Cairo: 1800-2000
Planning for the Capital City in the Context of Egypt’s History and Development

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Geography and Climate

Egypt occupies about one million sq. km. of land in the north-east corner of Africa. The Nile River traverses the country from south to north along a line some 1,600 km long, diving it into the Western Desert, a broad plain punctuated by a chain of oases which accounts for about two thirds of the country’s land area, and the Eastern Desert, which rises from the Nile in a plateau of sand, giving way to a chain of rocky hills and rugged mountains running to the Red Sea. Less than four percent of Egypt’s land is arable, and on this small area 90 per cent of the country’s population lives.

The Nile is Egypt’s primary source of life. It enters the country from the Sudan where Lake Nasser lies. The lake, created in the 1960s by the construction of the High Dam at Aswan, extends 320 km north into Egypt, and 158 km south into the Sudan. Downstream of Aswan the river’s course is bordered by cultivated flood-plain averaging about 18 km in width. Northward the river flows between high plateaus and cliffs along some stretches. In the delta, a triangular fertile area 250 km wide at the coast and extending 160 km inland, the river which once fanned out over a broad estuary now divides into two branches leading to the Mediterranean.

Until the construction of the High Dam, the Nile flooded annually sometime in August or September, bringing water for cultivation as well as the rich alluvial deposits which accumulated over millennia to make Egypt one of the most fertile countries of the world. However, the floods were unpredictable as to the time of their occurrence, and the annual flow varied erratically in volume — from as little as 42 bn cubic feet to as much as 150 bn. Construction of the High Dam assured Egypt of a constant and reliable supply of water but also obstructed the flow of fertile sediments.

The climate of Egypt is hot and dry. The coastal regions are the coolest, with mean annual minimum and maximum temperatures of 14°C and 30°C. The inland and desert areas are subject to wide daily temperature fluctuations. Rainfall is highest along the coast, at 20 cm annually; inland, it decreases sharply, to just over one cm in Cairo and even less further south. In late spring (March and April), the hot khansin winds tear across the Sahara carrying dust and sand from the desert. These sand-storms may blow intermittently for days, raising temperatures and causing air pollution.

Demography

According to the most recent census (1976), the total population of Egypt was
38.2 million — double what it had been only 30 years earlier — and growing at a rate of 2.3 percent annually. United Nations estimates set the total population at 44.6 m in 1982, and the growth rate at 2.9 percent. The crude birth rate is estimated to be between 41 and 42 per thousand (1981) and infant mortality 92 per thousand live births. The population is young, with over a quarter under the age of 15.

Egypt's rapid population growth is placing severe pressures on the country's resources. Since only 35,000 to 40,000 sq. km. of the land is habitable, the average population density is estimated to be between 1,000 and 1,260 persons per sq. km.

**Education:** Compulsory primary education was instituted in 1925 as one of the first acts of the national government. Enrollment rates increased rapidly from under 10 per cent in 1927, to 46 per cent in 1952, to 74 per cent in 1965. Between 1966 and 1976 these rates stabilised, recently dropping slightly to 70 per cent. Female enrollment accounted for 25 per cent of the total in 1952, 39 per cent in 1965, and 38 per cent in 1975. After elementary school, there is a marked drop in enrollment ratios, particularly among females. This accounts for the relatively low literacy rates, 57 per cent for males and 29 per cent for females. Most students who take the preparatory cycle then go on to secondary school, in either an academic programme or a vocational/technical programme.

Ten universities and a number of technical institutes offer higher education in Egypt. In the late 1960s, about two-thirds of the students completing secondary school went on for higher education. By the mid-1970s this had risen to three fourths, in response to government policy guaranteeing public employment to anyone with a higher degree. A consequence of this policy has been severe overcrowding of the universities, with enrollments of about four times the intended capacities.

**Economy**

Historically, Egypt's most important resources for economic growth has been the fertile land along the Nile. Traditionally considered the "granary of the Mediterranean world", in the early nineteenth century, under Mohammed Ali Pasha, the country began to develop as an exporter of long-staple cotton. The cotton boom lasted from 1820 to 1880 and generated a large marketing and shipping infrastructure, but toward the turn of the century cotton production declined. All readily available arable land was already under cultivation and at the same time the soil was being de-
pleted by multiple cropping. After the First
World War, the abolition of the “capitula-
tions” allowed Egypt to start its own indus-
trial activities. Protective tariffs were
used to permit the development of local
manufacturing. This led to a diversification
of the gross domestic product, strengthen-
ing and stabilising the economy.

Egypt was a net exporter of grain through
the Second World War, but by the late
1970s it had to begin importing cereals to
feed its growing population. Despite
efforts to increase the amount of land
under cultivation, the cultivated area per
capita dropped from 0.73 to 0.15 feddans
between 1821 and 1978, due both to the
growth of the country’s population and
also to the expansion of urban areas onto
surrounding arable land. Since 1927, the
agricultural work-force has remained
stable at a level of about four million, lead-
ing to large-scale rural migration to the
cities in search of employment.

Economic policy since the revolution
of 1952 has been revised several times in re-
sponse to changing needs and conditions.
The mid-1950s saw a major land reform
which eliminated all private holdings of
more than 200 feddans, substantially im-
proving the allocation of land. In the
1960s, a system of compulsory planting and
delivery to the government was imposed to
generate surplus with which to finance land
reclamation projects. However, agricultural
output was adversely affected by policies
keeping food prices low and favoring the de-
velopment of urban industrial sectors.

Government control of the industrial sector
started in 1957 with a series of nationalisa-
tions of private enterprises. First, the Brit-
ish and French interests were nationalised,
then large-scale enterprises such as the
Bank Misr and its group of companies, and
in the 1960s smaller industrial establish-
mants. President Nasser’s National Char-
ter of 1962 set out the new economic sys-
tem, stating that the public sector should
own or control infrastructure, mining, the
key medium and heavy industries, banks
and insurance companies, and the import/
export trade. The private sector continued
to operate in internal trade, construction,
and light industry. An elaborate system of
price controls and subsidies was introduced
to implement the system. The stated goals
were to improve resource mobilisation and
income distribution, but in practice these
two objectives often conflicted, resulting in
significant inefficiencies. However, the
government did improve opportunities for
promotion, working conditions, and be-
nets.

The 1970s saw another major shift in eco-
omic policy, under President Sadat. The
new strategy, called Al-Infitah, sought to
improve the public sector’s efficiency and
to liberalise the economy, giving the private
sector more room for productive activity.
At the same time it sought to maintain a
large role for the public sector, give social
goals high priority, and also stressed the
need for increased foreign investment.

The liberalisation policies did spur private
sector activity, and increased access to for-

gn exchange and so to direct imports.
This led to significant Egyptian private in-
vestment of new capital in industry. At all
levels of government, the authorities re-
ponsible for approving new investment
projects have been praised for their effi-
ciency, a key factor in the success of this
policy. Foreign trade has been boosted
additionally by increases in petroleum ex-
ports and remittances from Egyptian work-
ers abroad.

The implementation of Al-Infitah was not
without its problems, however. To encour-
age remittances and private sector activity,
the government allowed certain foreign ex-
change transactions at a devalued ex-
change rate, which led to rapid increase of
luxury imports and to several adjustments
of the official exchange rate. In agricul-
ture, the focus of government policy
turned to price stabilisation, and extensive
food imports began to be used to meet the
growing domestic need. The deleterious
effect on incentives to remain in farming,
where investment and employment oppor-
tunities are declining, is now starting to be
felt. In manufacturing and trade, still
largely under state control, problems of in-
efficiency and over employment contribute
to general low productivity. In addition,
policies calling for a gradual relaxation of
price controls and tightening of subsidy
levels have proved difficult to implement.

Nonetheless, real economic growth has
occurred. The gross domestic product grew
fairly rapidly in the late 1950s and early
1960s, with average annual growth rates of
5.3 per cent for 1956-61 and 6.1 per cent for
1961-66, suffered a setback between 1966
and 1971 (reflecting the effects of the 1967
war), and picked up again gradually in the
early 1970s, peaking at 10.9 per cent in
1976. The restructuring of the economy is
reflected in the changing sectorial distribu-
tion of the gross domestic product. Agri-
culture decreased from 32.3 to 28.7 per
cent, and housing from 9.7 to 1.9 per cent.
Industry, petroleum and mining rose from
17.6 per cent to 24.1 per cent. Several sec-
ctors, including construction, trade, finance
and services, rose through 1975 or 1976,
and then dropped off slightly.

Today, the public sector still predominates
in industry, controlling most of the produc-
tion of capital and intermediate goods.
Among the state-run industries are auto-
mobile manufacturing, mining, iron and
steel, aluminum, cement and fertilisers.
The private sector is active in manufactur-
ing of consumer goods, particularly in
small enterprises in and around the large
cities. The principal private industries are
textiles, food products, leather goods,
furniture, and woodworking.

