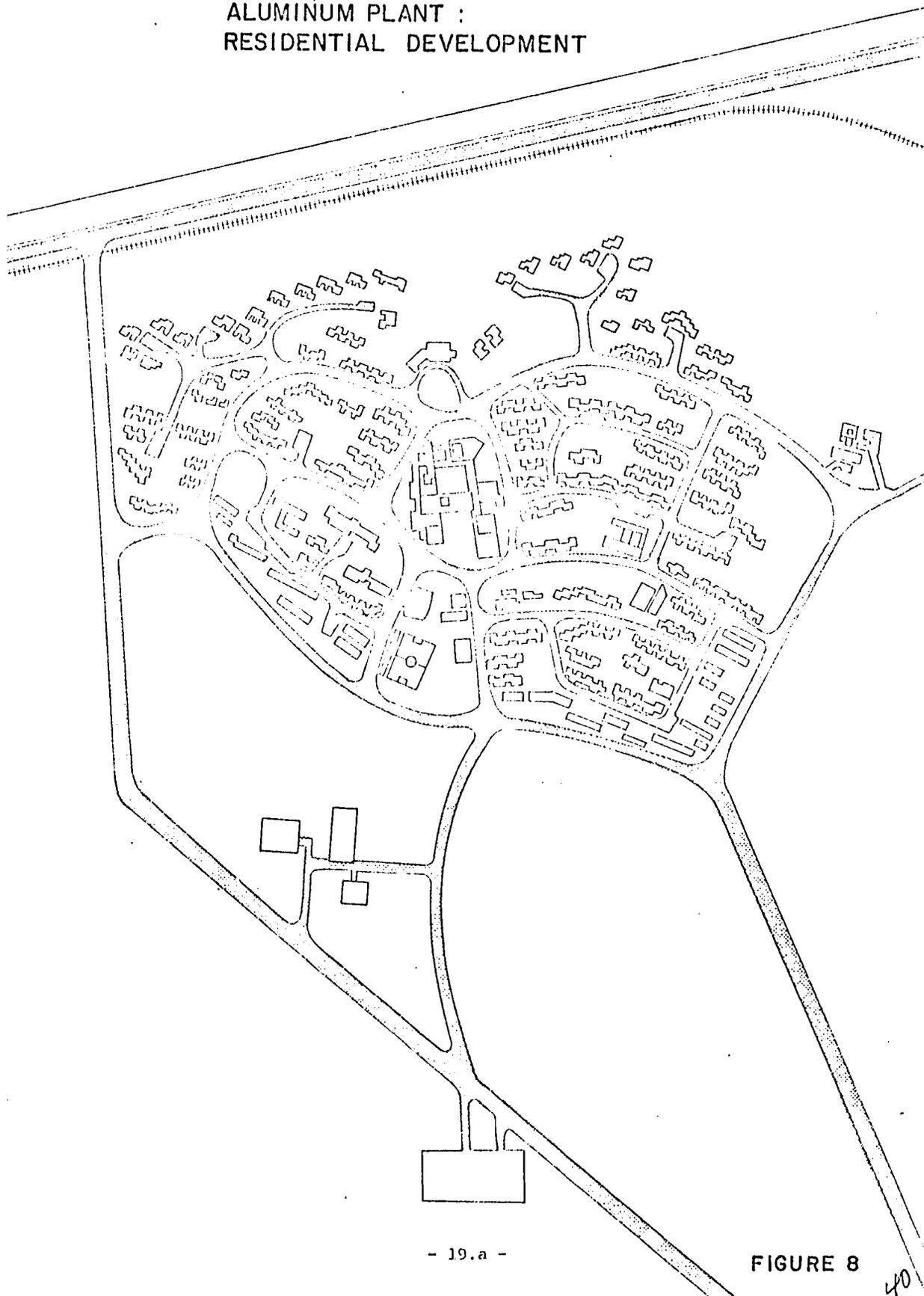
The municipal building is along the main road in the old city, while other governmental functions are located in expropriated royal family properties along the Nile to the south of the old city. Schools and institutions are principally located in the new extension or along the new Cairo road. Open spaces are confined to the grounds of educational facilities.

v. Current Development on the Aluminum Factory Desert Plateau Includes: (See Figures 6 and 8).

- the aluminum factory (approximately 50 hectares);
- residential development of the factory (approximately 50 hectares) including: 1,500 flats, primary school, hospital, nursery, mosque, cinema and sporting club;
- a small residential development for workers at the electrical sub-station;
- the electrical sub-station;
- the windscreen forest;
- reclaimed land for food sufficiency;
- the new desert road from Naga Hamadi to Azmant;
- main road leading past the electrical sub-station with a feeder road to aluminum plant and community.

Other development planned on the plateau includes the new town of Salaam City (area 400

NAGA HAMADI
ALUMINUM PLANT :
RESIDENTIAL DEVELOPMENT



40

hectares; 6,200 units). (This project's site is about one kilometer to the south of the aluminum plant on Armant road). A cement factory and housing is also proposed for a site 12 kilometers to the south of the factory.

V. Qena Governorate: Infrastructure Issues

During the course of the Illustrative Development Project, the Study Team interviewed local government officials responsible for infrastructure programs at the governorate and city levels in Qena and Naga Hamadi. A review was also made of the National Transportation Study prepared by NEDECO in 1981 and a draft report "Infrastructure Overview: Sohag, Qena, Aswan and the Red Sea". The latter provides the basis for most of the regional infrastructure issues identified. Relevant basic technical data from these sources have been provided in an infrastructure profile in Appendix 1 of this report.

The key issues which have been identified by the team include:

- Infrastructure development must be governed at the regional level by planned areas of emphasis. To achieve this it is vital that coordination among the various sectors is ensured;
- An integrated regional development plan is required in order to optimize the deployment of financial resources. To date, due to unplanned investment and a lack of coordination, a waste of resources has occurred;
- Improvement in construction, supervision, and maintenance of the infrastructure network is required. Sufficient levels of investment must be earmarked for this purpose. Until recently, infrastructure has been allowed to deteriorate due to inadequate maintenance;
- An improvement in the tariff structures and cost recovery for basic utilities and services is needed in order to satisfy future expansion, operation, and maintenance requirements;
- Only through changes in policy and attitudes at the central government level can these issues be resolved satisfactorily.

Some progress is being made in resolving these problem issues. The 1978-82 Plan, for example, recognized the previous neglect of utilities and infrastructure especially in Upper Egypt governorates, and allotted 50 percent of national investment to upgrade networks throughout the country. Thus, benefits

are beginning to filter down. Present government efforts indicate a will to strengthen infrastructure networks as a means to attract investment and improve the economic and social status of the region. It is hoped that heavy out-migration will be reduced by these efforts.

A. Specific Findings and Descriptions of Infrastructure Elements

In the following section specific findings of the Study Team are discussed and a brief description of the key infrastructure elements are provided. Technical data regarding these networks are provided in Appendix 1 to this report.

1. Transportation

- Most of the transportation network needed for the future development of the region is already in place, with a surplus of capacity, or under construction. What is needed is a general upgrading of the network and an improvement in the means of transport;
- Additions to the transportation network should only be made to service new economic activities. This will require a full economic analysis or appraisal including the feasibility of these activities;
- Current levels of investment and subsidy do not favor the most economic networks. Inland waterways, for example, are by far the most economic means for the movement of goods, yet they carry only 11 percent of all traffic. Roads, on the other hand, have the highest economic and financial cost yet carry 75 percent of goods. Railways, benefit from the highest level of subsidy yet transport only 14 percent of goods. Figure 9, shows NEDECO projections for the flow of commodities to and out of the Qena Governorate in the year 2000.

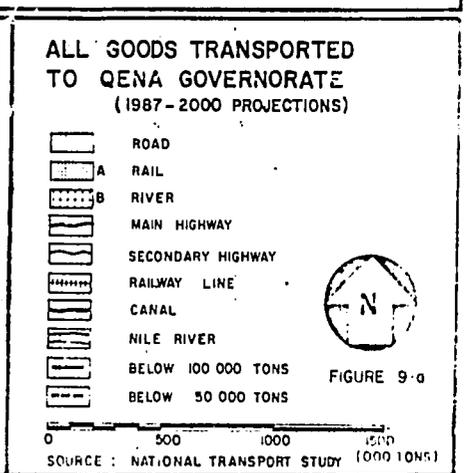
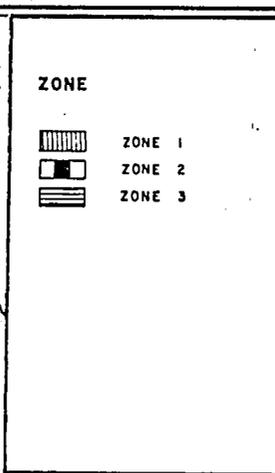
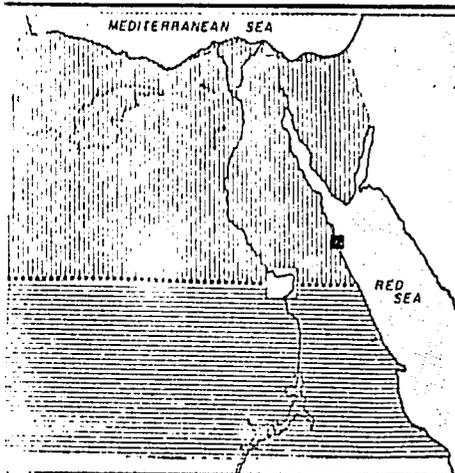
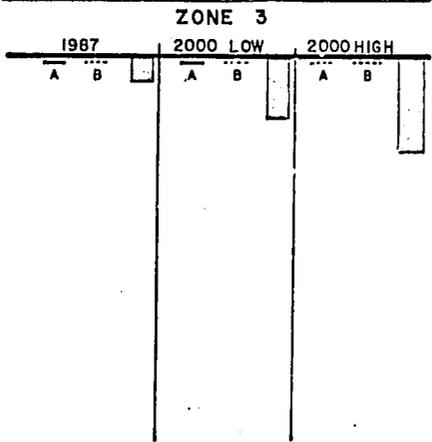
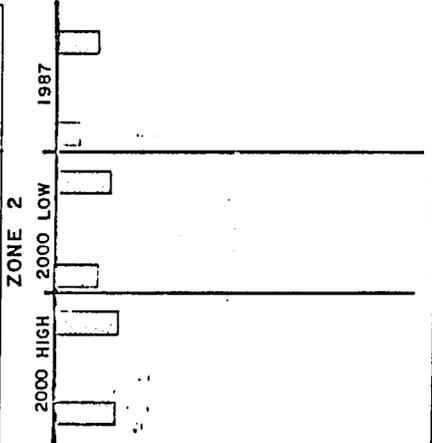
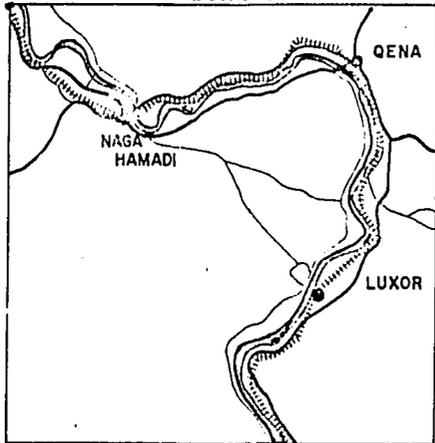
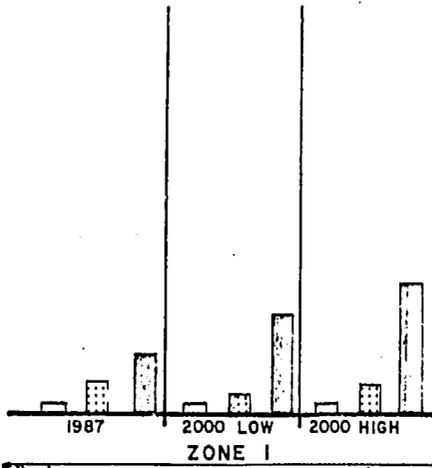
As pointed out above, the existing transportation base, coupled with improvements which are already underway will provide a sound basis for the economic development of the study area.

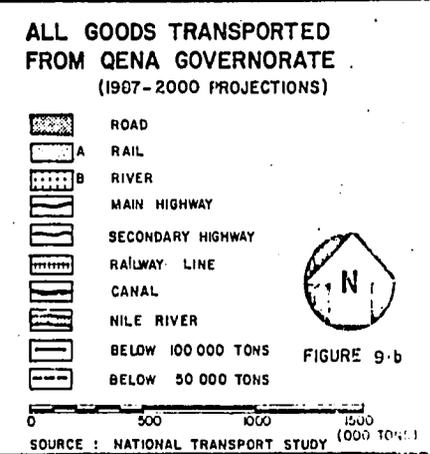
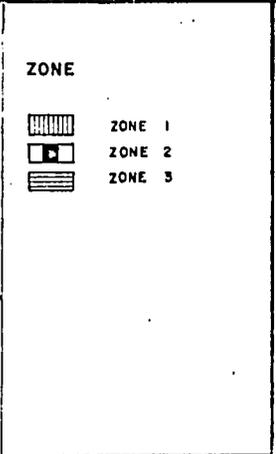
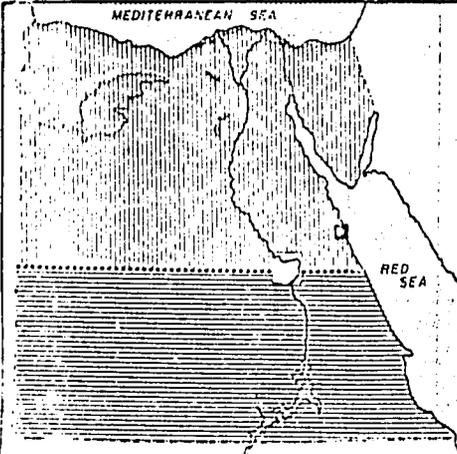
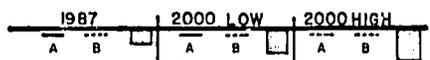
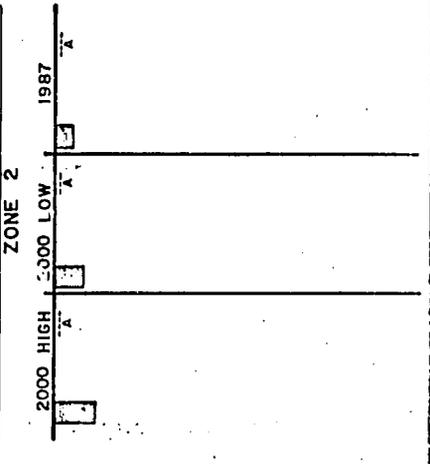
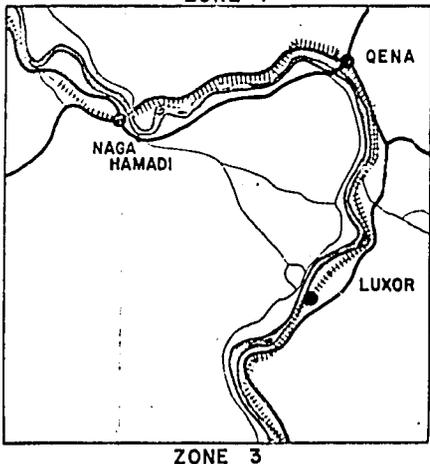
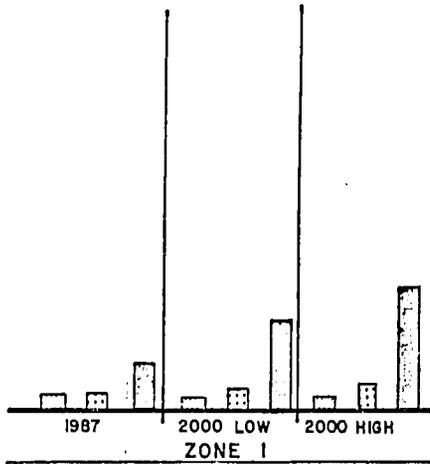
The principal transportation elements which exist or are planned in the study area include:

a. Roads

1. The Cairo/Aswan Road

The Cairo/Aswan road or National Upper Egypt road serves as a central spine to the Qena





Governorate and Nile Valley. From Sohag Governorate on the west bank it by-passes part of Naga Hamadi, traverses the Naga Hamadi bridge and the agricultural area on the east bank of the Nile. It passes through Dishna and Qena en route to Luxor and Aswan. The road is currently being upgraded and realigned north of Naga Hamadi and Luxor. The road carries a large amount of local traffic and most inter-governorate traffic particularly via Sohag and Qena. A principal bottleneck is the very narrow Naga Hamadi bridge which is further complicated by a heavy mix of Naga Hamadi local traffic. For this reason, the alternative "west bank" road is often used.

ii. The West Bank Road

The west bank road links Naga Hamadi and Qena and is presently being extended to Luxor. Spurs from the road (and intersecting the Armant desert road) serve the aluminum factory and electrical sub-station on the desert plateau outside of Naga Hamadi, as well as several small villages and a recent agricultural reclamation project along its route. The road provides a critical function for the transport of alumina and aluminum products to and from Safaga. This function is facilitated by the high standard of the Qena bridge.

iii. The Naga Hamadi/Armant Road

Due to the geography of the Nile Valley in the study area, the Naga Hamadi/Armant road will eventually reduce the distance between these two settlements by 95 kilometers vis-a-vis the Nile Valley roads. Much of the road has already been completed and is partially paved (25 km). Means are being devised to negotiate gradient problems north of Armant. The road's feasibility will also be linked to the construction of a bridge at Luxor or Armant. However, the road could have some consequences for the development of Qena as it would then be by-passed by Cairo/Aswan traffic.

Currently the road provides access to the desert plateau from the aluminum factory, the electrical sub-station, as well as the planned cement factory and proposed new town (Salaam City).

iv. The Qena/Safaga Road

The Qena/Safaga road links the Nile Valley via Qena, with the Red Sea and the principal port serving the study area at Safaga. Consequently, most of the traffic on the road is composed of trucks and trailers carrying commodities.

The road, which was constructed in 1941, is in relatively good condition. However, due to the topography of the right-of-way, it has a large series of 237 bends between Qena and Safaga and some 16 gradients over 51 percent. Consequently, some heavily loaded vehicles use the Qift-Quseir road despite the greater distance implied.

v. The Qift/Quseir Road

The Qift/Quseir road originates at Qift on the Cairo-Aswan road. It is roughly parallel to the Qena Safaga road and is in less good condition. Because of fewer steep gradients and bends it is preferred by heavily loaded vehicles. It also provides a more direct access to the Aswan Governorate and hence serves for the transport of commodities between it and the Red Sea Governorate.

b. Rail

i. The Upper Egypt Line

The Upper Egypt line has historically been a fundamental transport link between Upper and Lower Egypt. It serves most of the settlements in the Nile Valley en route.

The line is dualled as far as Assiut and by 1983 and 1988, respectively, a double track should be completed to Naga Hamadi and Aswan. The line carries most of the passengers between Upper and Lower Egypt and 14 percent of commodity shipments. Of all the transportation networks, it is the most heavily subsidized.

ii. Abou Tartour/Qena/Safaga Line

Between Qena and Safaga a new rail link is under construction by the Ministry of Industry. Large parts of the earthworks are in place and the line is expected to be completed by 1983. By 1985, an additional link is planned between Qena

and Abu Tartour which would permit the exploitation and export of phosphates via Safaga. A rail connection to the port and opportunities for shipment of alumina and aluminum products as well as phosphates are under study.

iii. Sugar Cane Rail Network

An extensive network of narrow gauge rail lines exists in the study area for the transport of sugarcane to the refineries at Naga Hamadi, Dishna, Qos, and Armant.