Agriculture: Egyptian farmers grow a wide
variety of crops on a total of about 2.2 m
hectares of land. Long-staple cotton, once
the major product, in 1981 accounted for
only about 20 per cent of the land under
cultivation. Cereal production has not kept
up with population growth, and imports
may be expected to increase as the popula-
tion continues to grow. As incomes have
risen nationwide, the demand for meat and
poultry has grown, leading to the spread of
modern farming methods. Clover, used as
fodder, has increased in importance, as has
sugar-cane. In recent years, fruits and
vegetables have become prime crops, sus-
Export potential. Agricultural productivity is influenced by government purchasing and pricing policies. Fruits, vegetables, and fodder, however, are not controlled.

All agriculture in Egypt depends on irrigation. The first dam at Aswan was built in 1902 and heightened in 1912 and 1934. Construction on the High Dam began in 1960 and took ten years to complete. The dam permitted reclamation of one million feddans of new land and made possible perennial irrigation of another 880,000 feddans previously using basin irrigation, thereby allowing three crops instead of one per season. The dam also generates ten billion kilowatt-hours of electricity annually.

Excessive irrigation has created drainage and salinity problems far worse than anticipated, but government programmes to alleviate these problems were delayed during the war years. The projects were finally started in 1978, but it will take many years before their remedial impact begins to be felt.


Egypt also has substantial reserves of natural gas which are still being developed by the Egyptian General Petroleum Corporation. Oil and gas provide about three fourths of Egypt's domestic energy needs, and hydro-electricity the remainder. The Aswan High Dam is the primary source of hydro-power, but its capacity has not been fully developed since water flow is regulated according to irrigation needs.

Labour Force

Rapid growth of the labour force has posed a challenge for Egyptian economic planners. In 1979, the labour force was estimated to be about 10.5 million. Agriculture, though no longer the major contributor to output, was still the major source of employment, accounting for over 39 per cent of the total, while industry provided only about 14 per cent. The over-saturation of the agricultural sector has promoted large-scale migration from rural to urban areas since the turn of the century, and in recent years migration of agricultural labour to neighbouring countries has increased to the point of causing labour shortages and encouraging mechanisation.

Available data suggest that overt unemployment is not a major problem in Egypt. Periodic labour surveys prior to 1975 showed an unemployment rate below five per cent, and in the late 1970s preliminary estimates put the rate at about six to ten per cent. Under-employment and disguised unemployment (estimated at about 30 per cent) do, however, appear to be a major problem. This is clearly apparent in all segments of the service sector, from the large urban informal sector providing marginal jobs in vending, trading and a variety of daily occupations, to the civil service, where the government's policy guaranteeing employment to university graduates has resulted in serious overstaffing.

International labour migration has become a major economic factor in the last decade, diminishing the supply of labour at home but bringing in remittances which are a significant source of foreign exchange. Estimates of the number of Egyptians living abroad (mostly in other Arab states) range around three million. It is estimated that remittances have risen from under US$200 m in 1974 to over US$2.2 bn in 1975.
The Development of Cairo, 1800-1980

The First Attempts at Modernisation: 1800-1850

At the beginning of the nineteenth century, Cairo comprised the city proper, covering less than five square miles, and two ports, Bulaq to the north and Mīr al-Qādir li i n th e s ou th . T he C i tadel at the south-west corner of the city was the official centre of the government. The total population was estimated at 267,000, with a Turkish and Mamliq ruling elite numbering about 10,000. The elite resided mostly along the Khalij Canal, around Birkat al-Fīl and Al-Azbakiya, while the merchants tended to live in or near their suqs and wikalas along the main commercial streets.

The first attempts at modernisation under Mohammed Ali Pasha focused on institutional reform, introducing technology imported from the West (mostly France), but rejecting cultural emulation. Cairo’s administration was re-organised, and edicts were issued to ensure that suqs and harahs were kept clean and streets were labelled and houses numbered. The Citadel was renovated as the centre of all government operations. New princes built their palaces outside the city proper, to the north and along the Nile. Educated Egyptians in high bureaucratic positions preferred not to mix with foreigners and formed a cohesive community continuing to live in Al-Azbakiya, Al-Helmiya al-Guedida and Darb al-Gamamiz.

Cairo experienced a period of feverish redevelopment, although the city’s boundaries did not change significantly. Over 400,000 construction workers were employed on government projects. Historical accounts of the time reveal some concern about the destruction that occurred to create space and materials for the Pasha’s numerous buildings and the large-scale real estate development ventures carried out by many high officials. The public sector was busy building palaces, schools and factories. Several sections of the city, including Sayyidah Zaynab, Al-Hawd al-Marsud and Fum al-Khalij, became locations for new industrial development, but the major concentration was around Bulaq where six factories were established. This area became a thriving industrial district, and old structures were renovated to provide housing for engineers and workmen.

By 1840, wheeled carriages had arrived in the city and the unpaved streets (still being maintained by local residents) proved inadequate for the new vehicles. The government undertook responsibility for the construction and maintenance of the road system, and major arteries were widened and realigned. Amid all this development activity, however, the city retained its physical structure and the quarters survived as cohesive communities. Main streets were lined on each side with shops and apartments above. Leading off the great thoroughfares were side streets and cul-de-sacs. Within the quarters narrow lanes accessible only to inhabitants of the harah itself provided a place for communal open-air activities with the necessary privacy and seclusion.

The Emergence of Modern Cairo: 1850-1880

The number of foreign residents in Egypt rose from 10,000 in 1830, to 20,000 in 1850. After 1850, a sustained influx of foreigners of all walks of life poured into Cairo and Alexandria seeking employment or speculative ventures, taking advantage of unwarranted protection and privileges afforded to foreigners in Ottoman dominions under the “capitalization” treaties. Unable to shake foreign economic and political control, Khedive Isma'il’s modernisation efforts focused on social and cultural aspects, starting with the city’s physical appearance. Springing from the small foreign district at Al-Azbakiya, a modern city arose and grew, first to the west and then to the north-east. Older settlements in the way of this expansion were torn down.

The first of these new districts, Ismailiya, was laid out according to a plan for Cairo prepared in 1874 by a French architect. It introduced European features sharply contrasting with the familiar Islamic environment: rectilinear, grid and radial plans, free-standing structures, and wide streets to accommodate vehicular traffic.

The first boulevard wide enough to accommodate carriages was cut across the fabric of the old city between Al-Azba­kiya and the Citadel in 1840, when there were only 90 carriages in the whole city. By the turn of the century, there were 500 carriages and over 2,000 carts.

In time, palaces, sumptuous residences, embassies, ministries, offices, European hotels, department stores, boutiques, banks, a stock exchange and even an opera house were built in the new districts, by foreigners who controlled the financial and land markets as well as the technical professions.

In 1865, the centre of government was moved from the Citadel to the new Khedivial palace and administrative offices in Abidin. The Khedive intended it to be a symbolic as much as a functional removal, marking the transition of Egypt from the mediaeval to the modern era. Unfortunately, lavish spending by the Khedive Ismail and the prohibitive settlement of the “labour conscription” agreement with the Suez Canal Company burdened the country with a substantial foreign debt, increasing the hold of British and French colonial powers on the Egyptian government.

The Colonial Period: 1880-1950

The growth of European influence over the middle of the nineteenth century culminated in the establishment of a British colonial administration in 1882. At that time, the number of foreign residents in Egypt had climbed to 91,000. The returns of the 1882 census indicated a total population of 374,000 in Cairo, of whom 21,650 were foreign nationals. New arrivals settled pri-
marked the beginning of Cairo’s dramatic twentieth-century expansion. Construction activities peaked between 1890 and 1906, and by 1907 the number of foreigners in Cairo had peaked at 150,000 (or 16 per cent of the city’s population). The large increase in the number of British and other Europeans gave impetus to the rapid development of new residential areas. Huge amounts of foreign capital were invested in urban development, leading to both large-scale speculative projects by real estate companies and small-scale building activities by individual entrepreneurs.

Improvement of the transportation network, particularly the introduction of the electric tramways and the building of bridges across the Nile, permitted development of the north-east suburban area and the west bank of the river. Utilities, serving mainly the new developments, were introduced under long-term franchises granted to foreign enterprises: water in 1865, and electricity and tramways in 1983. Modern transport in the form of trains, imported carriages for high officials and Europeans and small locally made carts serving factories and construction sites, multiplied, and after the First World War automobiles appeared on the scene. The wide paved streets of the modern city diverted commercial activity away from the old city, hastening its deterioration. New elite areas flourished along the Nile, and upper middle-class areas further inland. In the 1890s, Qasral Dubarah developed on the east bank, followed in the early 1900s by Garden City and Zamalik.

Extensions to the north consisted of two sharply contrasting zones. To the northwest, around the railway station and the industrial areas in the vicinity, a series of small developments housing a mixed population of lower-class foreigners and middle-class Egyptians grew haphazardly on private agricultural land. The proximity of the port and the railway terminal subsequently led to the development of the first industrial slums in nearby Bulaq, where spot densities reached world records, ranging from 3,000 to over 4,000 persons per
The movement of upper-income groups to the north-east, on the other hand, a stable middle-income population settled in a succession of planned developments stretching seven miles from Abbasiya, to merge with the upper-income foreign suburb of Heliopolis. This highly lucrative real estate venture was the largest and most successful of the new developments. It was planned as a satellite city for a projected population of 50,000 to 100,000, on 2,500 hectares of land five miles north-east of Cairo's commercial centre, and soon became a predominantly upper-class district.

The movement of upper-income groups to the new developments was followed by the movement of middle-income groups to the mixed north-east suburban areas, leaving the old quarters to the poorer classes. Rural migrants, who had started pouring into the city after the turn of the century, flowed in at an accelerating rate after the First World War, settling on the periphery of the mediaeval quarters, in the cemeteries and on the urban fringe wherever access to transport was not too distant. Between 1897 and 1927, Cairo's growth rate far surpassed that of Egypt. During this period of rapid growth, the old and new cities remained isolated and distinct. The old city was relatively homogeneous, with uniformly high densities and low socio-economic status, while the new city was socially heterogeneous, with generally lower densities. Moving out of the old city was recognised as the first step in upward mobility, and all who could afford to do so followed this trend. The deterioration of the old city was further promoted by the concentration of public and private investment in the new areas.

By 1927, Cairo's population had reached one million, creating serious problems in the provision of municipal services and housing. Water consumption nearly doubled between 1906 and 1928. Construction of the first sanitary sewer for Cairo, designed to accommodate a population of 960,000 by the year 1932, was finally started in 1906 and completed in 1914. In no time, it was overloaded.

Three areas suffered from increasingly high densities and deteriorating housing conditions: the middle class mixed zones which were the immediate destination of those seeking to escape from the old city, the migrant reception areas, and the traditional quarters (such as Al-Azhar) which continued to attract population. In the old city, buildings which had once been the homes of the rich and the powerful housed dozens of families crowded into rooms in the subdivided structures, and shacks in the courtyard and on the roofs. Pack animals and carts continued to provide the only means of transportation in these areas, although by 1931 a new bus system was operating under a franchise in other parts of Cairo. Densities mounted, rents soared and the earnings of unskilled labourers were progressively depressed by the influx of rural migrants competing for the same jobs. For a majority of the urban population, the standard of living declined steadily between 1870 and 1950, while the urbanised area doubled and the population grew from 300,000 to over two million.

Development and Change after the Revolution: 1950-1965

President Nasser's government policies focused on national economic and social development. Cairo was left to fend for itself with minimal budget allocations at the same time as its population was doubling from three to six million in less than 20 years.

Around the urban fringe, settlements of rural migrants were proliferating, while the modern sections of the city were becoming Egyptianised. The number of foreigners, which had increased exponentially during the colonial period, began to decline steadily after the abolition of the capitulations in 1936. Following the Revolution of 1952, the number of resident foreigners declined precipitously, and since 1961 it has been negligible. In the new urban developments, departing foreigners were replaced by Egyptians. Subsequently, the modern city was restructured to reflect its Egyptianisation. International architecture remained the accepted building style, but subtle characteristics of the traditional urban fabric reappeared in various forms. Mixed land uses were introduced, as lower floors of apartment buildings were converted to shops and offices. Commercial streets became specialised according to the different goods and services being marketed. The intensity of land utilisation increased, leading to the replacement of villas by high-rise apartments and office buildings.

Internal population movements further accentuated existing disparities between the two parts of the city: the older quarters with their legacy of obsolescence and poverty, and the new districts with their modern buildings and services. Densities continued to increase in the eastern sector, inadequately serviced by utilities and community facilities. In 1937, the mediaeval city contained 400,000 inhabitants, close to saturation levels; subsequent population increments spilled over into the adjacent cemetery areas, where the number of inhabitants doubled from less than 50,000 in 1950 to over 80,000 in 1960.

The private real estate market was thrown into a state of disarray by the promulgation of stiff rent control laws, starting in 1954. Private development for the rental market virtually stopped. Investment was channeled instead into condominiums in new large-scale subdivisions such as Madinat Al-Awqaf and Al-Mohandissin, taking advantage of the liberal credit terms available under the government-subsidised co-operative housing programme. However, this programme clearly favoured intermediate-sized subdivisions and was only constrained by the lack of vacant serviceable land.

A master plan for Cairo, prepared in 1956, recommended the creation of outlying industrial sub-centres to absorb population and contain the growth of the city. The plan's main contribution was the designation of industrial zones at Helwan, Shubra, Al-Khima, Imbaba and Giza; these zones
Expansion a/urbanised area.

Source: Greater Cairo Master Scheme GOPP/OTUI-IAURIF

received 50 per cent of industrial investment under the first five-year plan (1960-65). This had the effect of enhancing the dominance of the Greater Cairo Region and further increasing its attractiveness.

Direct government action focused on two areas: to the north, Nasr City (under construction since the 1960s) was designated to become the new government centre and to house a middle-class population of civil servants, reinforcing the planned character of this north-east sector; to the south, the concentration of heavy industries in Helwan and Tibbin completely transformed this old winter resort area into a typical workers' suburb, complete with company housing and the largest public housing projects in Egypt.

Throughout the period, public housing production remained small compared to need. The resultant overcrowding could only accelerate the deterioration of both infrastructure and the standing housing stock. To address the city's growing problems, the Greater Cairo Planning Commission was established in 1966. It produced a plan which called for the concentration of growth in four satellite cities to be developed on desert land around the capital, but it was not until ten years later that the government started on the development of these satellites.


The period of accelerating urban expansion which completely transformed Cairo started in the late sixties, with the emergence of a sizeable group of newly prosperous middle-class citizens interested in investing in urban real estate. Although some were young professionals, the majority were craftsmen, service workers and labourers working in the oil-producing countries. They stood in sharp contrast both to the wealthy and generally educated families who took up residence in the pre-1960 modern city, and to the poor, young and unskilled rural migrants still pouring...
into the city at a rate of three every ten minutes.

The uncontrolled activities of small-scale entrepreneurs and contractors catering to the housing needs of the newly affluent resulted in a proliferation of informal settlements through leap-frogging and fringe development. The urbanised area doubled between 1968 and 1982, increasing from 16,000 to 32,000 hectares, consuming agricultural land at an alarming rate and engulfing entire villages, while municipal authorities watched helplessly, unable to control or direct, let alone service, the new zones.

The massive infusion of capital into housing drove up land values and construction costs to unprecedented levels, in one of the worst inflation spirals ever experienced by urban real estate. Between 1975 and 1982, land values multiplied ten times, and construction costs five times.

To address the city’s growing problems and the uncontrolled expansion of the urbanised area, the General Organisation for Physical Planning undertook to prepare a new comprehensive long-range master scheme, as well as sectoral and action plans for specific development components.

**Cairo in the 1980s**

In 1982, the urbanised area of Cairo (which includes Cairo governorate and parts of Giza and Qalyubiyah governorates) had a population of almost 10 million. It is currently growing at an annual rate of four per cent, an increase of about 1,000 persons per day, of which 70 per cent is attributable to natural increase and 30 per cent to migration. Today, the Greater Cairo population is estimated to be between 11 and 12 m. It is projected to reach 16 to 18 m by the year 2000.

The active labour force in the Greater Cairo Region numbers 2.2 million. Employment is divided almost evenly between the public and private sectors. Public and

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*Greater Cairo development plan, 1969*

*Source: Greater Cairo Planning Commission.*
private firms together provide about 47 per cent of the jobs and government services account for another 27 per cent. The remaining 26 per cent are in informal employment (largely household services) and agriculture. However, the difference in structure between the public and private sectors is striking. Whereas public firms average 130 employees each and public industrial enterprises 360 employees each, in the private sector the same figures are 2.3 and 5, respectively. In other words, a huge number of very small private businesses accounts for about half the employment in the Cairo area. Under-employment is widespread, but the volume of informal jobs makes it very difficult to arrive at an accurate estimate of unemployment; it is considered to be around eight per cent.

The expansion of the Greater Cairo Region is occurring increasingly in the governorates of Giza and Qalyubiya rather than in Cairo proper. The 1976-82 average growth rates for the urbanised zones in the three governorates were 4.5 per cent, 5.6 per cent and 3.4 per cent, respectively. Several factors contribute to this pattern. In the older areas around the central business district, the housing stock cannot support further subdivision or vertical expansion, and development pressures are leading to conversion from residential to commercial and industrial uses. At the same time, increased prosperity is allowing many people to move from the overcrowded areas out to the suburbs, while newly arrived rural migrants are locating in the numerous informal settlements proliferating on the edges of the urban area.

The urbanised area is increasing by nearly 1,200 hectares per year, of which less than half is new development in the desert; the remainder constitutes encroachment on arable land. Because most farm-land is in private hands, the government has been unable to control the spread of informal settlements onto agricultural areas. The annual loss of 600 hectares of valuable farm-land to the growth of Cairo is one of the most serious problems now confronting the planning authorities.