The network's function is to transport the cut cane to the refineries within the critical period in which it must be processed (24 hours). However, considerable losses occur due to handling procedures and the deteriorated network. The system is in need of upgrading and alternative means of transport should be envisaged to reduce losses.

c. Waterways

Despite its historic tradition and the relatively low cost of utilization, the Nile is not fully exploited as a transport facility. The principal problems of inter-regional transport include needed improvements in docks, ports, mechanized handling facilities, and a greater fleet.

In the Qena/Naga Hamadi region, river transport is used primarily for the transport of molasses, petroleum, aluminum and cement. Inter-regional transport also carries phosphates, fertilizers, iron ore and other commodities handled in bulk.

The principal ports in the study area include:

- The Qena Public Port which includes three concrete piers;
- Qena Oil Port is a barge fitted with pumps and connected via a pipeline to storage tanks north of Qena;
- Naga Hamadi Sugar Factory Port includes a 75 m quay and rail and pipeline connections to the factory;
- Naga Hamadi Aluminum Factory Port includes a quay of 200 m length with a pipeline connection to the factory. It handles primarily coke and oil products

d. Safaga Port

The Safaga port is the principal port in the Red Sea Governorate serving the study area, although other smaller specialized ports exist for petroleum and phosphates. The Safaga port is in a well sheltered harbor and is well-situated with respect to the project area. It will play an increasingly important role for the handling of alumina and aluminum products, cereals, petroleum and fertilizers. Planned improvements are underway.

e. Airports

Luxor Airport is the primary facility serving the study area. It can now carry Boeing 737 and 707 jet liners and is to be upgraded to an international airport. It is within one and one-half hour's drive from Qena/Naga Hamadi. The airport will serve any expected demand associated with development of the study area.

Likewise, the Hurghada Airport is expected to meet the needs of the Safaga port. It is located at a distance of 57 km or 50 minutes' driving time to the north of Safaga.

2. Physical Infrastructure

Systems for the provision of water and the disposal of sewerage and solid waste have suffered from a long period of neglect. The principal problems with these facilities in the study area include:

- Water:
- Obsolete, inadequate, and difficult to maintain plants and networks;
 - Significant losses;
 - Highly mineralized ground sources - lack of purification and treatment plants;
 - Inadequate pumping and storage facilities;
 - Contamination by sewage and solid wastes;
 - Lack of a resource management scheme.
- Sewage: - Lack of sewage networks in urban areas.
- Solid Waste:- Lack of reliable and efficient schemes.

a. Water Supply

Water supply systems in the Qena Governorate are in poor condition due to the lack of investment in recent years. Improvements in Qena, Naga Hamadi, and Luxor are, however, under way.

Water supply for Qena and Luxor is provided by both surface and ground sources. However, Naga Hamadi, and most other smaller settlements, relies completely on ground water which has a high salt content. These areas, furthermore, are presently without any purification plants.

Other problems with urban networks include low water pressure due to inadequate reticulation systems, poorly maintained standpipes and surface drainage and lack of spare parts for maintenance.

The plants and supply networks are obsolete and inefficient, while proposed improvements will only benefit a limited service area. Rural areas are presently being provided with new electric pumps to replace outmoded and irregular diesel pumps.

b. Electricity and Telecommunications

The Nile Valley Governorates are served by a unified power system with integrated linkages between each governorate. Relatively minor modifications are required to upgrade the system.

Telecommunications in the study area, on the other hand, are particularly poor and below the already unsatisfactory national level of service.

i. Electricity

Current and generating capacity in the electrical network is judged sufficient to meet expected demands until 1990. However, due to rising demand in Luxor, shortages could arise elsewhere in the governorate until a new substation is provided.

Most problems in the current network are associated with transmission and distribution. The lines are lengthy and overloaded which results in voltage irregularities.

The principal consumer of electricity in the governorate is the Aluminum Plant which consumes 12.6 percent of annual energy supplied to all of

Egypt. Tariffs for energy use at the smelter are currently lower than that for domestic use, though plans are being made to increase them. This increment should substantially improve cost recovery, although, it would have a decidedly negative impact on profitability of the plant.

The rural electrification program has also contributed to increased supply demands. By 1984, more than 90 percent of all villages in the governorate are to be served.

ii. Telecommunications

Due to past levels of investment, telecommunications in the study area are inadequate and in a deteriorated condition. In rural areas the problem is particularly acute with respect to difficulties in requesting emergency aid.

Currently Qena, Naga Hamadi, and Luxor have only 1,000, 1,189 and 800 lines respectively, although, by 1982 and 1991, plans exist to double and triple the number of lines. Whether these improvements will provide a sound enough base for required economic development is yet to be determined. However, advances in technology should minimize these problems in the long run.

Nevertheless, it is important that vital links between the major metropolitan areas, Nile Valley Governorates and the Red Sea be improved if the study area is to realize its potential.

3. Social Infrastructure: Housing, Health, and Education

Social infrastructure is largely in better condition than the physical infrastructure. In fact, many of the trouble areas are more a function of the latter's deteriorated status. Housing, for example, functions well as a means of shelter but lacks proper planning and suffers from poor utility service levels. Health problems also are often related to unsanitary conditions. Nevertheless, improvements are required. The situation with respect to housing is summarized in the following sections.

a. Housing

Although housing supply in the study area seems to be keeping pace with household formation, most of it production appears to be uncontrolled, even in the larger urban areas. One of the main reasons for this

uncontrolled development is the lack of development strategies for the urban areas which would provide planned areas into which the city could expand. It was found, for example, that much less illegal development has occurred in Naga Hamadi, which had a planned extension than Qena which did not. In addition, government standards for subdivisions and building construction are too high to be affordable by the majority of households. In Appendix 2, for example, it was found that the New Qena and Salaam City Projects would require direct or indirect subsidies of about L.E. 4,322 and L.E. 6,193 per unit respectively to be affordable by median income households.

Locally manufactured brick from topsoil is the chief building material in the Governorate. Brick-making kilns are numerous in the rural areas. they provide a much needed source of income for small farmers. Although the use of topsoil is prohibited, there is no alternative to its use. There are plans for the development of a cement industry and shale brick factory to satisfy this need. However, the bricks will require a sophisticated process which cannot be duplicated locally. Hence, it is likely that unless alternative low-technology materials and brick-making techniques can be developed, continued loss of topsoil will occur.

At the time of the Study Team's visit, the Municipality of Naga Hamadi had not received its government quota of subsidized cement for several months. This typifies the shortages faced by this program. It has also contributed to the use of topsoil bricks. Nevertheless, it is doubtful that the provision of subsidized building materials has greatly assisted in controlling illegal development.

Government housing schemes, including that of the Aluminum Plant, are not well adapted to local conditions. In these cases, a 3-5 storey walk-up flat is simply sited in the local environment with little regard for climate or socio-cultural values. Furthermore, achieved densities are low, particularly with regard to traditional housing. They also do not afford the comfort of private space and courtyards. They are also costly and heavily subsidized. In the future, government should focus on providing serviced land and leave construction of housing to the private sector. It should, however, provide financial assistance and demonstration units which do meet local requirements.

Income levels in the study area are likely to be lower than in other parts of urban Egypt. Consequently, problems of appropriate design, levels of service, and planning standards are likely to be more difficult.

b. Health

Improvements in infrastructure, notably the provision of adequate communications, rural roads, pumping stations, and improved sewage and solid waste disposal, would do much to alleviate health problems.

Ambulances and nurses are particularly needed to improve health services. Hospitals are found in most major settlements. However, they are old and in need of upgrading and are inadequate to meet needs. It is estimated that 300 additional beds are required.

Bilharzia is an acute problem in heavily irrigated areas. A special clinic is required in the region.

Rural health clinics are often without water due to poor pumping systems. In addition, a greater number of facilities is required.

c. Education

There is a shortage of secondary schools, although an adequate number of preparatory schools does exist. Only 18,000 of 52,000 eligible secondary students are presently enrolled. Lack of transportation in outlying villages could contribute, to this problem. Qena will soon be the seat of a new university with three faculties and a total enrollment of 5,000 students. Construction is behind schedule, the reasons for this delay could not be determined.

The university could provide an economic boost to the city and provide much needed opportunities for local students.

Qena Governorate, like others in the Nile Valley has a large illiterate population. This problem is recognized and the 1978-82 Plan has attempted to restructure the educational program through greater emphasis on technical and vocational training. Naga Hamadi and Qena, in particular, have already benefited from this program.

VI. Administrative and Financial Implications of the NUPS Strategy for Qena and Naga Hamadi

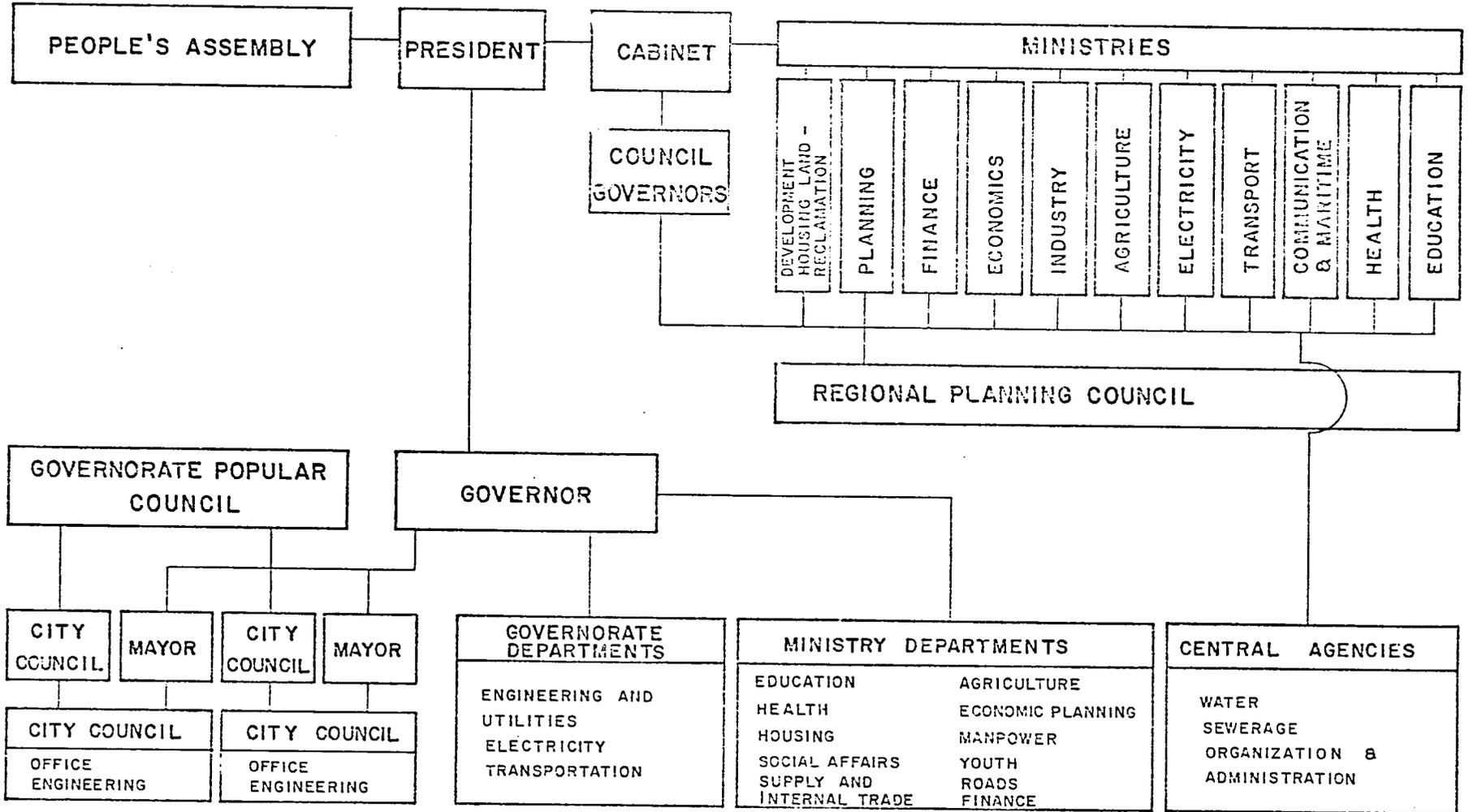
The organization of the Qena Governorate has evolved with the passage of the Local Government Laws of 1960, 1971, 1975, 1979 and 1981. The governor is the President's representative at the governorate level and supervises the local government units within the governorate. The Qena Governorate contains 11 districts (*markas*) each with a town designated as its administrative capital. The governorate local council has six members from each district for a total of 66 members. The districts also elect local councils; 10 members from each district capital and six members from each other local unit (339 members). Cities and villages also elect local councils, and in the case of the Qena Governorate account for 198 and 816 members, respectively. It is purported that all local councils have been created and members elected. It is not known to what extent they are carrying out their delegated functions. For the purposes of the present Illustrative Development Project our focus will center on the governorate structure itself in addition to the local councils of Qena and Naga Hamadi. Figure 10 presents a schematic of the organizational structure of Qena Governorate and its relation to central government.

A. Administrative Structure

Figure 10 highlights the functional responsibilities of government agencies affecting NUPS at the local level. While local government laws establish a four- or five-tier hierarchy, in the Qena Governorate, with regard to its implications for NUPS, can be effectively characterized as a two-tier system of government. The Governorate serves four main functions:

- It serves as receptor at the local level for central government policies, programs and projects which are conceived, planned, designed and in some cases implemented directly from Cairo.
- It collects the add-on tax placed on all import and export taxes, movable properties (stocks, bonds, etc.), business profits and the "joint" revenues assigned to local budgets (real estate, motor vehicle and entertainment taxes, and it integrates the capital investment requests (BAB 3) from the towns and villages into a draft governorate plan and incorporates local council BAB 1 and 2 budgets into a draft governorate budget.
- It is responsible -- mainly through the Ministry of Development's Governorate Department -- for managing the construction of most public buildings.

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



- 30.0 -

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FIGURE 10

- The governorate's Agriculture Department, as part of a committee formed with representatives of the Ministries of Housing and Irrigation, has prime responsibility for enforcing Law No. 59 of 1973 which prohibits construction on agricultural land without the Ministry's authorization.

On the other hand, the city councils in Qena and Naga Hamadi perform the following functions:

- Issue permits for buildings, shops, and restaurants.
- Regulate and control building construction.
- Maintain government buildings.
- Street cleaning.
- Maintain parks and public gardens.
- Local road construction and maintenance.

The existing administrative structure and the functions performed by the Qena Governorate and the city councils of Qena and Naga Hamadi have various deficiencies with respect to the possibility for implementing the NUPS preferred strategy:

- There exists no planning framework or capacity at the governorate level to assist in the identification and review of projects to be planned and designed by central government physical development and infrastructure ministries.
- There exists little capacity to effectively use the budget as a programming and planning tool in order to establish local council needs and to allocate limited local revenues on a pre-determined priority basis.
- There exists a lack of middle level professionals and technicians with sufficient urban management skills.
- The committee headed by the Ministry of Agriculture's Governorate Department, in conjunction with the local council engineering departments, has had uneven success in preventing the illegal subdivision and development of agricultural land for building purposes.

The present section examines the functions of local government with respect to each administrative deficiency and makes recommendations on how improvements might be achieved.

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B. Project Cycle For Physical Development

Table 7 outlines the major functional responsibilities of the main local government units. It is readily apparent that both local units have limited influence in the identification, planning and design of policies, programs and projects to be sited in the governorate. This is especially true with respect to physical infrastructure and public facilities. All public housing and water, sewerage, electrical and transport networks and facilities are presently planned and designed by the respective ministries and authorities in Cairo. As a result, there is little opportunity to design for local climatic or site conditions, or to take advantage of local building materials or customs. The Governorate Department of the Ministry of Development, in conjunction with the local city councils, does have the responsibility for locating site-specific public facilities, housing blocks, schools, hospitals, vocational schools, etc.) or for the management of constructing these facilities.^{2/}

Physical infrastructure, such as water supply and sewerage systems, in addition to being planned and designed in Cairo, is often implemented directly from Cairo with minimum local participation. The construction of the new Qena sewerage system is an example of this procedure. The local Council Engineering Department's first contact with the project will be when the system is turned over to it for operation and maintenance.

While the siting of public facilities within the governorate is usually undertaken with sufficient local council participation, the process is not occurring in an orderly fashion. Due to the deficiency in physical planning capacity at the local level, along with the lack of any master or physical development plan to guide the cities' growth, physical growth on land suitable for development (i.e., desert land or low productivity agricultural land) is occurring in a haphazard manner. In Qena, low-grade agricultural and desert land to the east of the Cairo-Aswan highway is being poorly utilized. New industry and public services (city market, schools, a military installation and a dump) have been sited in an unplanned and piecemeal way. Public facilities such as housing blocks and a hospital are also being constructed on fertile agricultural land in other parts of the city.

The site planning for specific public facilities also leaves much to be desired. Due to a lack of up-to-date mapping or sufficient surveying capacity, site planning is done in a cursory fashion.^{3/} As a result, potential problems associated with poor soil conditions, topography, distribution of usable land between buildings, roads and

TABLE 7

MAJOR FUNCTIONAL RESPONSIBILITIES OF GOVERNMENT AGENCIES AFFECTING NUPS AT LOCAL LEVEL - OENA GOVERNORATE

LEVEL OF GOVERNMENT	SECTORAL PLANNING, BUDGETING, TAXATION	PROJECT CYCLE FOR PHYSICAL DEVELOPMENT AND INFRASTRUCTURE		MANPOWER AND TRAINING		ENFORCEMENT	
		MINISTRY OF DEVELOPMENT, HOUSING & LAND RECLAMATION (INC. GOPP, NEW URBAN COMMUNITY AUTHORITY, & WATER & SEWAGE AUTHORITIES); MINISTRIES OF ELECTRICITY; TRANSPORT, COMMUNICATIONS & MARITIME TRANSPORT; HEALTH; & EDUCATION	MINISTRY OF INDUSTRY	CENTRAL AGENCY FOR ORGANIZATION AND ADMINISTRATION	MINISTRY OF MANPOWER AND TRAINING	MINISTRY OF AGRICULTURE	OTHER AGENCIES
<u>CENTRAL</u>	<ul style="list-style-type: none"> - Integrate sectoral plans into comprehensive national plan; - Allocate investment funds and resources to local government units; - Prepare guidelines and review draft final budgets for governorates; - Establish taxation policy. 	<ul style="list-style-type: none"> - Determine all policy matters; - Draft sectoral budgets; - Establish physical standards - Undertake urban physical planning (GOPP); - Plan and design all infrastructure and public facilities; - Supervise implementation of major infrastructure networks. 	<ul style="list-style-type: none"> - Regulate many public sector companies (including licensing); - Make major industrial location decisions. 	<ul style="list-style-type: none"> - Apply Civil Service Law: <ol style="list-style-type: none"> i. training; ii. job classification; iii. organization and methods; iv. other provisions of Civil Service Law. 	<ul style="list-style-type: none"> - Recruit & place pool of college graduates and returning servicemen into public service; - Develop vocational training programs. 	<ul style="list-style-type: none"> - Establish policy guidelines concerning use of agricultural land; - Grant final approval for sub-division permits 	--
<u>GOVERNORATE</u>	<ul style="list-style-type: none"> - Collect local, central government and special fund taxes; - Prepare governorate draft economic plan (revise BAB 3 investment requests for towns & villages). 	<ul style="list-style-type: none"> - Supervise implementation of most infrastructure and public facility projects; - Operate certain public facilities (health, education, electricity). 	<ul style="list-style-type: none"> - Select specific industrial sites (committee incl. local council participation). 	<ul style="list-style-type: none"> - Administrate central government policies and programs. 	<ul style="list-style-type: none"> - Oversee local recruitment and placement; - Operate vocational training programs. 	<ul style="list-style-type: none"> - Review requests for building & subdivision approval on agricultural land and use of topsoil for brick making (joint committee of representatives from governorate depts. of agriculture, housing and irrigation). 	--
<u>CITY COUNCIL</u>	<ul style="list-style-type: none"> - Develop draft budgets for BABs 1 and 2. 	<ul style="list-style-type: none"> - Operate and maintain water sewerage works; - Maintain many government buildings, local roads, parks and gardens. 	--	--	--	--	<ul style="list-style-type: none"> - Issue building permits; - Enforce building code and permit violations; - License cinemas, restaurants, and other forms of entertainment.

open space are not confronted until construction is under-way or until the site is occupied.

The governorate and local council's administrative problems vis-a-vis the control of and the planning for physical development in Qena are quite different, and in many ways much simpler, than the challenging and difficult alternatives for guiding physical growth confronting Naga Hamadi. Over the past 15 years, physical growth within the city boundaries has occurred in an orderly fashion due to a formal plan for physical expansion. Growth has occurred mainly on arable land. Little land remains for subdivision. Existing city boundaries are not contiguous to desert land. Therefore, future expansion of the present city boundaries will inevitably result in the loss of arable land.

These points have not been lost on national or local officials. The conclusions drawn from an analysis of the availability of land for future expansion has earmarked substantial new development to take place on non-arable land on the desert plateau 7-8 kilometers to the south of the city. Already a major aluminum smelting plant and a power sub-station have been constructed and are in operation. In addition, plans already exist for a cement plant and a planned new community (El Salaam City) to be located in the same general area.

From discussions with aluminum plant officials, and on examination of the master plan for the new town, it is apparent that each is planned as a self-sufficient community for its workers or residents. Each development provides for housing, shopping, recreation, and in the case of the aluminum plant, land for agricultural production. At present there appears to be little interest in developing the various projects in an integrated fashion with a common set of housing and commercial facilities. Obviously, the Naga Hamadi City Council has no legal jurisdiction, or even if it did, little technical capacity to undertake this type of integrated development. To a lesser extent, but also quite evidently, the Governorate has little overall control over development on the desert plateau due to its limited influence over public sector industrial planning decisions being taken in Cairo. For this reason, the governorate's own plan for the new town at El Salam City is being done while taking little cognizance of the existing and proposed development going on around it.

C. Sectoral Planning, Budgeting and Taxation

The local government sectoral planning and finance system in Egypt has been dealt with in great detail in many previous studies and reports.^{4/} The present section briefly

reviews how they function at the local level and highlights their implications for the Qena Governorate.

Similar to other governorates, Qena has two sources of finance revenue, the first is what is allocated to the governorate in the central budget -- budgeted expenditures equal to locally raised funds plus central grants-in-aid or subsidies. The second source of revenues is the special funds which are raised locally and do not enter into the budget balancing process at the central level. The Qena Governorate Finance Office is responsible for reviewing and integrating each local council's budget requests (BABs 1, 2 and 4) into a draft governorate budget. Copies of the draft budget are sent to the Ministry of Finance and the Secretariat General of Local Government. An additional copy of the BAB 3 budget (capital investment) goes to the Ministry of Planning for review and comment. A final draft budget approved by the Ministry of Finance, in consultation with the respective ministries and Qena's Governor, is sent to the Cabinet for final discussion, negotiation and approval. The Ministry of Finance notifies the governor of the final budget items, and it is the governor's responsibility to distribute the budget to the local government units. Qena's financial resources were not available locally from the governorate Finance Office. The Secretariat General for Local Government in Cairo was able to supply information on the governorate's revenues and expenditures for the years 1978 and 1979. However, information on special funds, a potentially important local government financial resource, was not provided in Qena and was not available in Cairo.

The Economic Planning Office in the Qena Governorate presently serves a very limited function. It is responsible for integrating the draft sectoral plans of the governorate's ministerial departments into a comprehensive draft plan. The ministerial departments directly prepare the sectoral budgets with little coordination with the Planning Office. The Planning Office does review, but generally does not modify or discuss, BAB 3 investment requests which come in from the local government units. It serves mainly as a conduit between the local and central government systems.

1. Expenditures

Local council budgets which are reviewed and consolidated at the governorate level are generally forwarded to the Ministry of Finance without trimming any items and with minimal discussion with the local council officials. When notice of budget approval finally arrives from Cairo, more often than not the amount of funds earmarked for investment projects (BAB 3) has been

reduced. Inherent reductions in budget requests has led to a "shopping list" mentality at the local council level when preparing budgets. The engineering office of the Naga Hamadi City Council has repeatedly requested a feasibility study for a sewerage system for the town with no apparent results. Budget cuts of this nature are made without consultation with local level.

On the other hand, in interviews with local officials, it was determined that budgets do not reflect the needs of local residents. Budget preparation was found to be largely based on previous year requests, and does not take into account the changing needs of the local government units. There is little attempt to prioritize needs within a specific city council, or to prioritize budget allocations among competing city councils. Qena Governorate's Economic Planning and Finance Offices presently have little capacity to rectify this situation.

Examining the expenditures for the Qena Governorate from the years 1978 and 1979 contained in Table 8, the small amount of funds earmarked for investments is startling. BAB 3 investments are L.E. 2.3 million and L.E. 2.0 million, respectively, for the years 1978 and 1979. These figures represent only 9.4 and 6.8 percent of total Governorate expenditures for the two years. By far the largest expenditure item is for salaries and wages (BAB 1). This budget item equals 70.4 and 74.7 percent of total expenditures for the two years. Within Qena's Governorate departments, education receives the largest share of total expenditures, almost 50 percent for the two years. It should be noted that all investment in the governorate does not show up in the budget. Investment in major infrastructure -- water, sewerage and electricity -- appears on the respective authority or agency's budget in Cairo. Industrial investment in public sector companies is counted in the budget of the responsible ministry (i.e., Industry in the case of Qena's aluminium smelter and spinning mill, Agriculture for the Food Security programs in poultry and dairy farms). Funds for public housing which are now raised locally through the Economic Housing Fund (1979) also do not appear on the governorate's budget. We were unable to determine the total capital investment in Qena Governorate.

2. Revenues

The Qena Governorate has three sources of budget revenue: (1) revenues which are collected locally including revenues from special funds; (2) the governorate's share of joint revenues (taxes on business profits and customs duties, and from movable property --

TABLE B
CENA GOVERNORATE EXPENDITURE - 1978 and 1979

ITEM	I. SALARIES AND 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	3520	20.0	4437	20.0	1971	39.4	1840	34.2	934	29.8	1526	80.4	84	97	6509	26.0	8000	27.0		
Education	9150	52.0	11430	51.6	1687	33.8	1903	35.4	850	36.2	-	-	-	-	11687	46.7	13333	44.9		
Health	3010	17.1	3799	17.1	985	19.7	1176	21.9	534	22.8	318	15.7	-	-	4529	18.1	5293	17.8		
Housing	454	2.5	632	2.9	120	2.4	126	2.3	-	-	-	-	-	-	584	2.3	753	2.6		
Social Affairs	304	1.7	402	1.8	113	2.3	144	2.7	28	1.2	52	2.6	-	-	445	1.8	598	2.0		
Supply & Internal Trade	115	0.6	156	0.7	14	0.3	30	0.5	-	-	-	-	-	-	129	0.5	185	0.5		
Agriculture	961	5.5	1203	5.4	88	1.8	145	2.7	-	-	-	-	-	-	1049	4.2	1348	4.5		
Manpower	89	0.5	111	0.5	16	0.3	18	0.3	-	-	27	1.3	-	-	105	0.4	156	0.5		
TOTAL	17,613	100.0	22,170	100.0	4994	100.0	5382	100.0	2345	100.0	2022	100.0	84	100.0	97	100.0	25036	100.0	29671	100.0

* Columns might not add up due to rounding

SOURCE: Secretariat of Local Government

stocks, bonds, etc.) which is collected nationally but which is counted as local revenue before the central government grants-in-aid are added; (3) central government grants-in-aid or subsidies. It is apparent from Table 9 that the governorate derives very little in its total budget from locally raised revenues. This is especially true when one considers that 36.5 percent of all "locally" raised revenue is in fact an allocation by central government of joint revenues collected nationally. Including all local revenue as presently calculated by the Ministry of Finance, the Qena Governorate is still able to raise only slightly more than 10 percent of its total budgeted expenditures. It raises none of its own BAB 3 investment budget. All revenues raised locally go into salaries and current expenditures (BABs 1 and 2). One potential source of increased local revenue -- Board of governors' authorization to tax up to 15 percent of after-tax profits of public sector companies -- is thwarted in Qena's case due to non-profitability of existing public sector industries (aluminium plant, sugar factories, spinning mill). As mentioned previously, information concerning revenues collected and controlled locally through the special funds was not made available to the NUPS Study Team.

3. Manpower

The Qena Governorate suffers at the same time from a large bureaucracy and a lack of qualified middle level staff. This lack of qualified staff is particularly acute in terms of the administrative changes and reorientation called for in the implementation of the NUPS strategy at the local level. As of 1979, the governorate had more than 40,500 employees (See Table 10) of which almost 11,200 (over 27 percent) were employed in the headquarters. Of the almost 29,400 employees of the ministerial service departments, less than 7,000 or 17 percent have university degrees. Most of these are school teachers connected with the governorate's Education Department. The majority of governorate employees are in the craftsman, clerk and supporting staff categories.

The department heads met on the NUPS Study Team trip to Qena were generally of a high quality and dedicated to their work. Most of these top grade officials were either born in the Governorate or in Upper Egypt and feel a strong sense of duty to improve local conditions. This is less true for many middle-level personnel. Middle level staff has often been assigned to the Qena Governorate from Cairo or other posts in Lower Egypt. Commitment to the area is often lacking. This problem

TABLE 9

QENA GOVERNORATE BUDGET REVENUES - 1978 and 1979

REVENUE SOURCE	1978		1979	
	AMOUNT (000's)	%	AMOUNT (000's)	%
<u>RAISED LOCALLY</u>				
Land Tax	747	3.0	748	2.5
Building Tax	27	0.1	30	0.1
Entertainment Tax	10	0.0	12	0.0
Vehicle Licences	190	0.8	248	0.8
Joint Revenues *	10	0.0	13	0.0
Utilities Adminis- tered by Governorate	677	2.7	205	0.7
Other Local Fees & Taxes	245	1.0	302	1.0
Quarries	26	0.1	26	0.1
General Revenues.	188	0.8	142	0.5
Other Local Revenues	222	0.9	300	1.0
Sub Total	2342	9.4	2026	6.8
Local Share of Joint Revenues	872	3.5	1166	4.0
 SUB TOTAL LOCAL REVENUE	 3214	 12.9	 3192	 10.8
<u>GOVERNMENT SUBSIDIES</u>				
Current Action of Used Property	19393	77.5	24360	82.1
Sale of Lands & Buildings	4	0.0	1	0.0
Other Finance Sources	4	0.0	2	0.0
Investment	382	1.5	-	0.0
Share of Loans from Foreign Governments	1885	7.5	2014	6.8
	154	0.6	101	0.3
 SUB TOTAL GOVERNMENT SUBSIDIES	 21822	 87.1	 26,478	 89.2
 TOTAL BUDGET REVENUES	 25,036	 100.0	 29,670	 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

TABLE 10

GRADES OF CIVIL SERVANTS-QENA GOVERNORATE HEADQUARTERS AND SERVICE DEPARTMENTS 1979

GRADE	HEADQUARTERS		SERVICE DEPARTMENTS*														TOTAL	
	NO.	%	EDUCATION NO.	%	HEALTH NO.	%	HOUSING NO.	%	SOCIAL AFFAIRS NO.	%	AGRICULTURE NO.	%	MANPOWER NO.	%	SUPPLY & INT. TRADE NO.	%	NO.	%
Top Management**	3	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.0
Technical & Management Professional	241	2.2	4479	26.9	1629	20.6	72	7.0	159	16.6	341	14.6	64	27.7	4	1.6	6989	17.2
Technicians	1235	11.0	7629	45.7	1654	21.0	246	23.9	265	27.7	1017	43.4	5	2.2	55	22.5	12106	29.9
Craftsmen	1068	9.5	490	2.9	1862	23.6	396	38.5	67	7.0	173	7.4	20	8.7	14	5.7	4090	10.1
Administration	388	3.5	150	0.9	21	0.3	19	1.9	63	6.6	15	0.6	4	1.7	76	31.0	736	1.8
Clerks	1997	17.9	1064	6.4	350	4.4	110	10.7	184	19.3	117	5.0	92	39.8	57	23.3	3971	9.8
Supporting Staff***	6256	55.9	2872	17.2	2373	30.1	195	18.0	218	22.8	678	29.0	46	19.9	39	15.9	12667	31.2
TOTAL	11188	100.0	16684	100.0	7889	100.0	1028	100.0	956	100.0	2341	100.0	231	100.0	245	100.0	40562	100.0

* Beginning in 1980 the Service Departments of Youth and Roads have been added to the governorate structure

** Top management of Service Departments are considered as personnel of their respective ministries

*** Including "General" staff and security guards

SOURCE: Ministry of Local Administration

is compounded by the fact that many middle level civil servants have been placed in the Governorate by the Ministry of Manpower and Training as part of its responsibility to act as the employer of last resort for college graduates and returning servicemen. In addition, the Civil Service salary schedule as specified in Amended Law No. 47 of 1980 is inadequate to act as an incentive to attract and hold the best people to government service. A middle management professional assigned to the Qena Governorate makes less than L.E. 2,000 per year with a 30 percent allowance for working in Upper Egypt.

Finally, there exists a lack at middle management levels of managers and technicians with sufficient urban management skills. Little base-line data is collected, and less is processed or used. Management techniques which would assist in the identification of potential target groups for public services, the affordability of existing and proposed public services and programs by the users, the determination of needs and priorities in the allocation of resources among competing local councils, the proper planning and programming of the budget, and the evaluation and review of ongoing programs are lacking.

D. Enforcement of Prohibitions on the Use of Agricultural Land

In the Qena Governorate, the Ministry of Agriculture's Department, in conjunction with a committee including representatives of the Ministries of Irrigation and Housing, is responsible for enforcement of Agricultural Law Nos. 59 of 1973 and 1978, amending Basic Agricultural Law No. 53 of 1966. This law establishes the procedures for converting agricultural land (both inside and outside city boundaries) to private residential use and agro-industrial projects.^{5/} Since the city council Engineering Departments are responsible for the issuance of the building permit, they also play an important role in the overall enforcement process.

The law, as amended, states that the usage of agricultural land within city limits may be changed as long as the land is used for the benefit of the town itself (i.e., public facilities) or for the sole dwelling unit of a property owner. Approval of the above uses, as well as permission to subdivide agricultural land within city limits, are initially made at the Governorate's Agricultural Department and then sent to the national level for final approval. Building permits should not be issued by the city council engineering departments before approval is given.

The same basic provisions apply to use changes on agricultural land outside city boundaries. However, in this

case, subdivision for private residential use is prohibited. Only land required as a sole residence, for a public use or an agro-industrial project is permissible. In addition, the amending laws contain specific provision prohibiting the use of top soil for making bricks except with the permission of the Ministry of Agriculture.

Based on field trips to Qena Governorate and discussions with local officials, it is apparent that only large tracts of land (i.e. approximately greater than one feddan) are being legally subdivided. Since 1950, only four subdivisions have been approved within the Qena city limits. The four total 86 feddans (36.1 hectares), and range in size from 6 to 30 feddans. Since passage of Law No. 59 of 1973, no subdivisions have been approved. Yet field visits reveal that subdivision (or at least illegal building by individuals) continues at a rapid pace. This activity is occurring on agricultural land between the city center and the Nile River along one of the main entranceways to the city, and to the east of the Cairo-Aswan road. It was not possible to determine the exact size of land holdings being developed, but a local real estate broker estimated that most illegal building is presently taking place on plots smaller than 1 feddan. An issue that will need further investigation is whether the small plots are being illegally subdivided and built upon, or whether individual owners of small plots are simply building illegally. Whatever the method, the head of the Qena City Council's Engineering Department estimated that between 1950 and 1980 approximately 200 feddans were illegally developed for residential use. This figure represents 2.3 times the amount of land legally subdivided.

In comparison to the Qena City Council, Naga Hamadi has had somewhat greater success in controlling the illegal conversion of agricultural land. Most physical growth in Naga Hamadi over the past 15 years has been of a planned nature. This is due in large part to the existence of a physical development plan for a new section of the city. This expansion has taken place on land which belonged to the royal family prior to the 1952 Revolution and subsequently passed into private hands. The six tracts of land which have been legally subdivided since 1968, 41 feddans or 17.4 hectares, correspond very closely to the new planned area of the city. In fact, the last tract to be added to the city's planned expansion (1.4 feddans in 1979) received Ministry of Agriculture approval in compliance with Law No. 53 of 1978. According to Naga Hamadi officials, with the exception of a limited amount of illegal development taking place on the northern fringe of the city, all subdivision has been done legally. Very few parcels remain to be subdivided within the city boundaries.

According to the Agricultural Law cited previously, building permits should be issued by the local council engineering department for construction on agricultural land only after approval has been obtained from the Ministry of Agriculture. An analysis, however brief, of the number of permits issued by the Qena City Council over the past 10 years was not possible due to variations in the available source material. The City's chief engineer did estimate, however, that approximately 30 percent of all units constructed in Qena are built illegally. With all the illegal land subdivision taking place (estimated at 70 percent), the figures are probably much higher.

Naga Hamadi's building permit information tends to agree between sources, and therefore, will be examined in somewhat greater detail for the incidence of illegal building. The chief of Naga Hamadi's Engineering Department believes that most building taking place within the city boundaries is legal. Available information tends to substantiate his claim. Only 44 violations have been issued over the period 1969-1980. 6/ He mentioned that the incentive for obtaining a building permit is that a permit holder is entitled to buy building materials at government subsidized prices. Recently, one of his main problems has been a lack of government subsidized cement.

A quick quantitative estimate of the amount of informal construction (only without a building permit) which has occurred in Naga Hamadi between 1969 and 1980 compares an estimate of the number of residential housing units constructed over the period with the number of residential building permits issued plus the number of public housing units constructed. Allowing for a certain amount of permits issued for home improvements (which would not provide additional dwelling units), the analysis concludes that almost all of Naga Hamadi's residential building has taken place legally (See Table 11).

Illegal use of agricultural land and top soil for bricks is also occurring in rural villages and along the governorate's main highways. Land along the main routes connecting Luxor and Qena is developing at an especially rapid pace.

In conclusion, the Ministry of Agriculture, working in conjunction with the local councils of Qena and Naga Hamadi, has had uneven success at halting the illegal use of agricultural land for building purposes. In the case of Qena where the problem is most severe, the Ministry's representative in the Qena Governorate attributes his department's inability to control subdivision and building on small land parcels to three factors. 7/ He sees the main issue as one of facilitating the provision of a sufficient number of

TABLE 11

ESTIMATE OF ILLEGAL BUILDING IN NAGA HAMADI, 1969-1981

YEAR	NUMBER OF RESIDENTIAL BUILDINGS 1/	NUMBER OF DWELLING UNITS 2/	CHANGE IN NUMBER OF DWELLING UNITS	NUMBER OF RESIDENTIAL PERMITS 3/	NUMBER OF CORRESPONDING DWELLING UNITS 2/	NUMBER OF PUBLIC HOUSING UNITS CONSTRUCTED 3/
1969	956	1797				
			254	418	786	474
1970	1091	2051				474
			288	108	203	474
1971	1244	2339				474
			327	224	421	474
1971	1418	2666				474
			374	128	241	474
1973	1617	3040				474
			427	233	438	474
1974	1844	3467				474
			485	190	357	474
1975	2102	3952				474
			554	268	504	474
1976	2397	4506				474
			305 (555)	317	596	474
1977	2559 (2692)	4811 (5061)				474
			325 (622)	65	122	474
1978	2732 (3023)	5136 (5683)				474
			346 (700)	214	402	474
1979	2916 (3395)	5482 (6383)				474
			370 (784)	263	494	474
1980	3113 (3812)	5852 (7167)				474
			395 (881)	216	406	474
1981	3323 (4281)	6247 (8048)				474
TOTAL	-	4450 (6251)	4450 (6251)	2644	4970	474

1/ Assumes annual increase in number of residential buildings of 12.3 percent between 1969-1976 and 6.75 percent between 1977-1981.