Housing: Housing construction has grown significantly over the last two decades. In the public sector, this is due to increased resources available from the Suez Canal, oil sales, tourism and foreign loans. In the private sector, remittances from Egyptians working abroad have fueled construction activities in both the formal and the informal sectors. However, despite this boom, the city is still faced with a serious housing shortage. The problem is due ultimately to the unprecedented growth rate of the population, but it has been aggravated by housing policies since the 1950s. Government construction of subsidised housing has proved prohibitively expensive, and has thus been unable to meet the demand, while rent control has discouraged private investment in housing. Private sector construction shifted to condominiums, and transfers of rental units involved increasingly larger "key money" charges (paid by prospective tenants to the owners or former tenants in return for the right to take over the lease). Attempts to control the key money system only depressed turnover rates, while attempts to limit condominiums in order to promote rental construction further stifled the market. Consequently, informal sector housing has become widespread, accounting for an estimated 70 per cent of all new construction in Cairo today.

With an estimated 1.6 million dwelling units in 1980, Cairo is predicted to need an additional 1.2 million by 1.9 million by 2000. Currently, the annual production rate is less than 50,000 dwellings. Moreover, in many cases the condition of the existing stock is poor, and densities in some areas are among the highest in the world.

The government has attempted to deal with the housing shortages by large scale construction of public housing projects. Most of these are blocks of apartments in five-storey walkups. Since 1960, when the programme was greatly expanded, annual production has fluctuated between 10,000 and 20,000 units, dropping to less than 6,000 in years when national priorities led to budget reductions. In order to make this housing affordable to low-income people, rents were lowered to nominal levels (one Egyptian pound per room per month). The government's inability to properly maintain the buildings eventually prompted their conversion to ownership.

The heavy subsidies which this approach entailed have placed an enormous financial burden on the government, preventing it from even coming close to meeting the demand for housing through new construction. Therefore, in the late 1970s the government adopted a policy of up-grading existing areas to capitalise on the standing housing stock.

Source: Greater Cairo Region Master Scheme GOPP/OTUI-IAURIF

Cairo: 1800-2000

Housing construction has grown significantly over the last two decades. In the public sector, this is due to increased resources available from the Suez Canal, oil sales, tourism and foreign loans. In the private sector, remittances from Egyptians working abroad have fueled construction activities in both the formal and the informal sectors. However, despite this boom, the city is still faced with a serious housing shortage. The problem is due ultimately to the unprecedented growth rate of the population, but it has been aggravated by housing policies since the 1950s. Government construction of subsidised housing has proved prohibitively expensive, and has thus been unable to meet the demand, while rent control has discouraged private investment in housing. Private sector construction shifted to condominiums, and transfers of rental units involved increasingly larger "key money" charges (paid by prospective tenants to the owners or former tenants in return for the right to take over the lease). Attempts to control the key money system only depressed turnover rates, while attempts to limit condominiums in order to promote rental construction further stifled the market. Consequently, informal sector housing has become widespread, accounting for an estimated 70 per cent of all new construction in Cairo today.

With an estimated 1.6 million dwelling units in 1980, Cairo is predicted to need an additional 1.2 million by 1.9 million by 2000. Currently, the annual production rate is less than 50,000 dwellings. Moreover, in many cases the condition of the existing stock is poor, and densities in some areas are among the highest in the world.

The government has attempted to deal with the housing shortages by large scale construction of public housing projects. Most of these are blocks of apartments in five-storey walkups. Since 1960, when the programme was greatly expanded, annual production has fluctuated between 10,000 and 20,000 units, dropping to less than 6,000 in years when national priorities led to budget reductions. In order to make this housing affordable to low-income people, rents were lowered to nominal levels (one Egyptian pound per room per month). The government's inability to properly maintain the buildings eventually prompted their conversion to ownership.

The heavy subsidies which this approach entailed have placed an enormous financial burden on the government, preventing it from even coming close to meeting the demand for housing through new construction. Therefore, in the late 1970s the government adopted a policy of up-grading existing areas to capitalise on the standing housing stock.
Informal settlements, where housing is generally structurally sound and sometimes of remarkably good quality, were a prime target for the first up-grading efforts. The programme concentrated on providing the settlements with the infrastructure networks and community facilities they lacked. Projects are currently under way in Helwan and other areas of the city, with funds from the World Bank and USAID. Rehabilitating older areas and conserving historic zones involve issues of much greater complexity and require very different approaches which are outlined in the next section. Studies now under way are hoped to lead to demonstration projects soon.

Infrastructure: The city’s water supply, sewerage, solid waste disposal, and transportation systems are completely inadequate to meet Cairo’s current immense needs. The potable water supply system has a current capacity of 2.6 m cubic metres per day. Half of this volume is lost to leaks in the deteriorating distribution network and to illegal hook-up, while one third of the households lack piped water in their dwelling unit. A 20-year project to expand production capacity and extend the distribution network is currently underway at an estimated cost of US$2.9 bn.

Facilities for both collection and treatment of sewage are woefully inadequate. The existing system, built after the First World War, is physically and functionally obsolete. The treatment system is handling a volume of 650,000 cubic metres per day, while the city generates some 1,250,000 cubic metres. In areas without sewers overflowing septic tanks and cesspits create serious health hazards. The current plan for improving the existing system over a 10-year period represents one of the largest sewerage projects in the world and is projected to cost over US$3.4 bn, exclusive of any major extensions.

Solid waste collection is another major problem. Street cleaning is generally carried out by the municipality, but the removal of household and business waste is contracted for privately with zabbaleen, who collect waste in return for the profits from recycling it. Once effective, this system can no longer handle the current volume of trash. Moreover, since the resource recovery value is higher from trash in wealthy areas, the service tends to bypass many low-income neighbourhoods.

Transportation and communications are a notorious bottle-neck in Cairo. Age, inadequate maintenance and overloading have affected the quality and efficiency of the transport system. The fleet of private taxis (which has quadrupled in the last 15 years) has adopted a shared ridership policy to meet demand, and has thus managed in the process to supplement public transport. Traffic congestion is severe, compounded by narrow roads in the centre city and a general disregard of traffic regulations by vehicles and pedestrians alike.

The new network of limited-access thoroughfares and bridges has alleviated some of the worst congestion, and the rapid transit system currently under construction will bring added relief, particularly to the central business district, which suffers from a perpetual traffic jam during working hours. Furthermore, Cairo Governorate has recently instituted a programme of enforcement of traffic regulations which, if sustained, will contribute to no small measure to the improvement of both vehicular and pedestrian circulation.

Conservation in Old Cairo

The problem of economic and physical decay in old urban centres is certainly not unique to Cairo. In recent years, municipal authorities have come to realise that historic areas can have a viable economic future and play an important role within the metropolis. Planning agencies all over the world have adopted comprehensive strategies advocating the preservation and revitalisation of entire historic areas, as opposed to mere conservation of a handful of monuments surrounded by a new urban fabric.

Many traditional quarters share common problems such as deficient infrastructure, inappropriate legislation and poor vehicular access. However, they vary considerably in other respects such as the caliber of their historical assets and the land area they cover. Thus, a policy successfully implemented in one place is not necessarily transferable to others. In the mediaeval city of Cairo, a mixture of characteristics and problems exists, and a range of different strategies are currently being considered for its preservation.

With the Ottoman conquest of Egypt in 1517, Cairo lost its importance, being reduced to the status of a provincial capital, and its economic base was undermined by the shifting of east-west trade to routes circumnavigating Africa. Structures crumbling and were not rebuilt, rubbish accumulated in the Khaij and outside the city walls, and the ill-maintained streets were often blocked by encroaching additions to structures at ground level.

Centuries of neglect ended under Mohammed Ali when, for a brief period starting in the 1820s, Cairo experienced a revival. Renovation came to an end in the second half of the nineteenth century, when the development of the modern city diverted official interest and investment funds away from the older areas.

The Khedive Ismail, who visited the World Exposition in Paris and admired this great city, retained a French architect to prepare plans for the modernisation of Cairo. The plan applied to Cairo principles introduced by Haussmann in Paris, namely, the creation of wide boulevards to facilitate vehicular movement and the notion of dividing the city into different segments, one for the elite and the visitors and the other for the indigenous population. Fortunately, very few of the “improvements” affecting the older quarters were ever implemented. However, many monuments were destroyed to clear the way for the Boulevard Mohammed Ali, linking the Citadel to Ataba, a distance of two kilometres across the old urban fabric. The Citadel was thus integrated as a landmark of the modern city, but the mediaeval city itself was total-
ly ignored. The boulevard did not connect to the neighbourhoods extending along its sides, and the mediaeval city ended up segmented and encircled by vehicular routes but not penetrated by vehicular traffic.

In 1882, the Comité de Conservation was established to preserve buildings of historic and archaeological value. The Comité surveyed the older quarters and registered close to 1,000 structures. Restoration efforts focused on important monuments. Quite apart from its invaluable documentation of these monuments, the legacy of the Comité was to transfer the responsibility for the maintenance of historic buildings, which are mostly waqf, from the Awqaf authorities to the Department of Antiquities.