Numbers in parenthesis assume a continued 12.3 annual increase between 1977-1981.

2/ 1976 Census of 1.88 dwelling units per residential building for Naga Hamadi.

3/ Naga Hamadi Engineering Department, 1981.

affordable housing solutions to meet the demand. He readily admits, however, that in the short-term there is corrective action that can be taken in two areas. Presently, many owners of illegally subdivided agricultural land or individual owners who wish to build on agricultural land are going directly to the city council engineering offices for permit approval. In circumventing the Ministry of Agriculture's procedures, these owners are, in effect, building legally on land whose change of use has not been approved. By the time the Ministry becomes aware that a permit has been issued, the building is under construction. The Ministry will file a complaint against the violator, and eventually the case comes before a judge. The problem is compounded and control over growth is effectively lost due to the fact that the local judges will only issue fines for such a violation, and in many cases the fine is not paid. In the Qena Governorate, no building has been demolished as a result of illegal building.

VII. Recommendations: NUPS Illustrative Development Strategy

A. Long Term Industrial Development Prospects.

In long-term, the industrial growth prospects of this development region will be greatly affected by:

- The investment priorities that aims at the modernization of the already existing industries;
- Efforts that aim at maximizing the regional economic gains from existing industries through building up and creating new industries that fully utilize their linkages and induce further growth.
- The nature of the new industries to be located in the region on the basis of the following locational factors: natural resources already exploited in the region; the existing industrial base; the assumption that sufficient demand will materialize for these industries' output as the market size of South Upper Egypt expands. Some of the most important possibilities are discussed below.

B. 1. Large-Scale Industries

a. Sugar Based Industries.

Prefeasibility studies are needed to determine the net gains from alternative ways of utilizing sugar-cane baggase. Currently the sugar plants use the baggase to generate steam power. Alternatively, the baggase could be used in the manufacture of paper

pulp and wood fibre. This industrial use, in turn, would stimulate further industries such as furniture and printing. The conversion of baggase to paper pulp and wood fibre proved successful in stimulating secondary employment in both Kom Ombo and Edfou in Aswan Governorate. The bagasse of Qena Governorate's four sugar plants might prove sufficient to support a similar industry. Further investigation is warranted.

Molasses could be fermented into alcohol and yeast. Sectoral studies already undertaken for food processing industries suggest an expansion in the production of yeast. Also, increased alcohol production could be used in the pharmaceutical and perfume industries.

b. Building Material Products

The cement plant with its production scale of 1.5 million tons a year could supply adequate cement for the production of a range of concrete products including blocks, panels, shapes and pipes, cladding plates, tiles, all of which are manufactured wholly or partly from cement.

c. Textile Products

The existing spinning mill in Qena, in combination with the plans for its further expansion could support the establishment of a weaving mill which in turn could have a local ready-made clothing industry.

d. Metallic Products.

The Aluminum plant is currently isolated, its benefits to the local area are still quite limited. To strengthen the role of the plant in the industrial development of the region it is proposed that emphasis should be directed toward establishing aluminum-based industries. These industries could include the manufacture of holloware, die casting, (valves, taps, window catches, locks, hinges), and aluminum extrusions (window and door sections). These industries should be located in close proximity to the aluminum plant.

e. Animal Feed Stuff.

The governorate has launched a new development program for commercial poultry, dairy and livestock production. These projects are in their early stages and are still limited to areas adjacent to Qena city

along the Safaga desert road. Local plans propose the expansion of the livestock sector and encourage the financing of these projects by private investors. This type of project will necessitate a significant increase in the provision of animal feed stuff. The availability of molasses from existing sugar factories could encourage the expansion of the local production of the needed animal feedstuffs. The process would necessitate mixing the molasses with other additives

f. Mining Industries.

Mining activities in the area, especially along the Qena-Safaga desert road, could contribute to the development of industrial projects in the manufacture of ceramics, porcelain, pottery, tableware products. These types of industries are typical of those with high labor absorption rates and strong regional linkage effects. There is also a wealth of marble, which if exploited, could support a wide range of employment in cutting and polishing. The marble could be used as an ornamental stone serving both a domestic and foreign market.

g. Agricultural Machinery Plant.

Given the dominance of agricultural activities in the region, the fragmentation of land holding, and the necessity to integrate agricultural with industrial development, and the low productivity of land, the feasibility of establishing an agricultural machinery plant in the region should be investigated. This type of industry is relatively footloose, not being tied to any particular location. Its proximity to large agricultural markets in South Upper Egypt would be advantageous. Such a plant, if located in the region, should be sited in close proximity to the existing aluminum plant. This proximity could provide the opportunity for effective technical polarization relations. The proposed plant should limit its production to the fabrication and assembly of the lighter types of agricultural equipment that would be appropriate to small farm holdings. The product line could comprise ploughs, seed and fertilizer drills, sprayers, cultivators and hand tools.

2. Small Scale Industries.

A successful industrial development strategy for the Qena-Naga Hamadi region should emphasize, not only large-scale, capital-intensive industries, but also should encourage the establishment of small-scale

industries to generate sufficient employment opportunities.

Small-scale and service industries are mostly suited for products that serve local markets. The NUPS team identified certain small-scale industries that would have a potential to grow in the region:

- a. Leather dying and footwear industries. Indications exist that a sufficient supply of raw material will become available with the implementation of the proposed expansion of the livestock industry;
- b. Carpets and woollen mats;
- c. Canning of molasses syrup;
- d. Plastic bags, straps and containers;
- e. Confectionaries;
- f. Fabricated metal products (tin cans, hand and edge tools, enamelware and nuts and bolts);

The basic advantages of these types of industries are:

- Ease of adoption to local market conditions;
- Relatively high job creation;
- Ability to generate substantial linkages;
- Ability to provide productive channels for local savings.

However, based on interviews and discussions with local investors, the NUPS team found that small-scale industries in the Qena-Naga Hamadi region suffer from a number of problems:

- a. Shortage of local skilled workers. An owner of a newly established small-scale metallic industry at Naga Hamadi indicated that his main source of recruiting skilled labor is the Cairo area. To attract workers he offers them highly competitive wages of seven pounds per day. This wage is in addition to other generous fringe benefits such as free accommodation on the plant's site, extra time off and monthly free transportation to Cairo. Most of the skilled workers attracted from other areas come without their families and with no intention of remaining in the area for long periods of time. This complicates sustained production. Local training institutions are unable to fill this gap. Currently, there are three secondary industrial schools with a

total enrollment of 5,333 students located in Qena and Naga Hamadi. Most graduates eventually find employment in government or the public sector service. There also exist vocational training facilities at the aluminum plant, the sugar factories and the spinning mill for satisfying their own immediate needs. This is in addition to training programs conducted by the Handicraft Industries and Cooperative Organization (HIICO) which has training facilities in welding, sheet metalwork and forging.

- b. Lack of credit and finance institutions which are responsive to local needs.
- c. Difficiency in transport and marketing network.
- d. Government regulations concerning insurance on trainees and employees. Employers are forced to pay 19 percent of paid wages for insurance premiums. In many cases they, as an incentive to attract qualified labor, are forced to pay the employees' contribution which amounts to 11 percent.
- e. Social attitudes toward working women. It is customarily not acceptable for women to work in a factory-type setting.
- f. Lack of incentives for trainees who are usually paid relatively higher wages for non-skilled work in the agricultural sector.

Strengthening the role of the small-scale industry in the region would need government support through incentives, these incentives could include:

- i. Subsidization of on-the-job training in order compensate for differences in prevailing wage rates between the agricultural sector and the trainees' stipends. Subsidies could be channelled either through direct cash payments to small business or through income tax deductions;
- ii. Modifications of the existing insurance laws to permit lower insurance payments on current employees and to waive insurance payments for trainees for two years, rather than the current six-months period;
- iii. Allocation of special funds or long-term financing of small-scale industries;
- iv. Tax exemptions for the first five years after industry's start-up;

- v. Provision of technical assistance to advise and help potential investors to define the most appropriate financing plan to start up a small scale industry and to select locations with potential positive rates of return and cost advantages.

For the case of Upper Egypt, in order to create economies of agglomeration, minimize public overhead capital and direct the growth of small-scale industry, it is proposed that the establishment of industrial estates should be thoroughly examined.

Another policy measure which would definitely stimulate the region's rapid expansion of small-scale industry would be to assure the sufficient supply of specific skilled workers through the expansion of formal vocational training facilities and the reorientation of existing training programs to fit local needs. There presently exists a shortage of skilled workers in the areas of car maintenance and repair, electric wiring, air conditioner and refrigerator repair, and telephone repair. Furthermore, the district labor offices and governorate planning divisions should improve their functions in order to better identify local labor market conditions, current shortage of skilled labor and training programs required to meet these needs. In addition, local council technical educational department industrial establishments and the Governorate planning division, should better coordinate their efforts at the local level. The latter should improve its professional capability in order to better identify projects and guide potential investors (See appropriate sections of Administrative Recommendations).

C. Physical Development

1. Qena City Strategy

Future development of Qena should be confined to the desert area east of the city. Arable land development restrictions should be enforced to halt development to the north, south and west.

Due to the current uncontrolled development in the eastern desert area, physical planning activities must structure future, as well as existing, development. This will be particularly difficult due to the wide variety and distribution of current land uses in the area:

- old and expanding cemeteries on either side of the old Safaga road;

- a city dump;
- irrigated land;
- irregular urban and rural residential areas;
- piecemeal siting of industry and public services;
- military and police installations;
- pottery manufactures;
- the university;
- the planned "New Qena";
- the waterworks serving Red Sea settlements.

Of primary importance is a road network to knit these various elements together. It is proposed that a "ring road" be developed. It would originate to the east of the stadium, swing around existing development to the northeast, and link up with the Old and New Safaga roads. This primary road will provide the framework for development of secondary and tertiary roads within and outside the area. A schematic plan for development of Qena is presented in Figure 11.

An industrial park which would take advantage of infrastructure economies is also recommended. New Secondary schools for the area should be integrated so that playing fields can be provided in common.

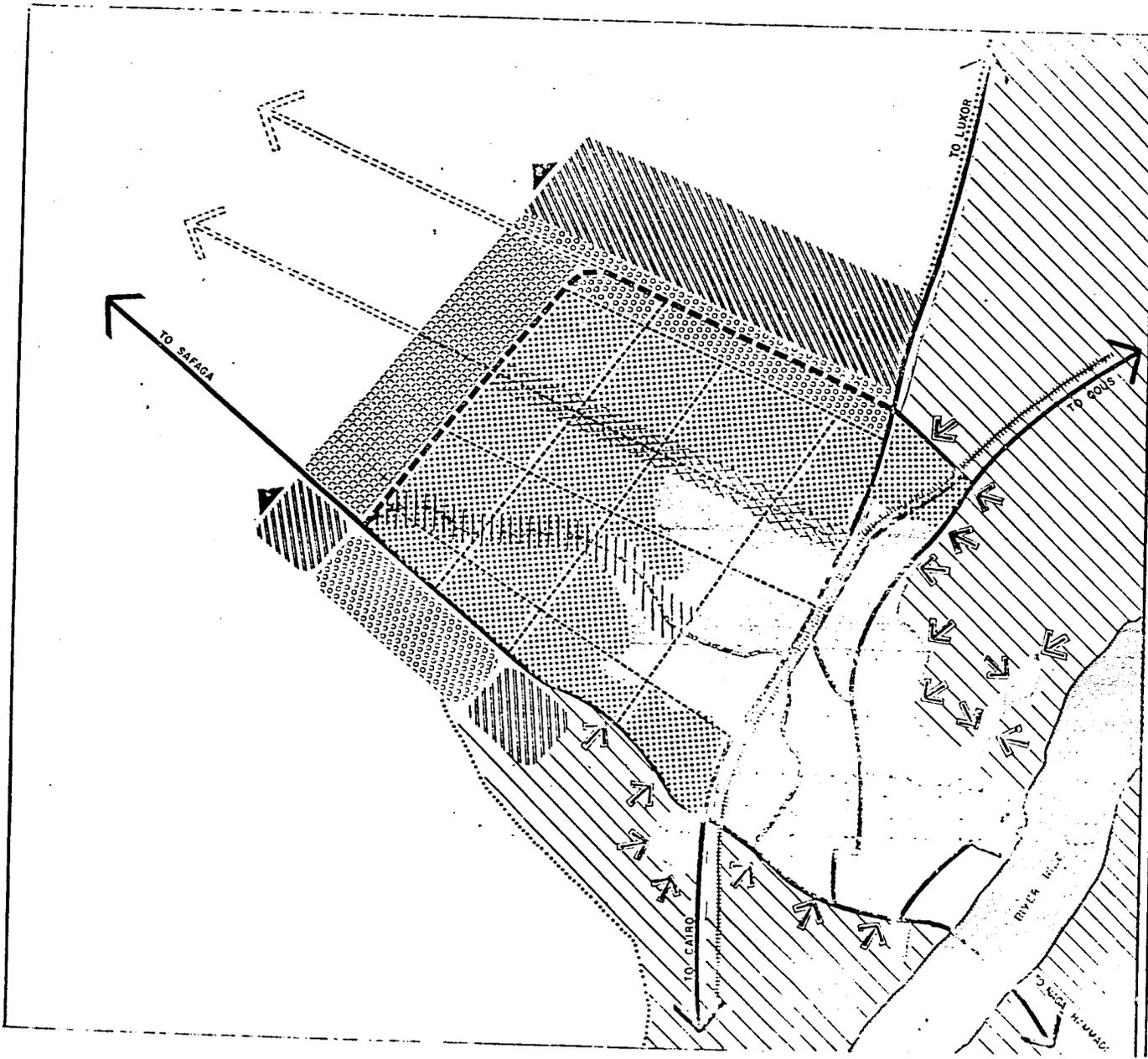
The New Qena development is not deemed appropriate to the region. Rather resources should be spent on an integrated urban development based on future master planning. Government action should concentrate on servicing land areas and leave the majority of housing construction to the private sector.

2. Growth Strategy for the City of Naga Hamadi

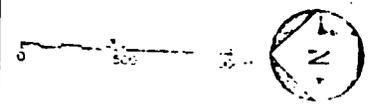
Only a limited amount of growth can occur within the existing boundaries of Naga Hamadi without expansion on arable land. Most growth should be diverted to the desert plateau near the aluminum factory. However, Naga Hamadi will continue to grow. This growth should be accommodated primarily through infill and densification.

The greatest opportunity for infill appears to lie to the south of the city, between the railroad and the sugar factory. Several opportunities exist for infill

QENA CONCEPT PLAN



-  RESIDENTIAL (EXISTING)
-  PROTECTED ARABLE LAND (EXISTING)
-  QENA UNIVERSITY (EXISTING)
-  INDUSTRY AND PUBLIC FACILITIES (EXISTING)
-  MAIN HIGHWAY (EXISTING)
-  RAILWAY LINE (EXISTING)
-  DESERT BOUNDARIES
-  RESIDENTIAL (PROPOSED)
-  INDUSTRY (PROPOSED)
-  GOVERNMENTAL AND ADMINISTRATIVE CENTER (PROPOSED)
-  RECREATION (PROPOSED)
-  PUBLIC FACILITIES (PROPOSED)
-  QENA RING ROAD (PROPOSED)
-  SECONDARY ROADS (PROPOSED)
-  HIGHWAY EXTENSION (PROPOSED)
-  URBAN GROWTH CONTAINMENT



in this area, and in fact, the municipality is planning to site new service facilities in one of the largest vacant areas located there. Based on the Study Team's estimate, approximately 25,000 inhabitants could be accommodated in this area.

To the north, renewal and densification is required. Though no figures are available regarding current densities in this area, the city's average urban density of 560 persons/hectare, suggests that an additional 15,000 could be accommodated to the north if densities of the same order are achieved over time.

Some fringe expansion, particularly along the old and new Cairo Aswan highway is likely to occur due to locational advantages.

3. Desert Plateau Development Strategy

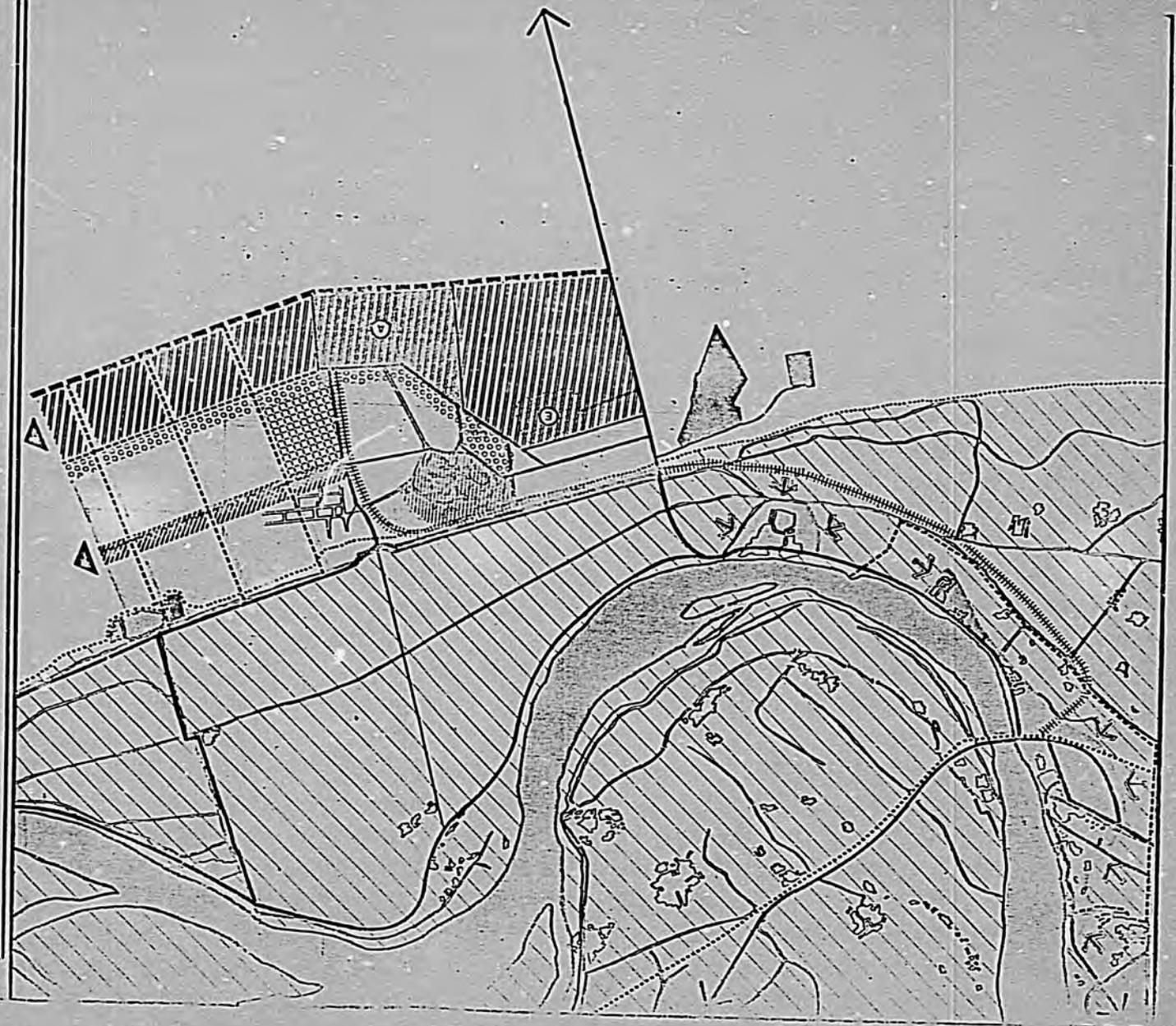
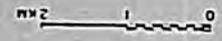
Due to the various existing land uses on the desert plateau which include the aluminum factory and electrical sub-station, as well as constraints imposed by the location of cemeteries, villages, and the power lines, it will be difficult to knit together a cohesive urban fabric.

However, as additional industrial and residential development is planned on the plateau, an effort should be made to piece these various elements together. This will permit economies in infrastructure and public services as well as enhance commercial and service functions in the private sector. (See further discussion of this topic in the Administrative Recommendations Section).

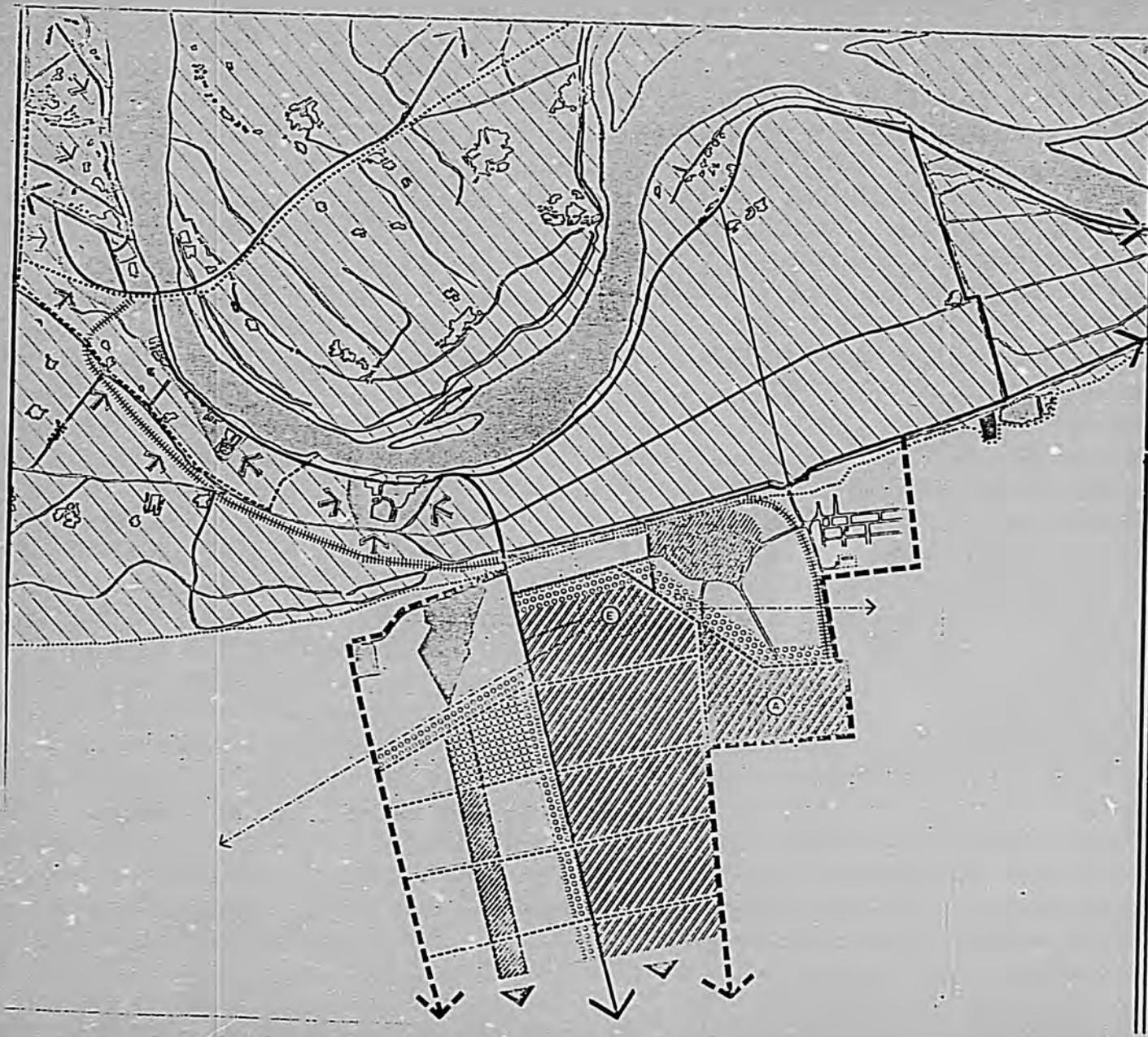
The Study Team recommends that residential development of the aluminum factory, electrical sub-station, planned expansion of Naga Hamadi/Hiw, and the proposed cement factory be unified as a single whole, rather than distinct entities unto themselves. Whether this can actually be achieved, given physical constraints imposed by present development, needs to be investigated. Nevertheless, a schematic layout has been suggested in Figures 12.a and 12.b. A possible alternative would be two basic settlement areas: the aluminum plant housing (including housing for the electrical sub-station) and another development at the site of the proposed Salaam City. Cement factory and other future industrial housing should be combined on the latter site.

**CONCEPT PLAN I
DESERT PLATEAU DEVELOPMENT
NAGA HAMMADI**

-  RESIDENTIAL (EXISTING)
-  AGRICULTURAL LAND (EXISTING)
-  ALUMINUM SMELTING PLANT (EXISTING)
-  500 KV. OVERHEAD ELECTRICAL LINES (EXISTING) *
-  500KV ELECTRICAL SUB-STATION (EXISTING)
-  MAIN HIGHWAY (EXISTING)
-  SECONDARY HIGHWAY (EXISTING)
-  RAILWAY LINE (EXISTING)
-  ALUMINUM PLANT PRIVATE RAILWAY LINE (EXISTING)
-  CEMETERIES (EXISTING)
-  RESIDENTIAL (PROPOSED)
-  INDUSTRIAL AREA (PROPOSED)
-  PUBLIC SERVICES (PROPOSED)
-  ADMINISTRATIVE (PROPOSED)
-  RECREATION (PROPOSED)
-  FUTURE DIRECTIONAL GROWTH
-  GROWTH CONTAINMENT
-  MAIN HIGHWAY (PROPOSED)
-  SECONDARY HIGHWAY (PROPOSED)
-  * UNSURE OF EXACT LOCATION OF OVERHEAD ELECTRICAL LINES



CONCEPT PLAN 2 DESERT PLATEAU DEVELOPMENT NAGA HAMMADI



-  RESIDENTIAL (EXISTING)
-  AGRICULTURAL LAND (EXISTING)
-  ALUMINUM SMELTING PLANT (EXISTING)
-  500 K.V. OVERHEAD ELECTRICAL LINES (EXISTING) *
-  500K.V. ELECTRICAL SUB. STATION (EXISTING)
-  MAIN HIGHWAY (EXISTING)
-  SECONDARY HIGHWAY (EXISTING)
-  RAILWAY LINE (EXISTING)
-  ALUMINUM PLANT PRIVATE RAILWAY LINE (EXISTING)
-  CEMETERIES (EXISTING)
-  RESIDENTIAL (PROPOSED)
-  INDUSTRIAL AREA (PROPOSED)
-  PUBLIC SERVICES (PROPOSED)
-  ADMINISTRATIVE (PROPOSED)
-  RECREATION (PROPOSED)
-  FUTURE DIRECTIONAL GROWTH
-  GROWTH CONTAINMENT
-  MAIN HIGHWAY (PROPOSED)
-  SECONDARY HIGHWAY (PROPOSED)
- * UNSURE OF EXACT LOCATION OF OVERHEAD ELECTRICAL LINES



D. Administration and Finance

1. The Role of Local Government

Based on the allocation of functional responsibilities previously presented in Table 7, local government in the Qena Governorate presently has little say in the determination of policy issues which would affect the implementation of a NUPS strategy at the local level. In addition, local government has minimal input into the identification, planning and design aspects of the project cycle for the development of physical infrastructure or the decision-making process leading to the siting of a public sector company in the governorate. The planning and finance functions of the governorate are mainly ones of collection and budget processing.

The governorate and its associated city councils are mainly responsible for carrying out central government policies, programs and projects, the operation and maintenance of government buildings and physical infrastructure, and the licensing and enforcement of laws dealing with changes in agricultural land use, land subdivisions, and residential building. Administrative and financial recommendations for the Qena Governorate are based on the principles underlying the preferred NUPS strategy as presented in the Second Round Alternatives. 8/ Specifically, the recommendations are underpinned by the following three principles:

- Efficiency in the use of scarce human and financial resources;
- Integration of local government within the framework for decisions taken at national level with regard to spatial, infrastructure and industrial policies and plans;
- Carrying out of central government procedures (budgeting, sectoral planning, etc.) at local level in a way to realistically reflect the needs and desires of local population.

The following sections highlight what are believed to be the most critical areas for both short- and medium-term intervention required to effectively implement a growth encouragement strategy for the Qena and Naga Hamadi region. While in most cases, the problem issues identified are specific to the Qena local government structure, the nature of the recommendations is sufficiently general to be applicable to other growth encouragement centers in Upper Egypt.

- a. Establish planning framework to guide and control physical growth in Qena Governorate;
 - b. Reorient functions of Qena Governorate Economic Planning and Finance units to make the governorate budgetary process more efficient and responsive to the needs of the local population;
 - c. Improve technical and managerial capacity of governorate middle management staff to perform the duties required in the implementation of NUPS strategy at local level;
 - d. Strengthen the governorate/local council capacity to enforce Agricultural Law No. 59 of 1973.
2. The Need to Establish a Planning Framework to Guide and Control Physical Growth in Qena Governorate

The following recommendations are intended to establish the framework for controlling and guiding physical development in the Qena Governorate over the planning period used by the NUPS study to the year 2000.

- a. Maintain major policy, planning and design responsibilities for economic planning and public finance, physical and industrial development and infrastructure, manpower and training, etc. at the central government level. (See Sections II and IV of Chapter V of the Final Report for recommended policy and planning changes at the national level).
- b. Organize within the Qena Governorate's Ministry of Development Department a physical planning unit whose scope would be to implement planning-related decisions taken by central level ministries and authorities, at the same time it formally represents local interests in the discussions leading to these centrally taken decisions. The unit would serve as the conduit which links central level physical plans and projects with local needs, customs and practices. In this capacity, the unit would work closely with the GOPP in the preparation of all physical planning for the governorate. It would review all major infrastructure and public building designs and site locations. It would provide major guidance in the siting and preparation of development plans for public sector companies to be located in the governorate. It would review and provide assistance to the local councils in the preparation of site plans for public facilities. It should also have sufficient socio-economic and engineering capacity to survey existing service levels of physical

infrastructure and programs, and to identify potential target groups for future programs. It should have sufficient technical capacity to undertake pre-feasibility studies for any recommended programs or projects.

- c. In its capacity as the physical planning body in the Qena Governorate, the planning unit should obtain an up-to-date set of aerial photos (preferably at a scale of 1:5000) of all existing and future development areas. It should oversee the preparation of topographic maps for Qena and Naga Hamadi and their surrounding districts. These maps will allow the planning unit to undertake its proposed physical planning role. The maps will also serve to map existing infrastructure, undertake accurate site planning, etc.
- d. Contingent upon the completion of the necessary mapping, and in coordination with the establishment of the proposed planning unit within the governorate, the GOPP shall undertake development plans for Qena and Naga Hamadi. In addition to specific sectoral recommendations for the two urban centers, the development plans would provide a framework for the planned physical growth of the cities and their surrounding districts.

The existing and proposed development of the desert plateau south of the city of Naga Hamadi poses a particular challenge to central government's implementation of the NUPS strategy. A growth inducement exercise offers an excellent opportunity to examine the potential for controlling and guiding future growth which will certainly occur across the legal boundaries of towns and villages, and in many cases on desert land. It is not the intent of this illustrative exercise to recommend one specific mechanism to harness this anticipated development, rather several alternatives, with their advantages and disadvantages, are presented as a means of opening discussion on this most important issue.

3. Alternatives for Growth Management

There are at least five alternative ways in which this growth issue can be addressed administratively:

- a. Maintain existing situation; i.e., no coordination of future growth;
- b. By authorization of the Committee of Administrative Divisions of the Secretariat General of Local

Government, extend the boundaries of Naga Hamadi to include the several small villages and desert land where development is occurring. (This is the solution chosen by the Qena City Council to integrate under one jurisdiction the new development taking place along the Safaga Road on desert land);

- c. Establish through Law No. 59 of 1979 (New Urban Communities) a new community which would encompass all new development envisaged for the area;
- d. Through application of and/or amendment to the Local Government Law No. 50 of 1981, coordinate and administer the development of Naga Hamadi, its proximate villages and desert land directly at the Naga Hamadi district level.
- e. Within the context of the proposed planning unit and development planning recommended for the Qena Governorate, authorize the planning unit, working in close coordination with central government professionals at the GOPP and the Ministry of Development authorities, to integrate the new development envisaged for the Naga Hamadi district in such a way as to avoid the duplication of public services and housing and to optimize "urban service" potential.

4. Evaluation of Growth Management Alternatives

The five alternatives were designed to illustrate the possible administrative strategies for the desert area surrounding the aluminium plant. While it is not the intended purpose of this exercise to select a particular strategy for this area, it is useful to highlight the differences between alternatives with respect to a set of performance criteria responsive to the NUPS growth encouragement program. For simplicity, the performance criteria used by the NUPS professional staff in a prior exercise 9/ were applied to the five administrative alternatives. The performance criteria used are grouped into four categories:

- Social Effectiveness
- Economic Efficiency
- Ease of Management and Implementation
- Risk Elements

The alternatives were evaluated for each of the criteria on the basis of a score of good, fair or poor. Table 12 presents the preliminary conclusions, and details the specific criteria included in each category. Without drawing any final conclusions, it is obvious that Alternatives 1 and 2 do not perform very well based on the

TABLE 12

EVALUATION OF ALTERNATIVE MODIFICATIONS TO GOVERNORATE ADMINISTRATIVE
FRAMEWORK IN ORDER TO INTEGRATE PHYSICAL DEVELOPMENT IN NAGA HAMADI DISTRICT

OPTION CRITERION	MAINTAIN EXISTING SITUATION (1)	EXTEND NAGA HAMADI BOUNDARIES TO INCLUDE DEVELOPMENT AREA (2)	ESTABLISH NEW COMMUNITY (LAW 59/1979) TO ENCOMPASS ALL NEW DEVELOPMENT CN AREA (3)	COORDINATE DEVELOPMENT IN AREA BY EXPANDING AUTHORITY & TECHNICAL CAPACITY OF NAGA HAMADI DISTRICT COUNCIL (4)	PROPOSED PLANNING UNIT WITHIN MIN. OF DEV.'S GOV. OFFICE, IN COOPERATION WITH GOPP, TO PREPARE PLANS & COORDINATE & MONITOR DEV. AT NAGA HAMADI DIS. LEVEL (5)
1. Social Effectiveness ^{1/}	Poor	Poor	Good	Fair	Good
2. Economic Efficiency ^{2/}	Poor	Fair-Poor	Fair	Fair	Fair-Good
3. Management and Implementation ^{3/}	Fair-Good	Fair-Good	Good	Fair-Poor	Fair
4. Risk Elements ^{4/}	Fair-Poor	Poor	Fair	Poor	Good

1/ Social Effectiveness

- Ability to absorb additional urban population at acceptable service levels
- Minimum intrusion on arable land
- Least social disruption: Maintenance of family and cultural ties

2/ Economic Efficiency

- Least Cost
- Encouragement of private investment
- Ability to attract foreign assistance
- Reduce likelihood of severe unemployment

3/ Management & Implementation

- Minimize administrative cost
- Ability to sustain implied settlement growth rate
- Ease of management

4/ Risk Criteria

- Risks of exceeding financial consultants
- Risk of exceeding management constraint
- Risk environment damage

inability to halt encroachment on arable land, excessive costs due to duplication of public services and housing, and risks to the environment and to exceeding financial constraints. Alternative 4, while doing reasonably well on cost effective criteria and offering the opportunity for integrated urban development, raises major questions with respect to management and implementation and the inherent risks involved. Alternative 4 calls for expanding the district council's administrative and technical capacity at a time when the same goals are being sought for the governorate and city council units. To attempt to achieve these goals simultaneously, the Qena Governorate would stretch already scarce financial and managerial resources to the breaking point. This leaves Alternatives 3 and 5. Both provide the potential for guiding physical development in a cost and socially effective manner. Both also provide an adequate framework for management and implementation performance. The major difference between the two is highlighted by the fourth performance criterion, the risk factor. Alternative 3, the establishment of a new community, would function on an ad hoc basis outside the mainstream of the local government structure with its own management team and with the authority to offer a number of tax and investment incentives. Alternative 5 calls for strengthening the decentralization functions of local government. Both alternatives would expend additional scarce financial and management resources. However, while the new community approach undoubtedly provides the best short-term solution to the problem confronting integrated development on the desert plateau, the increased planning capacity and overall development control proposed for the Governorate Planning Unit fits more closely central government policy for decentralization. At the same time, it further provides a cost efficient model for replication in other Upper Egypt growth encouragement centers.

Regardless of which alternate administrative strategy is eventually selected, there presently exists a statutory measure which establishes the mechanism for introducing integrated planning into the desert plateau with a maximum of community participation. Articles 110-111 of Law No. 50 of 1981 concerning amendment of the Law of Local Government promulgated by the Decree of Law No. 43 of 1979 provide for establishing industrial zones in a governorate which would be administered by a service committee. It is the responsibility of a service committee to provide all the necessary services for industrial areas and supervise the implementation of development proposals in the zone. The industrial zone and committee are formed by Governor Decree. The committee is composed of members chosen by the local coun-

cil to which the industrial zone belongs, heads of concerned local units, industrial leaders and representatives of workers and trade unions in the governorate. The formation of such an industrial zone -- it could possibly be organized to include Naga Hamadi, Hiw and the desert plateau -- and its committee offer an excellent opportunity to begin discussing the issues of integrated physical development in the area. In addition, the formation of such a committee would buy time to allow the GOPP and the proposed planning unit to begin to map and develop plans for the area. The professionals initially assigned to the planning unit could begin to participate in the discussions at an early date, and as capacity increases, take a greater leadership role within the committee.

5. Reorientation of Functions of Qena Governorate Economic Planning and Finance Units

As noted in many of the previously cited sources, the functions of the governorate Economic Planning and Finance Offices are primarily ones of control and accountability. Its main emphasis is on the processing of local unit investment plans and budgets and the collection of taxes. It is more concerned with the goods, services and facilities that are to be purchased and accounted for than with viewing the budgets as a planning and programming tool. On the financing side, central government subsidies cover approximately 90 percent of the Qena Governorate budget. Because the Governorate does not benefit directly if local revenues increase, little incentive exists to improve revenue collection.

Present efforts by government and foreign assistance agencies tend to emphasize improved tax collection and administration at both the central and local government level as a means to improve local government fiscal autonomy. The use of special funds to increase local resources is also a step in the right direction. The performance (profitability) of public sector companies will also have to be looked at as a means of increasing local revenues given the option to levy a 15 percent tax on after-tax profits. All of these efforts are obviously laudable.