From a planning standpoint, mediaeval Cairo poses a tremendous challenge, with its decentralised commercial system of numerous small markets and businesses, and its complex social organisation. The intricate and convoluted street pattern and the very high densities make the introduction of badly needed infrastructure system difficult to carry out, yet leaking water pipes and inadequate sewerage and surface water drainage are contributing to the rapid decay of its structures, due to the rising “perched” water table and the corrosive salt content of the ground water.

Modern vehicular traffic penetrating into the narrow, winding streets and alleyways not only causes terrible congestion, blocking pedestrians, animals, and small carts, but also causes damage to buildings because of vibration, pollution and alteration of structures to create access for larger vehicles. The traditional uses of the street as an area where people live and work, children play, and peddlers make, repair and sell their goods, conflict with the requirements of modern traffic.

Repair of traditional construction is both difficult and expensive, needing special materials and skills. Deterioration from lack of maintenance rapidly reduces multi-storey buildings to dilapidated one or two-storey structures sheltering only the more profitable commercial and industrial uses.
Deterioration of street surfaces and of structures (including major monuments) is aggravated by the high densities, housing laws, and changing attitudes toward maintenance of public spaces and facilities, now considered to be a responsibility of government authorities.

Until recent years, conservation policies have focused mainly on preserving individual monuments, rather than addressing area-wide environmental needs. A recent UNESCO study advocated a more comprehensive approach, combining timely restoration of monuments with a broader policy addressing the general problem of mediaeval Cairo. A systematic rehabilitation of the entire mediaeval city (such as the historic district conservation project of Le Marais in Paris, or the Casbah of Algiers) was clearly not feasible for Cairo for several reasons. Mediaeval Cairo, a city of over 1.5 m inhabitants, is far larger than most historic districts. The government has neither the financial resources nor the legal means to undertake a systematic lot-by-lot upgrading programme nor would such an approach necessarily be successful, since it implies gentrification. The less monumental historic architecture has already been lost to private renovation and rebuilding, street widening projects, slum clearance programmes, and deterioration and decay which have resulted from overcrowding and lack of maintenance.

The UNESCO report recommended the following interventions:

1) A short-term action plan based on conservation zones, defined by clusters of monuments on which the rehabilitation effort should concentrate. It was believed that the clusters would eventually become capable of generating sufficient momentum to spark rehabilitation in the adjacent areas.

2) A programme of major restoration of selected monuments.

3) Preparation of a comprehensive master plan for the mediaeval city, which would focus on the design of an efficient circulation network and the drafting of special building regulations, taking into account their impact on the monuments.

4) The formulation of a workable housing strategy.

5) The removal of nuisances generated by noxious or damaging industries and wholesale trade.

Some experts reject the cluster strategy, advocating instead an approach which would concentrate on preserving street alignments and maintaining compatibility in scale and aesthetics between monuments and adjacent new structures, the rationale being that it is these streets that give the mediaeval city its distinctive character and the monuments their appropriate setting. Mediaeval Cairo has more than 500 listed monuments, far too many to renovate with currently available resources. It is therefore important to establish a relationship between use and standards of rehabilitation. Minimal restoration would bring many buildings back into use and therefore adequate maintenance. Monuments of historic value could be restored to higher standards.

### The Current Master Plan

Planners for the Greater Cairo Region have framed the issues facing them in terms of two broad social goals: economic growth and improvement of the living environment. To achieve these they recommend implementing twelve objectives, each of which is seen as contributing to one or both of the goals. These objectives are as follows:

1) Protect agricultural areas. Legal measures have in the past been imposed to restrict construction on arable land, but they have been very difficult to enforce. To decrease development pressure on arable land, the master plan recommends tactics which include opening desert areas to urban development and limiting road construction in agricultural areas.

2) Improve industrial location policies.

Policies should protect arable land by directing industry elsewhere, protect other areas of the city from pollution, reduce transit costs to producers and workers and use industry as a way to attract residential development, thus furthering other planning objectives.

3) Improve transport efficiency. The public transit system should be improved, and controls on private cars should be strengthened to encourage the use of collective rather than individual vehicles. New urban areas should be designed so that they minimise commuting.

4) Maximise the use of existing infrastructure. Planners must recognise that even poorly serviced areas within the existing agglomeration are often more attractive than new communities and development will continue to occur there. This growth should not only be channelled to desert fringe areas (to protect arable land), but should also be guided so as to exploit fully the public facilities being constructed in new communities.

5) Protect the archaeological and historic heritage. Minimise urban intrusions and encourage joint public-private restoration projects.

6) Encourage deconcentration of the Greater Cairo Agglomeration. Growth should be directed into the new communities in order to decentralise the urban region.

7) Provide alternatives to informal settlements. Developers must carefully assess the requirements for low- and middle-income housing to find new strategies which will protect arable land and meet the economic and social needs of the residents.

8) Organise the urban fabric to improve access to public services.

9) Promote legal connection of dwellings to public utilities. Illegal connections presently cause a significant drain on the services and financial resources of the water and sewer system. New residential areas should be designed to permit efficient low-cost provision of utilities, and if necessary, standards should be reduced to allow legal
hook-ups for low-income households.
10) Rehabilitate old neighbourhoods. Near active business districts, rehabilitation will be accomplished by private interest, but in other areas special programmes may have to be designed.
11) Protect water resources. The Nile is the only source of irrigation and drinking water, so it must be protected against industrial and domestic pollution.
12) Control air pollution. Industrial fumes can and should be filtered, but at present automobile exhaust can be controlled only by measures to reduce the concentration of vehicles in densely populated areas.
Four concepts of spatial analysis underlie the current planning approaches to meet the stated objectives for Cairo. Two of these, the concept of the urban region and the idea of homogeneous sectors, have guided broad ways of thinking about the city. The other two concepts, new communities and development corridors, have led to specific interventions to channel and control the city's expansion.
1) Urban region. The concept of Cairo as an urban region emphasises the need to plan for the whole urban area as one heterogeneous entity, rather than thinking in terms of its individual portions. It also recognises implicitly that the wide rural strip now surrounding the city could soon be overwhelmed by urban growth pressures and must therefore be incorporated in the current planning process.
2) Homogeneous sectors. These are areas of the city which are or could be relatively independent with respect to provision of jobs, housing and services. The master plan emphasises the desirability of strengthening the self-sufficiency of such areas in order to reduce the concentration and congestion of the current urban centre. The factors which characterise such sectors include: a population large enough to supply all services (one to two million); at most 20 per cent of the labour force commuting outside the sector to work; and the existence of at least one major service centre within the sector. Homogeneous sectors may differ from one another with respect to employment for example, one may specialise in administration and another in light or heavy industry. Ways to organise homogeneous sectors and improve their autonomy might include emphasizing improvement of transportation within the sector rather than to areas outside it, and creating buffer zones between the sector and the rest of the city.
3) New communities. In the Greater Cairo Region, new communities are of three types:
- New towns are independent cities at a sufficient distance from the centre city that their residents will not commute in to work. They require the development of a strong employment base, residential areas and necessary support services. One new town, Tenth of Ramadan, is now under construction on the Cairo-Alexandria Road, and others are planned to the east and west of the city.
- Satellite cities are similar to new towns, but are situated closer to the city centre in order to reduce public investment and permit them to benefit from the advantage of their location. Three satellite

Greater Cairo Region Study Area.
Source: Greater Cairo Master Scheme GOPP/OTUI-IAURIF
cities are now at various stages of implementation: Al-Obour to the north-east of Cairo, Sixth of October to the south-west and Fifteenth of May near Helwan to the south.

- New settlements are areas of predominantly residential development which take advantage of existing employment bases and offer an alternative to living in the informal settlements. In the long run they too are expected to develop autonomy in employment and services. Over time, groups of four to eight new settlements are expected to be linked together, with one of the settlements (or a satellite city) functioning as the central community for provision of services. The cluster could then operate as a homogeneous sector. Most of the planned new settlements are located to the east of the city, with others near the Sixth of October and Fifteenth of May satellite cities.

4) Development corridors. Defined at the regional level by physical constraints, development corridors link Greater Cairo to other economic centres in Egypt. The placement of new communities is designed generally to enhance these corridors and, in particular, to enhance the east-west axis of the Greater Cairo Region and to restrain development on the north-south axis delineated by the river.

The New Settlements

The new communities programme attempts to cope with rapid urban growth by reducing the concentration of people in Cairo and Alexandria and by decentralising the population within the urban areas. The construction of new towns such as Tenth of Ramadan is intended to funnel people and employment opportunities to new desert regions, while the development of satellite cities will create new centres of economic activity, diverting requirements for additional infrastructure, housing and services away from the old city centre.

The new settlements are conceived as partially self-sufficient communities for a target population of 250,000 each, an appropriate size for achieving a high degree of economic autonomy. They differ from new towns and satellite cities in several respects: they are smaller and are physically and functionally tied to the urban agglomeration; they are located near existing residential and employment zones; and they are all expected to develop an autonomous employment base to limit daily commuting and foster the integration of different social groups who rely upon one another for employment and services. They are not, however, expected to provide the full range of services which their populations will require. Some settlements will fill in open spaces at the urban periphery, taking advantage of infrastructure and services which are already in place. Others are proposed to be constructed along the new development corridors, and will be linked to the satellite cities for services not offered locally.

The new settlements are expected to receive residual populations which cannot at present be absorbed by new towns, satellite cities, or infill within the urban agglomeration. They seek to reach a population of low- and middle-income groups, which would constitute approximately 70 per cent of the residents. The primary targets are the developers and residents of informal settlements.

The new settlements offer a medium-term solution to Cairo’s growth problems, in contrast with the long-run potential of the other types of new communities. By 2000, they should offer a total capacity of 1.9 million inhabitants: 1,100,000 in settlements to the east of Cairo in the Suez, Bilbeis and Ain Sukhna Road corridors; 500,000 to the west between Sixth of October and the Alexandria Desert Road; and 300,000 to the south around Fifteenth of May.
The concept of a government centre located outside Cairo's Central Business District was recommended in the 1956 master plan and implemented during the 1960s. It was a first response to the acute problem of Cairo's growing congestion and can be seen as a forerunner of the proposed new settlements programme in that Nasr City was conceived as a semi-independent sector within the urban agglomeration.

The new settlement was designed to cover 6,300 feddans of vacant desert land along the airport road between Abbasiya and Heliopolis, with an extension of the metro line to facilitate commuting into the central business district. Finding or creating jobs for people living in the settlement was therefore not a major issue. New ministries and other important government institutions (such as the National Planning Institute and the Central Agency for Mobilisation and Statistics) were located there, along the main road, and the metro line permitted rapid movement between government offices still located down town and the new ministries so that official business could be conducted efficiently.

The master plan divided the city into a number of zones to be constructed in phases. Individual zones include several neighbourhoods, each of which is supposed to provide basic services including a business centre, school, and public open space. Residential densities range from 175 to 500 persons per hectare, primarily in five to six-storey walk-ups and ten to twelve-storey elevator buildings. The initial housing was constructed by the public sector. Land and apartments could be either rented or purchased; low-interest loans were made available to both government employees and private individuals through the building and housing co-operatives. Water and sewer networks were designed to connect to the main Cairo system. This was adequate through the 1960s, but by the 1970s the Cairo water supply system was too overloaded to serve the new zones in Nasr City. As a result, development slowed for a time, but it is expected to pick up again, as projects to expand the capacity of Cairo's water supply system will allow all areas of Nasr City to be adequately served. Nasr City was financed with government funds, loans and revenues generated by selling land on the site for private construction. The land initially offered for sale at attractive prices was purchased very quickly, and in 1971 the boundary of the settlements was extended to the east, incorporating an additional 14,000 feddans. Part of this land is being held by the government, pending completion of the new water projects.

The experience of Nasr City suggests several points of importance in planning other new settlements. First, it is clear that new settlements cannot necessarily rely on Cairo for utilities, since the systems in adjacent zones may be inadequate to carry the additional load. Second, future new settlements will be industrial rather than governmental centres so planners must address the issue of attracting private industry to provide jobs in the community. Third, as Nasr City has demonstrated, public development companies should hold on to urban land for as long as possible so that the increase in land values during the process of development may be retained by the government and reinvested in the settlements rather than allowing windfall profits to land speculators.

The New Towns

Tenth of Ramadan

The first of the new towns to be built is Tenth of Ramadan, located in the desert 50 km from Cairo, on the Ismailiya highway. It is accessible by road or rail from Cairo, the Delta and the Canal Zone. The town's master plan, finalised in 1976, called for the development over 25 years of a self-sufficient city of 500,000 inhabitants.

Tenth of Ramadan required an unprecedented effort by the Egyptian government. The project called for capital investment of about US$2 bn and necessitated the drafting of new urban legislation. A special development authority was given responsibility for implementation, while the Ministry of Housing and Reconstruction retained authority for formulating overall policy and setting the budget.

Construction work on Tenth of Ramadan began in the late 1970s. Although problems did arise and the town fell behind the forecasts for population, labour force and housing construction, it is nevertheless growing and promises to pick up speed in the near future.

Infrastructure: Road construction proceeded ahead of schedule, with a network adequate for a population of 150,000 in place by 1982. Development of the mass transportation system, however, has lagged behind the roads. A bus system was planned to link residential communities and industrial areas within the city, and buses and a metro line were to link Cairo to the new town, but the metro was cancelled on the grounds that it would encourage commuting. Over 3,000 workers do commute daily to Tenth of Ramadan, however, and at present most factories are relying on private fleets for transport.
Water is supplied to Tenth of Ramadan by 19 wells capable of producing 20,000 cu. m. per day, far in excess of actual demand at this time. Future demand will be met by a project now under construction to draw water from the Ismailiya Canal.

In the early stages of development, wastes are being dumped in the desert. However, the residential sewer system is well under way, with treatment plant and oxidation pond. A parallel network is being built for the industrial zones.

Electric power to the city is supplied by a link-up with the town of Bilbeis, supplemented by a new 220/6/11 KV substation. For telecommunications, a 20,000-line telephone exchange is being installed.

Three different levels of services such as schools and community centres were proposed to create a sense of community and city-wide. In general, provision of services has proceeded according to schedule and hence faster than the actual population growth.

Industrial Development and Employment

The master plan proposed a mixed strategy for industrial growth, including various levels of technology, to be co-ordinated with national plans. Several incentives were used to stimulate industrial development in the new towns. A 1979 law provides ten-year tax exemptions to industries which locate in new towns. At the same time, other laws prohibit industrial development within the administrative boundaries of the Greater Cairo Region or on arable land. Firms locating in Tenth of Ramadan were also given the option to purchase housing at subsidised rates for the use of their employees.

Applicants for industrial development permission were screened by a special committee which determined location and the terms of the land lease or sale. Under most circumstances, land was purchased at rates which were linked to the lot size and infrastructure cost. The prices reflected a significant subsidy and the screening committee had to weed out land speculators.

At first, industrial development in Tenth of Ramadan proceeded at a slow pace. However, since 1981 a large number of local and foreign enterprises have expressed interest in locating there, and close to 100 industrial enterprises have been established, half of which half are in operation — mainly in the production of building materials, electrical equipment and appliances, and other miscellaneous items. Some 60 additional establishments are under construction and land has been allocated to over 100 other companies.

In general, the medium-sized industries were able to develop better than the smaller ones, which were dependent on support services yet to be developed. Public and private investment in industry reached approximately LE50 m in the first five years (1977-82), but new establishments are expected to invest more than LE300 m over the following six years (1982-88). Industry has generated about half the employment in the new town. The remainder is in construction, maintenance of streets and public spaces, administration, and services. In 1982, the average income was two per cent above the national average.

Housing

The housing development programme for Tenth of Ramadan sought rapid construction of permanent housing, with major government assistance in the first stage of city development. The programme aimed to provide housing affordable to low-income workers, to minimise daily commuting between Tenth of Ramadan and Cairo and prevent the development of uncontrolled settlements. Minimal government subsidy of housing was planned beyond the construction of an initial nucleus of 12,000 units offering a variety of housing types, with densities increasing in the new town. However, high cost and risk effectively deterred private sector investment in the town in the early stages of development, forcing the public sector to take on all the initial housing construction.

The strategy devised for generating revenues to finance this construction led to many subsequent problems and resulted in a high rate of commuting. In order to raise investment capital quickly, it was decided to sell land plots. To attract buyers to the remote desert location, the price of improved land was set at a nominal level. Public response was overwhelming, and the Ministry contracted to sell some 4.5 m sq. m — about 1.5 times the amount allocated for residential construction in the first stage of the town’s development. However, much of the land went to speculators and little new housing was built after the land sales. To meet the demand of people who actually wanted to build or live in the town, the Ministry offered land purchasers apartments in exchange for their house plots, and reduced unused plot sizes from 600 sq. m to 120-480 sq. m.

The cost of housing construction in the initial project ran 35 per cent higher than planned, due to higher standards and a 20 per cent inflation rate in the construction sector. As a result much of the housing made available was too expensive for local workers. The development authority began renting apartments at subsidised rates, calculating the rent at 15 per cent of the tenant’s salary. At the same time, housing laws with stringent tenant protection clauses caused many apartments to remain vacant because owners temporarily working abroad had to hold them empty instead of renting them.

In 1982, a revised implementation plan recognised these structural problems, and recommended new land distribution policies, technical measures to lower construction costs, and an immediate action housing programme of 5,000 units for limited income groups.