The implicit assumption of these proposals is that increased local revenues will lead to improved public services. It should be noted, however, that the Qena Governorate collects approximately L.E.3 million per year in "local" revenues (including local share of joint revenues); none of these funds are presently going into

investment projects. The total of locally raised funds would, therefore, have to be increased many times in order to provide a local pool of revenue for investment in public services. Possible ways to increase the local tax base have been treated in great detail in previous NUPS working papers and will not be discussed further in this illustrative exercise.

On the other hand, even if local government units had access to unlimited investment resources, there presently does not exist the administrative framework to efficiently make use of an expanded resource base. The existing local economic planning and budgeting framework lacks the means for clear delineation of responsibilities for program initiation and planning, for setting initial budget constraints, and for prioritizing the allocation of scarce resources between competing projects or local units. Therefore, the present recommendations concentrate on how, given existing constraints, this governorate could make more efficient use of the budget as a planning and programming instrument.

The functions of the Qena Governorate Economic Planning and Finance Offices should, with support from the central Ministry of Planning Finance and Economics, be refocused to make more efficient use of existing financial resources.

The Central Planning and Finance Ministries, in addition to providing guidelines and special procedures to be used by local government in developing budgets (mainly BABs 1 and 2), should begin to assist and train the Governorate Planning Office in the preparation of investment budgeting (BAB 3). The Ministry should provide the Governorate Planning Office with rough estimates of the amount of capital investment funding to be made available by each ministry for budgeting of programs and projects at the local level. The present amount is very limited; currently in Qena Governorate, most ministries' budgeting takes place in Cairo with the local Economic Planning Office simply integrating final sectoral budgets into a single governorate document. Due to a lack of technical capacity at the local level, this practice should continue for the foreseeable future. However, minor changes which will lay the foundation for future local functional responsibility can begin to be made.

The limited investment resources available for local government budgeting should be allocated among competing local government units on the basis of pre-determined priorities. Presently, resource allocation is primarily on the basis of the Executive Regulations for Local

Government (Decree No. 707 of 1979). This decree calls for resource allocation on the basis of the hierarchy of local government units (i.e., a governorate capital receives a certain level of public facilities, a district capital a slightly lower level, and so forth down to the village level), rather than on the basis of local needs. It is recommended that the Planning and Finance Offices work closely with the governorate ministerial departments to ensure that locally proposed budgets, albeit limited, reflect the needs of the local units. Discussions should be held with the local units in order to prioritize project and program needs when it is apparent that sufficient resources are not available to cover all requests. The Economic Planning Office should consult with the proposed Physical Planning Office in order to identify and discuss those major infrastructure projects earmarked for the governorate which do not go through the normal governorate budgetary process. In addition, the proposed Physical Planning Unit will be able to assist the Economic Planning Office in the preparation of feasibility studies to justify investment in competing capital projects.

It is beyond the scope of the Illustrative Development Project to examine in detail the merits of providing a similar level of public services at each different level of local government as called for in the above-mentioned Executive Regulations. However, based on what will certainly continue to be a fierce competition for scarce resources at the local level, it might be prudent to differentiate between district capitals or local city councils in the distribution of resources for public services. 10/

In conclusion, while the control and accounting functions of the governorate Sectoral Planning and Finance Offices are essential to sound fiscal management, the budgetary process should begin to be viewed as a means to reflect and respond to the needs of the various units within the local government structure.

6. Improve Technical and Managerial Capacity of Governorate Middle Management Staff

The lack of an adequately trained middle management staff is a severe constraint to carrying out the NUPS strategy at the local level. Specifically, additional skilled manpower, or at a minimum the retraining of present staff, will be required to establish the proposed Planning Unit within the governorate's Ministry of Development Department. New urban management skills are also called for in order to achieve the new functions envisaged for the governorate's Economic Planning and

Finance Offices. Quality, interest and dedication, rather than a major recruitment effort based on pure numbers, is required for the new managerial teams. Ideally, some of the slots for the proposed planning unit could be filled from the existing staff of the Ministry of Development Governorate Department or local council engineering departments. Presently, the Ministry's department employs 23 engineers and one architect, while the Qena City Council employs 5 engineers. These professionals should be evaluated for possible selection for the planning unit. The head of the unit should be a professional with a strong planning orientation, and with close ties to the governor and the Director General of the Department. He should preferably be from the Qena Governorate, but definitely from Upper Egypt.

The planning unit should be kept as small and lean as possible. However, in order to carry out its specifically defined functions, it should include professionals with a planning orientation and backgrounds in engineering, architecture, sociology and economics. The specific tasks of the planning unit were discussed in a previous section. Based on the obvious dedication of the present governorate department heads, who are from the Qena Governorate, an aggressive campaign should be organized to recruit the required professional talent for the planning unit from middle management professionals born in Qena, but who are presently working in government in other areas of Egypt. This recruitment program should be coupled with an attractive remuneration package which would offer top civil service grades, a special salary scale with incentive bonuses, and housing and transportation allowances. The proposed Planning Unit would be a key office within the governorate, not necessarily a large one. The additional cost involved in recruiting the best staff possible should not, therefore, be prohibitive.

The new directions indicated for the Governorate's Economic Planning and Finance Offices require training for certain technical, administrative and financial personnel in order to substantially increase these offices' capacity to effectively begin to use the budget as a planning and programming tool. No massive influx of new personnel is envisaged. Perhaps a few key people will have to be brought in to provide these offices with the new orientation.

The training program should emphasize management skills which would prepare the professional staff to undertake the following tasks:

- a. Survey functional capacity of all local government units in the governorate;
- b. Collection, processing and analysis of base-line data; determine implications for future programming of current service levels of public facilities;
- c. Identification of local investment needs and services (determined in conjunction with local unit officials and professionals from the proposed Planning Unit);
- d. Prioritization of needs within and between local government units;
- e. Rationalize allocation of governorate resources between competing local units;
- f. Review and evaluation of ongoing programs;
- g. Institute up-to-date budgeting, bookkeeping, and auditing techniques.

As much as possible, the training envisaged should take place on-the-job, and should be linked to similar type training being provided at the central government Ministry of Planning, Finance and Economics. If the proposed re-orientation in the governorate's Economic Planning and Finance Offices is to be achieved, the training program requires sustained technical support with Arabic capacity, working in situ with functioning local teams.

7. Protection of Arable Land

- a. Strengthen the Governorate/Local Council Capacity to Enforce Agricultural Law No. 59 of 1973

Similar to the situation in other governorates, the Qena Governorate, in conjunction with local council engineering offices, has little authority to enforce Laws No. 59 of 1973 and 1978 dealing with the conversion of agricultural land. What is surprising, however, is that illegal encroachment on arable land apparently varies widely between local councils. Admittedly, while the present exercise has looked at only two cities in the Qena Governorate, the incidence of illegal subdivision and building apparently differs greatly between the two. Qena has had a very poor record over the past 10-15 years, while Naga Hamadi has been able to minimize illegal growth. The obvious response could be that the quality of staff and the dedication of enforcement is much better in the latter case. Field visits to Qena and Naga

Hamadi do not substantiate this hypothesis. The major difference between the two cases is that the Naga Hamadi City Council did provide for legal growth through planned expansion of the old city. Only further study can verify that this factor did indeed reduce illegal encroachment on arable land. However, it is certainly a step in the right direction.

The present section does not discuss the myriad of possible enforcement recommendations which could be applied in order to control the illegal conversion of agricultural land. (See Sherer's Working Paper for a detailed set of recommendations). Rather, the present discussion focusses on rationalizing and strengthening local government's procedures for controlling illegal land conversion within existing legal and administrative capacities, and includes the following recommendations:

b. Provide New, Serviced Areas of Physical Expansion for the Governorate's City Councils

The proposed Physical Planning Unit, in conjunction with the GOPP and the governorate's Economic Planning and Finance Offices, should provide the necessary plans, engineering designs and financing required to develop new areas of the city councils in a planned and orderly fashion. Expansion should take place in accordance with a development strategy being proposed for the cities, at levels capable of absorbing the projected population growth and at standards affordable by the future population.

c. Coordinate Activities Between the Governorate's Agricultural Department and the Various City Councils on the Issuance of Building Permits

Law No. 59 of 1978, amending the Basic Agricultural Law of 1966, prohibits the issuance of building permits for construction on agricultural land without the prior approval of the Ministry of Agriculture. In practice, due to a lack of communication and coordination with the ministry's departments within the governorate, the local council engineering departments often issue building permits without the proper authorization. This practice can be curtailed by requiring that the person seeking a building permit present written approval from the governorate's Agricultural Department stating that the piece of land in question has either been legally subdivided or that the proposed dwelling will be the owner's sole home. This simple procedure should be easy to implement and should aid in reducing the illegal subdivision of

small parcels of land, at the same time legalizing what is technically illegal building. The Agricultural Department's present staff can accommodate this recommended procedure. The committee at the governorate level charged with controlling the conversion of agricultural land (composed of representatives of the Ministries of Agriculture, Housing and Irrigation) must insist that the local council engineering departments comply with this regulation. The incentive on the part of the permit seeker rests with access to subsidized building materials which is included in permit approval. These materials are administered by the local engineering departments. Certain types of building materials are only available through the engineering departments, or on the black market at exorbitant prices. Not having access to the subsidized materials often results in postponement of the construction.

d. Strengthen Specific Enforcement Procedures for Laws No. 59 of 1973 and 1978

Even though violators of Laws No. 59 of 1973 and 1978 are subject to jail sentences, fines and demolition of whatever buildings have been illegally erected, the courts at the local level have, in many cases, suspended imposed fines and have never ordered the demolition of an illegally constructed building. By themselves, fines, or even the threat of jail sentences, have not deterred land owners from building illegally. The governor should take an active role requiring the local courts to act quickly when a complaint has been issued by the governorate's Agricultural Department and to impose the full penalty as called for in the law. If needed the governorate should be supplied with the necessary equipment to rapidly carry out a demolition order.

ILLUSTRATIVE DEVELOPMENT PROJECT - QENA AND NAGA HAMADI

FOOTNOTES

- 1/ For comparative purposes for the period 1960-1976, Qena's and Naga Hamadi's population grew at annual rates of 3.12 and 2.21 percent, respectively.
- 2/ In discussion with the department's managers, it was estimated that approximately 90 percent of the technical staff's time is spent on construction management.
- 3/ The NUPS team which visited Qena observed the results of the site planning for a public housing project done by hand on the back of a letter.
- 4/ "Decentralization in Egypt: Law and Practice", NUPS Working Paper, Cairo, October 1980; "Cairo Governorate: An Administrative Profile", NUPS Working Paper, Cairo, Undated; "The Public Financing Aspects of NUPS", NUPS Working Paper, Cairo, October 1981; "Financial and Management Analysis Report on Local Government Units", Ahmed S. Foda, Ibrahim A. Amar, Said S. Doba, USAID, Cairo, June 1981; "Local Government in Egypt: Some New Change Strategies and Training Opportunities", James B. Mayfield, University of Utah, USAID, Cairo, 1976.
- 5/ See Sherer's NUPS Working Paper, "The Protection of Agricultural Land: A Legal and Administrative Discussion", March 1981, pp. 12-25, for a more detailed description of the law and its practical application in other parts of Egypt.
- 6/ In comparison, for roughly the same population growth over the period 1969-1981 and for equal enforcement capabilities, Qena's Engineering Department registered 389 violations between 1976 and 1980.
- 7/ Detection of violators is apparently not a problem. The Ministry has five full-time enforcement officers in Qena and one person in every village. He also mentioned that private citizens in the villages also supply information on illegal building.
- 8/ "Second Round Alternatives for The National Urban Policy Study", NUPS Working Paper, Cairo, September 1981.
- 9/ See NUPS Working Paper, "Second Round Alternatives" in the section on "Other Evaluation Criteria", September 1981, pp. 41-49, for a fuller discussion of how these performance criteria were applied to the evaluation for the NUPS spatial alternatives.

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For example, in the Qena Governorate, a hierarchy of district capitals could be established on the basis of a set of criteria (i.e., demographic, commercial or where central government wishes to place development emphasis). A three-tier classification could be envisaged -- district capitals A, B and C. On this basis, Qena, being the Governorate capital and also the capital of the Qena District, and Naga Hamadi, as a city earmarked for special emphasis development would be Class A cities implying a certain level of public services. The next tier of governorate district capitals -- Dishna, Qos, Luxor and Armant -- would be designated as Class B cities with a corresponding level of government services. Finally, Class C district capitals would have the lowest levels of services. This classification system would offer the opportunity to provide certain governorate cities with similar service levels to those presently offered or even higher levels of certain services (university education, specialized medical centers, for example) at a lower total budget than presently allocated to the governorate.

APPENDIX I

TECHNICAL PROFFILES

A. General Data

TABLE I.1.a

QENA GOVERNORATE
POPULATION STRUCTURE AND DISTRIBUTION

- Total Population 1976		2,017,000
Urban (448,000)	= 22 percent	
Rural (1,549,000)	= 78 percent	
<hr/>		
	2,017,000	= 100 percent
- Percent of total pop. to the whole of Egypt		4.7
- Percentage of age structure		
o Under 17		32.5
o Older people 64		3.0
- Percent distribution by sex on the regional level		
o Male		50.3
o Female		49.7
- Density and size of households		
		Qena
o Inhabitants/sq.km		945.00
o Household/sq.km		190.00
o Size of household		4.57
- Housing types in Qena Governorate		
o Apartment		30 percent
o Houses		70 percent

SOURCE: Governorate Data and
"An overview of Infrastructure in Region 8 Sohag, Qena Aswan and the Red Sea".

TABLE I.1.b .

GENERAL DATA

QENA, NAGA HAMADI

URBAN DATA: QENA

1. Area inside city limits 1980 - 3,400 feddans
2. City population 1976 - 93,700 persons
3. Vacant land in Qena 1980 - 16 feddans
4. Agricultural land inside city limits - 500 feddans

URBAN DATA: NAGA HAMADI

1. Area inside city limits 1980 - 817 feddans
2. City population 1980 - 22,000 persons
3. Estimated number of dwelling units 1980 - 40
4. Agricultural land inside city limits - 407 feddans

B. Settlement Hierarchy and Distribution

TABLE I.2.a

DISTANCE BETWEEN GOVERNORATE CAPITALS AND MAJOR CITIES IN UPPER EGYPT

Beni Suef - El Minya	125 km
El Minia - Assiut	139 km
Assiut - Sohag	115 km
Sohag - Qena	155 km
Qena - Luxor	66 km
Luxor - Aswan	223 km

TABLE I.2.b

CITIES WITHIN QENA GOVERNORATE FROM NORTH TO SOUTH

<u>EAST BANK</u>	<u>POPULATION</u>	<u>DISTANCE KM</u>
Naga Hamadi	19,791	26
Deshna	29,151	26
Qena	93,787	30
Qos	33,139	33
Luxor	92,748	15
Armant	42,214	45
Esna	34,186	
<u>WEST BANK</u>		
Abu Tisht	5,581	16
Naga Hamadi	19,791	6
Hiw	20,000 to 30,000	55
Qena	93,787	30
Qos	33,139	33
Luxor	92,748	33

TABLE I.2.c

MARKAZ CAPITALS* WITHIN THE QENA GOVERNORATE IN ORDER FROM
NORTH TO SOUTH

<u>BANK</u>	<u>TOWN</u>	<u>POPULATION</u>	<u>DISTANCE KM</u>
West	Abu Tisht	5,581	16
West	Naga Hamadi	19,791	6
West	Hiw	from 20,000 to 30,000	23
East	Deshna	29,151	26
East	Qena	93,737	30
East	Qos	33,139	33
East	Luxor	92,748	15
West	Armant	42,214	45
West	Esna	34,186	

* All towns are Markaz capitals except Hiw

C. Building Permit Data

TABLE I.3.a
BUILDING PERMITS IN QENA

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Total number of building permits	400	508	422	431	479
Total number of residential building permits	393	495	411	422	464
Total number of industrial building permits	7	13	8	9	15
Total number of building violations issued	700	96	81	82	58
Number of dwelling units	850	1,211	940	904	901

SOURCE: Qena Municipality

TABLE 1.3.b
BUILDING PERMITS IN NAGA HAMADI

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Total residential permits	290	65	210	251	215
Building violations	2	-	4	3	7

SOURCE: Naga Hamadi Municipality

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D. Transportation Data

1. Roads and Bridges

TABLE I.4
PRESENT AND FUTURE ROAD LINK VOLUMES

LINK	ADT 79	ADT 87	2000 LOW
Sohag-Naga Hamadi	3,896 2,105	7,599 3,993	14,540 7,540
Naga Hamadi-Luxor	1,391 1,805	2,601 3,400	4,890 6,400
Luxor-Aswan	946	1,955	3,590
Qena-Safaga	637	896	1,730

SOURCE: National Transport Study, Annex IV
Highways and Road Transport Services,
Appendix 7.3

TABLE 1.5
THE AVERAGE DAILY TRAFFIC: (1979)

STATION	PRIVATE CAR	TAXI	SINGLE TRUCK PICK-UP	TRUCK COMBINED	BUSES	TOTAL
Qena-Safaga	41	150	186	206	54	637
Quft-Quseir	136	87	174	10	14	303

SOURCE: Red Sea Governorate Regional Plan,
IX Regional Infrastructure, Part I, Table 5, page 25

EXPLANATORY NOTE: The 2000 Low projections are based on improvements of railway and bus services and a shift from inter-city taxis towards buses and railways.

TABLE I.6
ORIGIN DESTINATION COUNTS

	DESTINATION/ORIGIN	SOHAG	QENA	ASWAN	RED SEA
CARS	Assiut	21	14	5	-
	Sohag	4	32	-	-
	Qena	42	146	16	4
TAXIS	Assiut	175	-	-	-
	Sohag	8	110	5	-
	Qena	133	756	12	-
BUSES	Assiut	18	-	-	-
	Sohag	-	16	-	-
	Qena	7	59	7	-
TRUCKS	Assiut	28	11	11	5
	Sohag	-	75	19	29
	Qena	86	180	43	-

SOURCE: Infrastructure overview of Sohag, Qena, Aswan, Red Sea Governorates, Section 2, Chapter 2, Tables 3.1, 3.2, 3.3, 3.4.

TABLE I.7
QENA-SAFAGA ROAD AVERAGE TRAFFIC COUNT DATA (1980)

GOVERNMENT TRUCK	PRIVATE TRUCK	PRIVATE TRAILER	ALUMINA	TRAILOR TRUCK	CAR	BUS	MINI BUS	MOTOR CYCLE
114	127	93	138	120	170	55	28	24

SOURCE: Infrastructure overview of Sohag, Qena, Aswan, Red Sea Governorates, Section 2, Chapter 2 Table 3.20.

TABLE I.8

ROAD CONDITIONS, LENGTH, AND AREAS IN THE QENA GOVERNORATE - YEAR 1979

(Table I.8.a) Road Pavement Length, Area and Condition of Primary Road Network					
REGION	ROAD CONDITON	H.B.A.		OTHERS	
		LENGTH (km)	PAVED AREA (1000 sq.)	LENGTH (km)	PAVED AREA (1000 sq m)
Qena	Good	301	2.255	2	20
	Fair	130	977	-	-
	Poor	442	2.976	-	-
(Table I.8.b) Road Pavement Length, Area and Condition of Secondary Road Network					
Qena	Good	68	411	8	64
	Fair	54	335	10	75
	Poor	759	4.577	30	227
(Table I.8.c) Road Pavement Length, Area and Condition of Other Roads					
Qena	Good	7	33	8	49
	Fair	1	4	47	328
	Poor	81	453	81	461

SOURCE: National Transport Study, Annex IV, Highways and Road Transport Services, Chapter 1, Tables 1.14/1.15/1.16, pages 1.25, 1.26, 1.27.