The Satellite Cities

Several satellite cities are planned around Greater Cairo. Sixth of October and Al-Obour are in advanced stages of planning and provide interesting examples in discussing the satellite city programme. The newly constructed Fifteenth of May city near Helwan is also considered a satellite in the
Heliopolis, constructed in the early part of the century, has often been suggested as a model for contemporary satellites, for various reasons. It was planned as an independent development, physically separate from Cairo but linked to it by a rapid transit system which made daily commuting easy. It was to provide all essential services to its residents, without relying on Cairo for infrastructure, recreation, community facilities, shopping, etc. Also, it was built on desert rather than arable land, a point of great importance to contemporary Egyptian planners. In the course of its development, many of the issues involved in creating new communities were confronted and resolved. The pattern for its economic relationship to Cairo struck a balance between relying on employment centres in the city and the need to develop an economic base of its own, and the role of the public and private sectors in the development and management of the city was effectively worked out. In these respects, while the specific solutions adopted for Heliopolis may not be appropriate to satellite cities today, they do suggest the array of issues to be resolved. Lastly, Heliopolis was a private profit-making venture. At present, when subsidies to new communities for transportation, housing and infrastructure are costing the Egyptian government enormous amounts, any example which successfully addresses these needs and moreover makes a profit is indeed of some interest.

Heliopolis was built between 1908 and 1930 by a Belgian, Baron Edouard Empain. A railroad magnate with an interest in major mortgage banking operations in the financial centre of Europe, Empain had already completed several major transportation and civil engineering projects in Egypt. In
1906 he founded the Cairo Electric Railways and the Heliopolis Oasis Company, which purchased 5,952 feddans (approximately 2,500 hectares) east of Cairo in the desert near the old Suez road. At the time, Cairo was spreading north and south along the banks of the Nile. Empain was able to obtain title to the land from the government for a nominal price of one Egyptian pound per feddan (about 4,000 sq. m., as compared to a market value of one Egyptian pound per sq. m. for suburban land along the river). The British colonial government which sold the land stipulated in the contract that only one sixth of it could be used for buildings, streets, or plantings, and the rest had to be left desert.

As part of the agreement with the colonial government, Empain's venture was given the concession to operate the public transit system between Cairo and Heliopolis. This proved decisive to the success of the project. It enabled Empain's planners to use the transportation lines to influence the locational decisions of residents and businesses, and to induce settlement in the city. Perhaps even more importantly, the transportation system was itself a profitable venture which Empain was able to use in financing the whole project during the early years when other sectors were bringing in limited returns. This inter-sectoral cross subsidisation — paying for land and infrastructure development with metro and tramway revenues — was an important component of the financial success of the city.

The roles of the public and private sectors were defined gradually during the development of Heliopolis. It was fundamentally a private undertaking: the inspiration and initiative for the project were private, and the investment capital was obtained on European financial markets. The colonial government had initially wanted to keep its distance from the venture, but the very magnitude of the project made this impossible. Early on, the government had to enter into key agreements with the company, such as the granting of land, setting conditions for its development, and the agreement regarding the concession to operate the metro between Cairo and Heliopolis, with precise specification of technical standards, train schedules and fares. In these matters, the government acted as a regulatory agency overseeing a private undertaking.

The roles become slightly blurred in 1907 when the Heliopolis Company signed a contract with the government to construct 400 subsidised dwellings for civil servants. In return, the proportion of land required to remain desert was reduced from five sixths to three quarters. For a very small cost, the company gained additional land for development and established a sizeable nucleus of middle-class population.

In 1908 the city limits of Cairo were extended to incorporate Heliopolis. The company was then required to pay property taxes, which engendered a number of bitter lawsuits since the company claimed exemption on the grounds that it, rather than the city, was providing public services to the new community. The company lost the lawsuits, but may have come out ahead simply because of the publicity generated. After the annexation, Cairo authorities gradually expanded their role in providing services to Heliopolis. Thus, the financial risks were taken by the private sector, but the size of the project forced the public sector ultimately to become involved in the provision of services and the control of the urban environment.

Empain used a number of strategies to attract residents to his new city. The Heliopolis Company placed a strong emphasis on developing sophisticated recreation and tourist facilities such as Luna Park, the Palace Hotel with its golf course, and the race track. The development of community facilities was promoted by provision of free land and subsidisation of the construction of schools, mosques and churches. Architecture and landscaping guidelines were designed to appeal first and foremost to the wealthy — the European and westernised Egyptians. For example, no house could occupy more than 50 per cent of the land on which it was situated, and even in the three-storey garden apartments for workers land coverage could not exceed 60 per cent. As a result of its skillful marketing policies, the company needed to build very little housing itself. Furthermore, its higher income residents participated in financing the landscaping of streets and parks.

Despite conscious use of some Islamic-style motifs in the facades, the houses were all distinctly European in layout and use of space. Construction standards were exacting, calling for high quality materials and, in some cases, over-designed foundations, roofs and other features. Structures were required to be completed within 28 months of the land purchase. This effectively prevented middle and lower-income groups from moving in, as it precluded incremental construction whereby an extended family may share one structure and enlarge it as funds become available or needs change.

The attractiveness of Heliopolis to the wealthy was inadvertently reinforced by the First World War, when the development was turned into a British military base. The villas and palace were reserved for staff officers, but the Palace Hotel was transformed into a hospital, and Luna Park and the race course were covered with soldiers' tents. First viewed as a temporary setback for the Heliopolis Company, the requisitions ended up by bringing in a significant portion of the European community to patronise the Heliopolis business. When the war was over, this group continued to frequent the area, helping to integrate it into the city, and the company managed to invest the indemnities received from the British army to build villas for this new clientele before its interest in the area waned.

Heliopolis today is a thriving sector of Cairo with a population of over a million. It has developed into a completely independent sub-centre with a full range of commercial activities and services. Its proximity to the airport makes it a prime location for new businesses, and it is a major pole
for new office and residential construction. It has grown tremendously, and has merged with Nasr City to the south and the airport to the north.

Sixth of October

Sixth of October is located 32 km from Cairo's centre on the Oasis Road. The site is 180 m above sea level and overlooks the Pyramids at Giza. The city's population is projected to reach 550,000 by the year 2000. Development will cover 1,200 feddans and will occur in five stages.

The city is divided into three zones developed along a linear central axis. The industrial park is located at the south-west end of this axis, and the recreation and tourist area at the north-east. These two zones are lined together by a major corridor serving as the city centre and the residential zone extends north and south at a right angle to this corridor. The three main entrances to the city are related to the regional network of desert roads. The design enables the city to expand to the north without disturbing the relation between the central corridor and the northern residential district.

The master plan defines a pyramidal graduation of services and a corresponding residential hierarchy of residential groups, neighbourhoods, districts, sectors, and the city, for which facilities of specific types and sizes are programmed. The overall residential area of the city is divided into three sectors, each containing four districts whose populations range from 25,000 to 36,000. A district incorporates six to eight neighbourhoods, and covers 280 to 410 feddans. Neighbourhoods will house between 4,000 and 6,000 inhabitants. The neighbourhoods will be provided with basic daily commercial, social and religious facilities. At the district level, educational, cultural, commercial and administrative facilities will be developed. In both cases, the facilities will be located in roads running perpendicular to the central corridor.

The city centre stretches along the central corridor and includes both a pedestrian spine and high-traffic roads. Parking facilities are provided along the edges. Within each of the three zones (industrial, recreational and residential), the public facilities and services will be located adjacent to the corridor. In addition, some businesses and services will be granted special permission to locate there.

Overlooking the Pyramids, the recreation and tourist zone will cover 4,800 feddans. It will feature an integrated commercial, touristic and recreational centre as well as cultural and administrative facilities located where the central corridor crosses the area. Six tourist villages of various sizes are designed in keeping with the topography of the site, and a series of interlocked gardens, an amusement park, a horseback riding facility, an athletic centre and a sporting club will be provided.

The quality and capacity of the public utilities will increase at successive stages in the project's implementation. In the first stage, 13,000 low-income housing units, 3,500 middle-income units and 3,500 high-income units will be constructed. The industrial park will feature a complete system of utilities, good connections to the regional transportation network, and a variety of commercial and public services. The latter are located on the pedestrian spine and will be accessible from the residential districts.

The financial package for the development of this city has not yet been worked out in detail. The Tenth of Ramadan new town model is too expensive to be replicated at a triangle of desert roads which makes it readily accessible from Cairo and the Delta. It is within commuting distance of several major employment centres including Nasr City, Heliopolis and the Cairo Central Business District. Its location makes it attractive to industries, while its proximity to the airport offers the possibility of developing international freight and export activities.

The population of Al-Obour is projected to reach 500,000 inhabitants within two decades. The city's cost is estimated at US$2 bn. The first stage of the development aims at a population of 140,000 inhabitants within seven years, and will cost US$300 m. The initial public sector project includes four components: an industrial park, housing and community facilities, regional infrastructure, and public administration and operations.

The industrial park is designed to create 11,000 jobs within the first six years. The Al-Obour New Town Agency will subdivide and service 371 hectares of land, and make them available to businesses which will finance and construct their own buildings. The agency will also undertake construction of 60,000 sq. m. of standard factory space in order to stimulate the growth of small enterprises unable to muster the capital needed to build their own establishments. The industrial park is expected to cost US$43.3 m.