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TABLE I.9

QENA GOVERNORATE: SUBSTANDARD BRIDGES IN THE PRIMARY NETWORK

ROAD SECTION	BRIDGE AT Km.	WIDTH (m)
Abu Shusha/	23.8/27.5 /	5
Naga Hamadi	9.5	4

SOURCE: National Transport Study, Annex IV Highways and Road Transport Services Chapter I, Table 1.13, Page 1.21.

TABLE I.10

QENA GOVERNORATE: SUMMARY OF ROAD PAVEMENT CONDITIONS

REGION	ROAD CONDITIONS	AUTHORITY HIGHWAYS & BRIDGES (Incl. Mil.)	OTHERS	TOTAL ROAD LENGTH
Qena	Good	376	18	394
	Fair	185	57	242
	Poor	1.282	111	1.393

SOURCE: National Transport Study, Annex IV Highways and Road Transport Services Chapter 1, Table 1.10, Page 1.15.

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TABLE I.11

SUBSTANDARD ALIGNMENT DESIGN ELEMENTS OF PRIMARY ROAD NETWORK

<u>ROAD SECTION</u>	<u>VERTICAL/HORIZONTAL ALIGNMENT CHARACTERISTIC REPRESENTING DISCONTINUITIES.</u>
Qena - Safaga	6% - 8% Grades between km 17.2 and 24 and 116 and 124 respectively Horizontal Curves (R 50 m) between 105 - 157.
Naga Hamadi - Qena	Horizontal Curve (R 50) at Km 48.4 6% grades at Km 26.

SOURCE: National Transport Study, Annex IV, Highways and Road Transport Services Chapter I, Table 1.8, page 1.13.

TABLE I.12

ROADS TO BE REHABILITATED

<u>LINK</u>	<u>LENGTH OF POOR SECTION</u>	<u>LENGTH OF FAIR SECTION</u>	<u>1987 ADT</u>
Naga Hamadi - Qena	56.5 k.m.		2,500
Qena - Luxor	47.5 k.m.	14.7	3,400
Luxor - Isna	34.8 k.m.	12.5	2,000

SOURCE: National Transport Study, Annex IV, Highways and Road Transport Services Chapter 9, page 9.6.

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2. Rail: Proposed Rail Between Safaga and Qena
Summary of the Qena-Safaga Project Study

a. Tonnages

The table below summarizes the tonnages to be transported at different stages in the evolution in its construction.

TABLE I.13.a

PROTECTED TONNAGES TRANSPORTED BETWEEN QENA-SAFAGA

<u>From Qena To Safaga</u>		<u>From Safaga To Qena</u>	
<u>1st Stage</u>	<u>Final Stage</u>	<u>1st Stage</u>	<u>Final Stage</u>
6,395,000	12,395,000	360,000 t	2,400,000 t
+Military Equipment	+Military Equipment	+Military Equipment	+Military Equipment

The table shows that the heaviest traffic is expected from Qena to Safaga if the assumption of 310 days operating per year is adopted the following daily traffics can be deducted.

SOURCE: Red Sea Governorate Regional Plan, Regional Infrastructure, Part 1, page 29.

TABLE I.13.b

DAILY TONNAGES TRANSPORTED BETWEEN QENA-SAFAGA
(DAILY TONNAGE)

<u>From Qena to Safaga</u>		<u>From Safaga to Qena</u>	
<u>1st STAGE</u>	<u>FINAL STAGE</u>	<u>1st STAGE</u>	<u>FINAL STAGE</u>
20,629 t/d	39,983 t/d	2,774 t/d	7,241 t/d

SOURCE: Red Sea Governorate Regional plan, Regional Infrastructure, Part 1, page 31.

b. Commodities to be transported by the Qena Safaga Rail Line

- Alumina

At present all the alumina requirements of the Naga Hamadi smelter are imported via the port of Safaga by truck.

The projected alumina requirements for 1987 are in the order of 332,000 tons, which are planned to arrive to Naga Hamadi by the planned railway line

- Aluminum

The Aluminum smelter produced in 1978, 75,000 tons of virgin aluminum which were exported through the ports of Alexandria and Safaga

The aluminum factory exported (in 1978) through the port of Alexandria 30,000 tons of aluminum ingots, of which 15,000 tons were brought to Alexandria by river and 15,000 tons by road.

The aluminum factory in Naga Hamadi is projected to export in 1987, 60,000 tons through the Alexandria port and 40,000 tons through the Safaga port "all exports will be in ingots". All shipments to Alexandria will be by river; all shipments to Safaga are planned to be by rail.

c. The Service Offer

The Service offer scheduled is 4 trains/d in the first stage and 8 trains/d in the second stage to transport exported phosphates.

Two trains are also scheduled per direction and per day to transport passengers.

d. Description of the Line

The total Length is 524.5 Km. From Abu Tartour to Safaga the line will contain 12 stations with a distance between stations of 40 km.

The investment entailed by the project: L.E. 14,000,000.

At year 2005 there will be a railway connection between Qena-Safaga-Ras Gharib. The following goods flows are projected (000 t) Qena 3,800 Safaga 1,200 Ghardaka 65.75 Ras (000 t) Gharib with 4 trains per day.

As soon as the new line Qena-Safaga comes into service (the connection to the Safaga port is still in the design stage) a total of 88 special aluminum hoppers will be required at an estimated cost of just over J.E. 3.5 million (1979 prices). Timing and specifications are to be determined in cooperation with the aluminum industry in Naga Hamadi (which will have to phase out its truck fleet.

SOURCE: Red Sea Governorate (regional plan, Part 1, pages 28 through 33 National Transport Study, Annex V Railways, Chapter 12, page 12.57; National Transport Study, Annex II Transport Demand Forecasting, Chapter 2, page 2.174

3. Waterway Transport

River (and rail) transport is cheapest in the case of movements of large volume, bulk cargo between a limited number of origins and destinations, in the future these movements can continue to be expected on the Aswan/Cairo/Alexandria link.

In the future, distribution of cement by river is forecast to become important once the terminals of the cement companies in Cairo and Assiut will become operational. For this reason revitalizing the public ports becomes relevant especially in the middle/Upper Egypt area. For newly built ports simple crane platforms with mooring posts are recommended.

For the year 1987, 315,000 tons of cement are to be transported by river to Qena from the Assiut Cement Factory which is to be constructed by 1987.

SOURCE: National Transport Study, Main Report, Chapter 6, pages 85, 88, Annex II Transportation Demand Forecasting, Chapter 2, pages 2.72, 2.47.

Black petroleum products to be consumed in Upper Egypt are allocated to river/rail transport from Cairo or eventually Assiut refinery. On the basis of long run marginal cost. Transport by river is cheaper than rail. Thus, river transport should be used.

4. Port Safaga

a. Facilities

The Safaga Port was built in 1969 and consists of a 602 m long quay made of concrete blocks, providing 3 berths. Open spaces, about 100 m wide, extend behind the quay, thus allowing the storage of goods.

The quay is not specialised except for one berth which is devoted to the bulk alumina traffic, the bulk alumina is dispatched to the Naga Hamadi factory by truck.

To the south of the harbour is the Red Sea Phosphate Company's private pier, built in 1912 for exporting phosphates. The activity of the Red Sea Phosphate Company in the port is decreasing, and the activities of the Safaga harbour have in the last 5 years developed around the aluminum plant at Naga Hamadi, and the Agro-foodstuffs sector (wheat, fertilizer).

Export of sugar crop produced in the Nile Valley factories (Kom-Ombo and Naga Hamadi) came to an end in 1976.

All the Safaga harbour traffic is directed towards the Far East and Australia.

Wheat is transported to the Nile Valley by truck, the same system of transportation goes for alumina, cement, fertilizer.

The present phosphates mine is 26 Km. South/West of Safaga and phosphate is carried by metric gauge railway to the port.

The amount exported is on the decrease with a total annual volume of 70,000 metric tons, in 1966 the amount was 175,000 tons. The mine is scheduled to close in 1999.

During the past 5 years, the Safaga harbour traffic has risen from 362,000 tons to 1,035,000 tons. This is for 2 reasons:

- i. The Naga Hamadi aluminum plant starting operations.
- ii. The increasing demand for cereals.

b. Traffic

Traffic connected with the aluminum plant:

- Naga Hamadi plant will yield 160,000 metric tons of finished products per year, 35,000 t/year are consumed locally and 125,000 t/year will be exported.
- 320,000 t/year will be imported through Safaga
- It can be assumed that 50 percent of the total exports will be through Safaga and the rest through Alexandria.

i. Alumina

- Alumina requirement is presently estimated at 332,000 ton;
- The transport of Alumina is by truck between Safaga port and Naga Hamadi

- Alumina flows transported from Safaga to Naga Hamadi are:

TABLE 14

1978	200,000 tons
1983 (Est.)	332,000 tons
1987 (Est.)	332,000 tons
2000/low (Est.)	332,000 tons
2000/High (Est.)	400,000 tons

ii. Traffic of Cereals

- 101,000 t of wheat were unloaded in Safaga in 1975, which rose to 301,349 tons in 1976.
- The whole of the Australian wheat is unloaded in Safaga.
- Cereal imports will increase at the rate of growth of population living in the Nile Valley between Qena and Aswan plus the Red Sea Governorate.

iii. Wheat (Storage)

- The Master Plan for Grain storage and distribution calls for the construction of the following silo's in Upper Egypt.

TABLE 15

LOCATION	STORAGE CAPACITY (TONS)	YEARLY THROUGHPUT (TONS)
Kom Ombo	6,400	93,000
Qous	13,300	159,000
Sohag	26,700	376,000
Assiut	13,300	152,000
Minia	13,300	196,000

SOURCE: National Transport Study Annex II 2.126

- Transport of wheat from the Safaga port by rail is the cheapest mode of transport.

c. Extensions in the Safaga Port

1. The wharf will be extended 200 meters in order to berth 60,000 t vessels.
2. Construction of a Grain Silo with a capacity of 10,000 metric tons to be completed in 1985 which will increase the import capacity of Safaga which will reach 1,800,000 ton ph/year in 1986 when the port will rank second for cereal imports after Alexandria.
3. A new phosphate terminal will be located south of the existing installations and should include a new mooring pier in deep water.

d. Impact of Production at the Abu Tartour Phosphate Mines

Projected Phosphate exports from Abu Tartour will reach an annual production of 7 millions tons to be used for fertilizer, of which 6 million will be exported through Safaga.

However the Abou Tartour project is at present facing some difficulties and the implementation of the project is being reconsidered, however the beginning of the export of fertilizers will occur before 1986.

e. Capacities of the port of Safaga

After construction of the new Silo and the grain wharf, Safaga harbour will be able to handle 2,350,000 tons/year not including the new phosphate terminal.

SOURCE: Red Sea Governorate Regional Plan (Regional Infrastructure Part 2, pp 74, 81, 85, 87; National Transport Study, Annex II, Transportation Demand Forecasting, Chapter 2, pp 2.101, 2.126.

E. Electrical Supply

1. Existing Situation:

Electricity supply in the Nile valley region is considered as a unified power system.

A link is under construction between Qena-Safaga.

Existing and planned generation capacities up to 1990 are sufficient.

The Governorates of Sohag, Qena are expected to suffer a shortage, due to new demands in Luxor.

2. Distribution (Regional)

Distribution lines in the Nile Valley are frequently used for transmission (33 kV Network) these are lengthy and overloaded. In the 55 km 33 kV line linking Luxor to the 132/33 kV sub-station in Qena south. Voltage regulation reached 17 percent at the Luxor injection point.

Two 500 kV lines link the Nile Valley from Aswan to Cairo, and an intermediate substation at Naga Hamadi steps down the voltage to 132 kV with a capacity of 3 x 285 MVA.

Power is provided to the low load consumers, by MV/LV step down transformer sub-stations of the pole-mounted (in rural areas) or pad-mounted type.

The main power consumers in the Upper Egypt Region are the aluminum smelter in Naga Hamadi: and the Kima fertilizer plant in Aswan which consumed 23 percent of the total electrical energy supplied to, nation in 1977.

Qena Governorate suffers from a high load growth (in Luxor the load has jumped in 2 years from 9 MVA to 15 MVA, while the present capacity is 18 MVA). This is due to the rapidly expanding tourist industry.

By 1984 over 90 percent of the rural villages in the region are to be electrified.

The existing 20 MVA substation in Esna should supply the town of Luxor on the short term.

TABLE 16

PROPOSAL FOR NEW SUBSTATIONS

<u>NAME OF SUBSTATION</u>	<u>RATING (MVA)</u>	<u>VOLTAGES</u>	<u>YEAR OF IMPLEMENTATION</u>
Naga Hamadi	3 x 285	500/220	1990
Qena	3 x 285 3 x 63	500/220 220 x 33	1990 1990
Luxor	2 x 50	220/33	1990

SOURCE: Infrastructure overview for Sohag, Qena, Aswan, Red Sea Governorates, Section 3, Chapter 4, Table 4.1

3. Distribution Qena Governorate

Qena Governorate is fed from a double-circuit transmission line operating at 132 kV. (All 132 kV. lines are designed for operation at a nominal voltage of 220 kV).

A 66 kV double-circuit transmission line feeds some areas north of Naga Hamadi.

Distribution at medium level voltage (220 V) is carried out by underground cables in the urban areas and by overhead lines in the rural areas.

TABLE 17

HOUSEHOLD ACCESS TO ELECTRICITY

IN URBAN AND RURAL CENTERS 1976

GOV.	HOUSEHOLDS WITH ELECTRICITY(%)			HOUSEHOLDS WITH-OUT ELECTRICITY (%)			TOTAL HOUSEHOLDS		
	URBAN	RURAL	TOTAL	URBAN	RURAL	TOTAL	URBAN	RURAL	TOTAL
Qena	52.7	10.7	20.2	47.3	89.3	79.8	77,470	264,328	34,798

SOURCE: Infrastructure overview for Sohag, Qena, Aswan, Red Sea Governorates Section 3, Chapter 3, Table 3.4.

TABLE 18

EXISTING & PLANNED SUBSTATIONS

NAME	EXISTING	PLANNED OR PROPOSED		YEAR OF IMPLEMENTATION
		RATING	VOLTAGES	
Naga Hamadi	3 x 285	3 x 285	500/220	1990
Qena, South	2 x 25	3 x 285	500/220	1990

SOURCE: Infrastructure overview for Sohag, Qena, Aswan, Red Sea Governorates, Section 3, Chapter 3, Table 3.3.

A 220 kV double circuit transmission line between Qena and Safaga, which is scheduled to be completed in 1986, this line will connect the Red Sea governorates to the unified power system.

4. Distribution Qena-Red Sea

Safaga would be interconnected via a double 220 kV line to the southern network (Aswan) through Qena; this connection would be a standby.

TABLE 19

<u>PROJECT</u>	<u>YEARS</u>	<u>COST</u>
Qena-Safaga connection (66 KV and 2 lines)	1991-1992	10.0 m.

SOURCE: Red Sea Governorate Regional Plan, Vol IX Regional Infrastructure page 67

F. Telecommunications

The telephone system in the region is not automatic and is mainly based on the cross bar and P.A.B.X. systems, some magneto systems are still in operation. Remote villages generally have manual switchboard which operates during daylight hours. All units are connected by long distance circuit (many of them open-wire) converging on zone centers linked, by co-axial cables.

ARETO offices generally have P.A.B.X. systems of a few hundred lines with one or two lines to a central office. Central offices usually consist of a P.A.B.X. system of a few hundred lines, with some 20 lines connected to the nearest automatic exchange.

It is planned to make all exchanges in Upper Egypt crossbar and electronic.

A 960 Exchange co-axial cable, installed underground, now links Upper Egypt to Cairo.

G. Water Supply

1. Qena Water System

In Qena there are two sources for drinking water:

i. The River Nile:

- Supplies Qena, with a total capacity of 200 liters/second.
- Supplies the Qena-Safaga line, with a total capacity of 75 liters/second.

TABLE 20

TELEPHONE SYSTEM IN QENA (EXISTING AND FUTURE)

NAME OF EXCHANGE	NO. OF LINES		EXCHANGE CAPACITY			
	OPERATING	WAITING LIST	EXISTING	PROJECTED	TOTAL	YEAR OF COMPLETION
Qena	1,000	1,500	1,000	1,000	2,000	1982
				2,000	4,000	1986
				3,000	7,000	1991
Luxor	800	1,100	800	1,200	2,000	1981
				2,000 *	2,000	1983
				3,000	5,000	1986
Naga Hamadi		(1,189)	600	3,000	8,000	1987
				200	800	1981
				200	500	1981
Qos		(484)	300	2,000	2,000	1985
				600	600	1981

Electronic Mobile Exchange, all others are of cross bar type.

SOURCE: Infrastructure overview of Sohag, Qena, Aswan Red Sea Governorate, Section 3, Chapter 5, Table 5.2

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ii. Five Artesian wells:

- Supplies Qena, with a total capacity of 100 liters/second.

All the water sources (wells and the Nile) are all located near the Nile and the water plant.

The water purification plant in Qena consists of:

- The old Qena water purification plant
- The Qena-Safaga line purification plant: the water is purified by using filters, chloride and copper sulphates, both purification plants are on one site.
- The average amount of connections to the water network are 12,000.
- The Qena drinking water main pipeline is a 10", 12" pipes.
- The suggested increases in the water purification output capacities are an additional 400 liters/sec.

SOURCE: Municipality.

2. Naga Hamadi: Water System

The sources of drinking water in Naga Hamadi are 8 distributed artesian wells. There is one main plant consisting of a 40 meter high water reservoir with a capacity of 300 m³, supplying both Naga Hamadi and Bahgora village, there are two pump stations in the town, one old station and another which began operating in October 1981.

In Naga Hamadi there are no water purification facilities, the water is pumped directly from the wells into the water network, the water is pumped by electrical pumps with a total capacity of 350 M³/hour (10,000 M³/day).

The average amount of water connections to the network are 2441-3000 connections to separate buildings + 45 apartment blocks (with a total of 472 apartments). The percentage of the buildings unconnected to the network is approximately 35 percent. Construction of a new water network began in March 1981 and will be completed in early 1982. This was the first financing the water department received during the last 10 years.

Due to the lack of financing during the past 10 years, the water network was not (and is not) expanded into new residential areas.

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The main problems facing the water department are:

- a. The construction of a purification plant with its intake from the Nile rather than using the artesian wells.
- b. The construction of a sewerage system, as the present system consists of latrine pits.
- c. There are a large amount of salt deposits in the water network, if it is not possible to remove the deposits chemically a new system will have to be developed.

3. Existing Water Plants:

TABLE 21

<u>Location</u>	<u>Design Capacity</u> <u>10³ m³/day</u>	<u>Remarks</u>
Qena	12	Extended in 1960
Naga Hamadi	11	

SOURCE: Infrastructure overview for Sohag, Qena, Aswan, Red Sea Governorates. Section 4, Chapter 1, Table 1.2

4. Qena/Safaga Pipeline:

Qena supplies Safaga with drinking water by means of pipeline. A new pipeline is under construction.

The present pipeline between Qena-Safaga and Ghardaka is an 8" pipeline with 17 pumping stations. The capacity of the line is 3000 tons/day of which 1200 tons/day is delivered to Ghardaka. In summer the line can only deliver 900 tons/day due to a drop in diesel engine efficiency. The pipeline is subject to frequent breakdowns (15 in 1980) due mainly to air traps. The new pipelines will have a diameter of 14" and a capacity of 10,000 tons/day, of which it is expected that Ghardaka will receive 4,000 tons/. The new pipeline will also supply Quseir with water.

USAID presently has a program in Qena Governorate to convert water pumps from diesel to electric power in rural villages. It is estimated that about 60 percent of the program is complete.

A problem in the Qena Governorate was the lack of asbestos-cement pipes to meet the current program, the use of P.V.C. pipes should be considered.

SOURCE: Infrastructure overview for Sohag, Qena, Aswan, Red Sea Governorates Section 4, Chapter 1, Part 4.2

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5. Expenditures

TABLE 22

ESTIMATED CAPITAL EXPENDITURE ON WATER SUPPLY PROJECTS TO YEAR 2000
(L.E. MILLION AT 1979 PRICES)

	Qena
- Complete works under construction	2.6
- Rehabilitation and Associated works	10.8
- New sources	12.4
- New storage and distribution	51.7
- Offices, housing and maintenance centers	6.0
- Land	1.8

SOURCE: Infrastructure overview for Sohag, Qena, Aswan, Red Sea Governorates Section 3, Chapter 3.

TABLE 23

PROPOSED PROGRAMME OF CAPITAL EXPENDITURE BY GOVERNORATE
(L.E. MILLION AT 1979 PRICES)

	1980/4	1985/9	1990/4	1995/9	TOTAL
Qena	10.4	7.1	34.3	33.5	85.3

TABLE 24

VARIATION IN UNIT WATER SUPPLY DEVELOPMENT

2000 Total (L.E. Million)	2000 Pop. (Million)	Cost per Capita (L.E.)	2000 Extra Water Req. (m ³ x10 ³ /day)	Cost Addition m ³ /
85.3	2.379	35.9	89.0	90.0

SOURCE: Infrastructure Overview for Sohag, Qena, Aswan, Red SEA Governorates Section 2, Chapter 3, Table 3.4

H. Sewerage and Waste Disposal

There is no sewage treatment plant in the Qena area.

Provincial towns depend on septic tank vaults and low quality pit latrines.

A major project for a sewage drainage system is presently under construction in Qena; a solid waste treatment plant is to be located in the desert.

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I. Health Services

TABLE 25

MEDICAL QENA GOVERNORATE SERVICES

TYPE	NO. (ALL)	NO.				LOCATION
		(MAJN URBAN)				
Central Hospital	7	Isna	Armart	Luxor	Qus	Dishna, Farshut
Chest Hospital	12	(2)	(2)	(2)	(2)	Qena, Naga Hamadi
Eye Hospital	12	(2)	(2)	(2)	(2)	Qena, Dishna Nag Hamadi
Fever Hospital	7	(2)	(2)	(2)	(2)	Dishna, Farshut Nag Hamadi
Skin Clinic	5	(2)	(2)	(2)	(2)	Dishna, Nag Hamadi
Children's Clinic	9	All major towns				
Bilharzia Clinic		Luxor	Qos	Qena	Naga Hamadi	

SOURCE: Infrastructure overview for Sohag, Qena, Aswan, Red Sea Governorates, Section 5.B, Chapter 1, Part 1.2

TABLE 26

HEALTH SERVICES NAGA HAMADI

TYPE OF SERVICES	NO. OF UNITS	NO. OF BEDS	NO. OF DOCTORS
General Hospital	1	121	29
Fever Hospital	1	24	2
Mother & Child clinic	1	-	7
Health Centre	1	-	-
First Aid	1	-	-

SOURCE: Qena Governorate

TABLE 27

HEALTH SERVICES

QENA CITY

<u>TYPE OF SERVICES</u>	<u>NO. OF UNITS</u>	<u>NO. OF BEDS</u>
General hospital	1	175
Fever hospital	1	40
Chest hospital	1	174
Eye hospital	1	31
Mother and child clinic	1	2
External clinic	3	-

SOURCE: Qena Governorate

J. Education

In the Qena Governorate there is a shortage of secondary schools.

Partly due to an inadequate number of primary schools and a lack of secondary school bus services, 44,000 children do not attend school.

TABLE 28

EDUCATIONAL SERVICES

NAGA HAMADI

<u>TYPE OF SERVICE</u>	<u>NO. OF SCHOOLS</u>	<u>NO. OF CLASSES</u>	<u>NO. OF TEACHERS</u>	<u>NO. OF STUDENTS</u>
Primary	6	81	971	3565
Preparatory	3	41	239	1690
High School	3	34	101	1307
Commercial high school	1	23	45	781
Agricultural high school	1	60	74	2381
Industrial high school	1	60		2357
Teachers training	1	20	58	769

SOURCE: Qena Governorate

TABLE 29

EDUCATIONAL SERVICES

QENA CITY

<u>TYPE OF SCHOOL</u>	<u>NO. OF SCHOOLS</u>	<u>NO OF CLASSES</u>	<u>NO. OF TEACHERS</u>	<u>NO. OF STUDENTS</u>
Primary	177	834	1841	31017
Preparatory	24	237	712	9906
Secondary	5	84	273	3372
Commercial	4	60	117	1979
Agricultural	1	46	144	1359
Industrial	2	85	324	2976
Teachers' Training	2	43	216	1572
Adult Teaching	38	90	152	2700
Classrooms/ School	10	12	15	368
Kindergarden	2	4	7	216

NUPS Field Work

SOURCE: Governorate

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APPENDIX II

FEASIBILITY OF THE NEW QENA AND SALAAM CITY (NAGA HAMADI) PROJECTS

APPENDIX II

FEASIBILITY OF THE NEW QENA AND SALAAM CITY (NAGA HAMADI) PROJECTS

In Tables II.1 and II.2 cost estimates by the project consultants dwelling unit type as proposed for the New Qena and El Salaam City Projects to be sited in Qena and Naga Hamadi (desert plateau) are presented. In general, the proposed projects would be very costly and require very significant subsidies to implement. However, there is reason to believe that the costs of public facilities and infrastructure are also grossly underestimated. With average gross densities of only 49.4 and 77.5 persons per hectare at the New Qena and El Salaam City projects respectively, infrastructure costs would probably be on the order of L.E. 2,500 per unit rather than the average of L.E. 353 per unit for Salaam City and L.E. 787 for New Qena which are suggested. Also, existing levels of service for public facilities could not be maintained at cost levels suggested by the projects: Salaam City -L.E. 836 and New Qena - L.E. 944 respectively. NUPS estimates that at least L.E. 1,500 for public facilities per dwelling unit would be required.

Nevertheless, even at the consultants' cost levels very few households could afford the units at full cost recovery. In Figure II.1 the costs by type of dwelling unit for each of the projects are shown related to household income group affordability. Household dwelling unit affordability was determined on the basis of how much households at the 20th, 40th, 50th, 60th, and 80th percentiles of national urban income could afford to pay for a dwelling unit. This was based on the assumption that full cost recovery would be achieved through a loan at market terms: an interest rate of 12 percent amortized over 30 years. In addition it was assumed that 25 percent of household income could be used to repay the loan and that households could put up a downpayment on the order of 20 percent of the dwelling unit cost. Thus, based on levels of urban household income, in 1979, the suggested income groups could afford dwelling units at the following costs:

INCOME GROUP AT PERCENTILE OF URBAN INCOME

PERCENTILE	AMOUNT OF INCOME TO		AFFORDABLE DWELLING UNIT (AMOUNT WHICH COULD BE AMORTIZED)	
	ANNUAL INCOME	DWELLING UNIT 25% OF INCOME	NO DOWNPAYMENT	20% DOWNPAYMENT
20	317	79.3	709	797.5
40	675	168.8	1510	1699.0
50	1000	250.0	2238	2517.0
60	1048	262.0	2344	2638.0
80	1527	381.8	3417	3843.0

NOTE: Urban Income Distribution is that of USAID for 1979 based on the CAPMAS 1974-1975 urban household expenditure survey adjusted for inflation. Amount which can be amortized based on loan at 12 percent over 30 years.

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TABLE II.1

NEW QENA CITY - DEVELOPMENT COSTS BY DWELLING UNIT TYPE *

	UNIT	TYPE I	TYPE II	TYPE III	TYPE IV
No. of flats in each type		5 + open area	one flat	one flat	5 + open area
No. of apartments in one floor	unit	4	one apartment	one apartment	3
No. of apartments in each building	unit	20	one apartment	one apartment	14
No. of buildings for each type	building	200	1,500	1,000	100
Total no. of apartments in each building	unit	4,000	1,500	1,000	1,400
Land area needed for each type	m sq	1,200	200	320	1,200
Building area for each type (including staircases)	m sq	68	90	125	120
Level of finishing (as limited by Ministry of Housing)		medium	medium	medium	medium lux
Cost of fabrication for one unit apartment	L.E.	6,000	8,000	12,200	10,000
Cost of infrastructure (roads, sewage, water supply, electrical supply, etc...) = 10 percent from apartment fabrication cost	L.E.	600	800	1,220	1,000
Cost of public buildings = 12 percent from apartment fabrication cost	L.E.	720	960	1,460	1,200
General expenses (bank charge, engineering, commission, etc...)	L.E.	180	240	366	300
Total cost per dwelling unit	L.E.	7,500	10,000	15,250	12,500
Total cost for each type building	L.E.	30,000,000	15,000,000	15,250,000	17,500,000
TOTAL DEVELOPMENT COST	L.E.				77,750,000
TOTAL AREA					800 HA
TOTAL NUMBER OF DWELLING UNITS					7,900
GROSS DENSITY ESTIMATE					49.4 PERSONS/HECTARE

* Consultants estimates

SOURCE: Qena Governorate

TABLE II.2

"EL SALAAM CITY" NAGA HAWADI - DEVELOPMENT COSTS BY DWELLING UNIT TYPE *

	UNIT	TYPE I	TYPE II	TYPE III	TYPE IV
No. of flats in each type		5 - open area	one flat	one flat	5 + open area
No. of apartments in one floor	unit	4	one apartment	one apartment	3
No. of apartments in each building	unit	20	one apartment	one apartment	14
No. of buildings for each type	building	200	1,000	500	50
Total no. of dwelling units	unit	4,000	1,000	500	700
Land area needed for each type	m sq	1,200	140	320	1,200
Building area for each type (including staircases)	m sq	68	56	125	120
Level of finishing (as limited by Ministry of Housing)		medium	medium lux	medium lux	medium lux
Cost of fabrication for one unit apartment	L.E.	6,000	6,100	12,200	10,000
Cost of infrastructure (roads, sewage, water supply, electrical supply, etc...) = 10 percent from apartment fabrication cost	L.E.	600	610	1,220	1,000
Cost of public buildings = 12 percent from apartment fabrication cost	L.E.	720	732	1,460	1,200
General spendings (bank charge, engineering, commission, etc...)	L.E.	180	133	366	300
Total cost per dwelling unit	L.E.	7,500	7,625	15,250	12,500
Total cost for each type building	L.E.	30,000,000	7,625,000	7,625,000	8,750,000
TOTAL DEVELOPMENT COST	L.E.				54,000,000
TOTAL AREA					400 HA
TOTAL NUMBER OF DWELLING UNITS					6,200
GROSS DENSITY ESTIMATE					77.5 PERSONS/HECTARE

* Consultants estimates

SOURCE: Qena Governorate

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APPENDIX II

- II.1.b -

AFFORDABILITY OF NEW QENA AND SALAAM CITY DWELLING UNITS ACCORDING TO TYPE AND INCOME GROUP

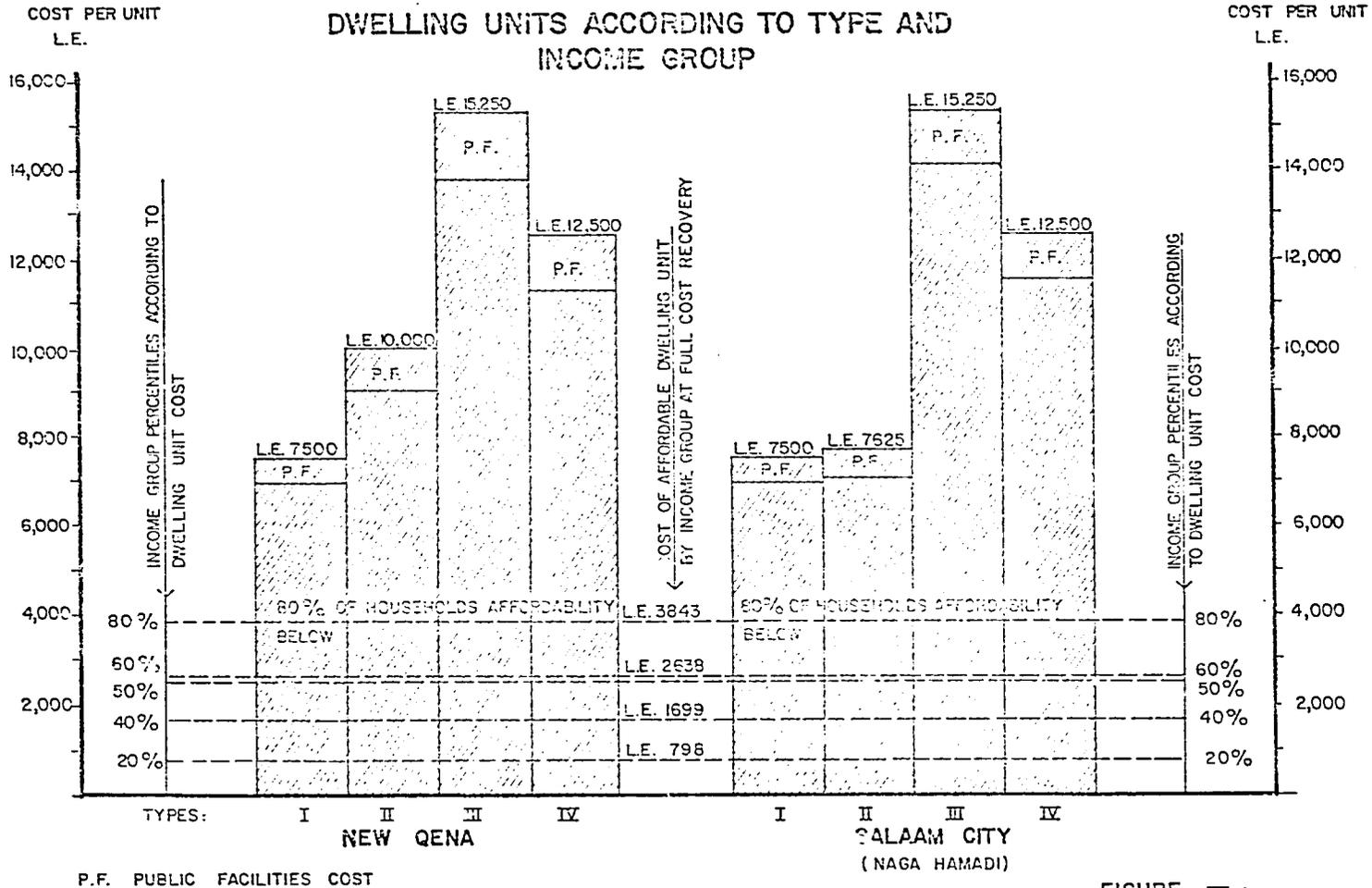


FIGURE II.1

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Based on the affordable dwelling units by income group using these different levels of affordable dwelling described above - no unit at the New Qena and El Salaam City would be affordable even when the cost of public facilities is not included. (See Figure II.2)

At the planned costs of dwelling units in each of the two projects, enormous direct and indirect subsidies would be required. If one assumes that the overall project is aimed at the median income of L.E. 1,000 per year, subsidies on the order of 57.85 million and 38.4 million would be required for the New Qena and El Salaam City Projects. Thus, of the total costs of the project 77.75 million for New Qena and L.E. 54.01 million for El Salaam City only L.E. 19.9 million and L.E. 15.6 million respectively could be recoverable at the median income level.

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NEW QENA AND SALAAM CITY DEVELOPMENT COSTS, COST RECOVERY AT MEDIAN INCOME LEVEL AND IMPLIED SUBSIDIES

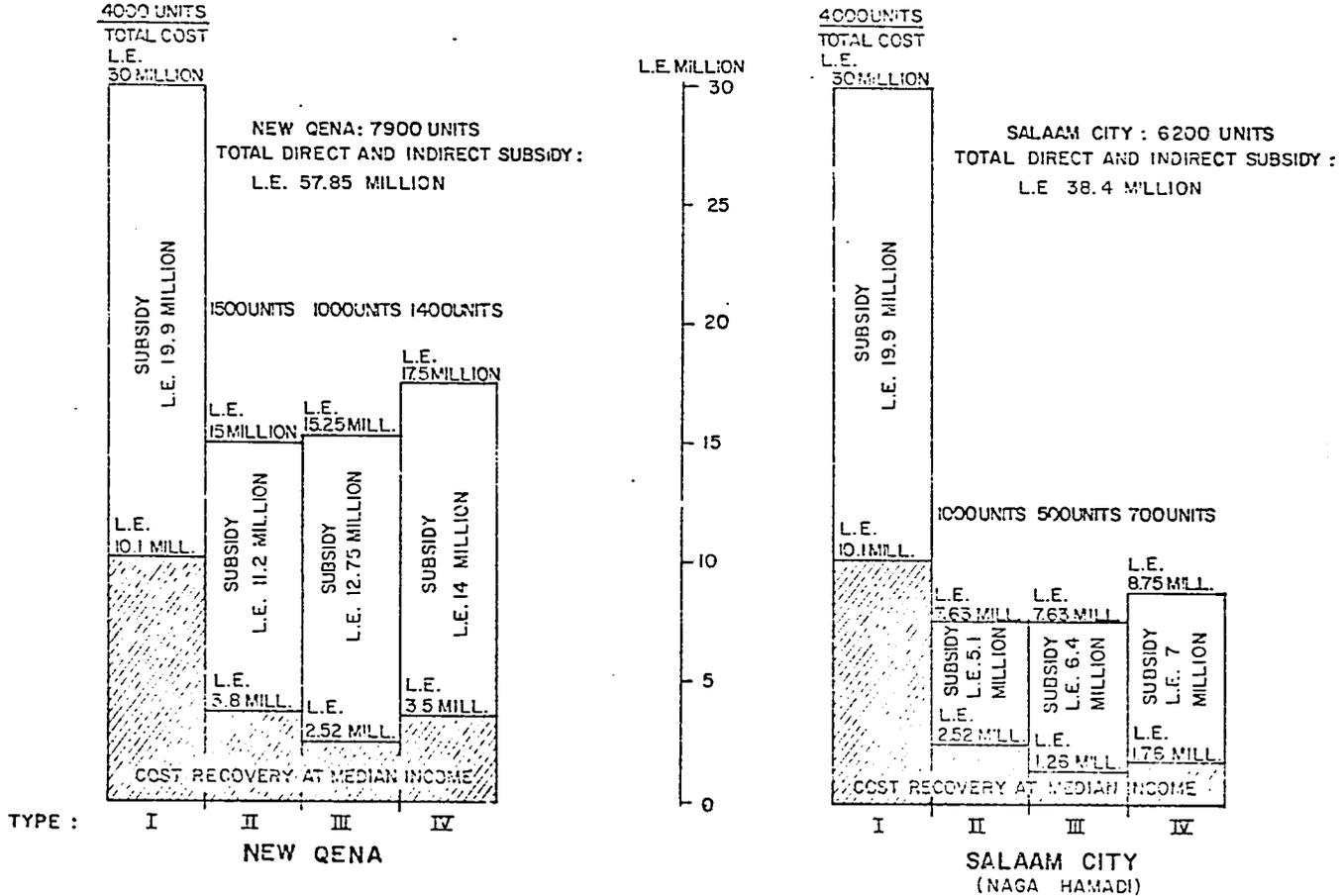


FIGURE II:2

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