The housing and community facilities component aims at supplying low and middle-income housing; 11,800 serviced sites and 5,050 dwelling units will be created on 301 hectares. The "economic housing" units, in three-storey apartment blocks, respond to the needs of lower-income groups who cannot afford standard housing unless plot development costs are reduced through

Al-Obour

The implications of an approach which would mobilise available private sector investment were traced in the IBRD study for the development of Al-Obour. The city is strategically located at the intersection of Cairo's natural north-south development axis and the new east-west development axis projected in the Cairo Master Plan. It is one of three major centres on this east-west axis (which runs from Sixth of October to Tenth of Ramadan), and lies within a triangle of desert roads which makes it readily accessible from Cairo and the Delta. It is within commuting distance of several major employment centres including Nasr City, Heliopolis and the Cairo Central Business District. Its location makes it attractive to industries, while its proximity to the airport offers the possibility of developing international freight and export activities.
sharing or subsidies. By concentrating these units in strategic locations, the agency will be able to shape the initial form of the community. The gross density of the residential area will average 480 inhabitants per hectare, which is within the parameters of existing urbanisation patterns. The residential sector will be divided into ten neighbourhoods housing 14,000 inhabitants each, and provided with all the necessary community facilities.

Based on a market analysis, the 11,800 serviced sites will be broken down by size, as follows:

- 17 per cent at 72 sq. m.
- 32 per cent at 90 sq. m.
- 19 per cent at 113 sq. m.
- 14 per cent at 135 sq. m.
- 11 per cent at 162 sq. m.
- 6 per cent at 216 sq. m.
- 1 per cent at 252 sq. m.

A graduated land-pricing scheme has been developed in which prices range from LE 25 per sq. m. (1982 values) for the smallest plots, to LE 49 per sq. m. for the largest. This will allow limited income families to purchase land without government subsidy.

The bulk of the housing construction in Al-Obour is to be undertaken by private sector firms or by the owners themselves. To create jobs for local residents, the development of an informal construction and building material sector in Al-Obour may be encouraged by lowering construction standards, easing access to credit and providing extension services to promote self-help construction.

The Housing Development Bank (set up in June 1974 to respond to a shortage of housing finance) is empowered to accept certificates, provide letters of credit, make loans to individuals and commercial institutions, serve as an investment trustee, and provide all commercial banking services. It presently makes medium- and long-term loans for all levels of housing and is expected to be a major source of finance for housing construction in Al-Obour.

The regional infrastructure is projected to cost US$73.9 m. This covers the building of arterial and district roads, water supply, sewage collection network and treatment facilities, electric power lines, street lights, and a telecommunications centre. Public administration and operations, for which US$11.6 m. has been earmarked, includes maintenance of buildings, and provision of equipment for trash collection and earth moving.

The development of Al-Obour will be phased so as to allow efficiency in construction and operation without making excessive investments toward future stages in the city’s growth. This type of phasing is made possible by a grid system design which permits easy extension of road, water and sewerage networks as demand increases. It also provides flexibility for future programme implementation, yet offers options to stop at any point and have autonomous local areas provided with all services and access. It reduces the risk of large-scale investment involved in the development of complete city-wide systems and defines each stage as a discrete undertaking.

From the economic viewpoint, the benefits of Al-Obour substantially outweigh its costs. The projected rate of return on the project is 44 per cent, largely attributable to the industrial component which is expected to be extremely profitable. This analysis assumes that the regional infrastructure costs would be charged to the industrial sector, the only sector able to bear these costs. Treating the infrastructure for the residential and commercial sectors as incremental to the basic system provided for the industrial sector allows all sectors to show a positive rate of return. However, if infrastructure costs were assessed on an average rather than incremental cost basis, the residential and commercial sectors would show negative rates of return of 23-27 per cent and 13 per cent, respectively. The financial success of this venture therefore depends on the willingness of the New Town Agency to use potential profits from the industrial sector to subsidise the commercial and residential sectors, a cross-subsidisation scheme analogous to that used in Heliopolis. These estimates of profitability for Al-Obour are predicated on a balanced and co-ordinated development among sectors. Thus, industry will be more profitable if the labour force has housing in the city, while commercial and service establishments depend on residents and industry for support.

The two main risks involved in the venture would only arise in the case of a general macro-economic downturn. First, governmental resources available for the initial phase of the project might be reduced. (Since the project is designed to recover all costs, it is not heavily dependent on long-term government funding.) Second, the availability of private funds for the city would be affected by decreases in domestic and foreign investment and remittances from Egyptians working abroad, which is now a major source of funding for housing construction.

Fifteenth of May

The Fifteenth of May City was located near Helwan, to the south of Cairo, in order to deal with growing housing shortages in the area. The 1966 master plan for Cairo designated Helwan as an industrial sub-centre, and since that time it has grown tremendously in economic importance. As factories were built or enlarged, construction of a workers’ housing community adjacent to Old Helwan was begun, but provision of housing lagged far behind the rate of industrial expansion. Although close to 8,000 public housing units were built in Helwan, and over 2,000 in Tibbin to the south, less than 50 per cent of the population working in the area managed to find living accommodations there. Uncontrolled settlements spread onto almost every stretch of easily developable land, while nearly 60,000 workers commuted daily to Helwan from various districts of Cairo.

The master plan for Helwan, prepared in the 1960s, called for the development of
four new communities to provide more than 50,000 new dwelling units. One of these, Fifteenth of May, was the first to be implemented. It was at first regarded as a satellite city. However, by the time construction started on the project in 1979, rapid urbanisation and the new highway had brought the built-up zone to the edge of the site. It is now viewed as an intermediate type of development differing from both satellites and new settlements in size and function. It was designed as a residential community, with land allocated to housing and commercial uses, but not industry. It covers an area of 1,032 hectares and its projected population for the year 2000 is 150,000. It is therefore much smaller than the new satellites, but still offers a full range of facilities, enabling it to act as the service centre for three new settlements planned around it. Together the city and the three settlements will house 300,000 people.

The first stage of development includes 12 neighbourhoods which will house a total of 50,000 people. Seven of the neighbourhoods will be for low-income households, four for middle-income households, and one for high-income households. For every six neighbourhoods, there will be a high school, a sporting club, religious facilities and a 150-300 bed hospital. Construction is proceeding on the town centre which includes shops, office buildings, primary and secondary schools, cinemas, theatres and a library. Stage one housing has been completed and units are being allocated to fortunate beneficiaries from a long waiting list of over 30,000 applicants. Most of the city's infrastructure had to be provided independently of the main Cairo systems, at least on an interim basis until the new utilities projects are completed. Housing construction has been financed by the General Organisation for Housing Co-operatives, the Housing and Construction Bank, the Housing Fund, and the New Communities Authority. Housing is available primarily to people who work in Helwan but reside elsewhere, and in some instances it will be purchased by factories for their workers. Three types of dwellings are provided: apartments averaging 65 sq. m. for lower-income groups, account for 65 per cent of the total; apartments averaging 110 sq. m. for middle-income groups, account for 25 per cent; and villas 150 sq. m. in floor area account for 10 per cent. Only the residential units are being offered for sale. All land remains in government ownership, and commercial space is rented. For land purchasers of low-and middle-income housing, the financing agencies are providing 30-year loans to be repaid at three to four per cent interest. Low-income buyers make a 10 per cent down payment and middle-income buyers 20 per cent. The purchasers of villas obtain credit at prevailing market rates.

Conclusion

Heliopolis is held up as an example in discussions of the satellite cities programme because it accomplished many of the goals of contemporary planners and was a financial success. The explanations for its success are interesting but cannot be applied directly to the present situation because the historic context has changed significantly. Cairo's population has swelled, the city's problems have grown in magnitude and changed in character, and the urban economy has become far more complex. Most important, the goals of the satellite cities today are different from those of Heliopolis in the early 1900s. Where the Heliopolis Company made its investment decisions based on a private assessment of risk and profit, contemporary planners must account for the social consequences of their decisions. No longer is it acceptable merely to build a city which covers its costs; it must also create jobs, offer housing to limited income groups, preserve arable land, protect the environment, and contribute to Egypt's social and economic development.

Nevertheless, the strategies used in Heliopolis may have some applicability to contemporary problems. One major reason for its success was that the developers could control all of the assets required for the project - financial resources, transportation, land use, and so on. This allowed them to plan their city so that all aspects of the development supported each other, and in the critical early stages revenues from the profitable railway system could cross-subsidise the other sectors.

In the 1980s, no single real estate developer can control all assets, so we cannot expect to see the private sector taking the initiative for developing the satellite cities. However, the public sector does have control over all the necessary assets and is using master planning to co-ordinate their use. It can enter into partnerships with the private sector to the mutual benefit of both, as is proposed for Al-Obour. Although at present public transportation
is more likely to consume than to provide subsidies, there may be other sources of cross subsidisation, as with the industrial sector in Al-Obour. Thus, the financing mechanisms of Heliopolis are not directly transferable to the satellite cities but, in a more general way, the cross-subsidisation strategy is still a key ingredient of successful large-scale real estate development.

The Heliopolis Company presented Cairenes with an attractive prospect of life in Heliopolis by offering an urban environment of a particular quality, with cultural and social facilities, recreation opportunities, and public and commercial services, which added up to a city in which everything required by the target population was available. Today, the satellite cities are targeted for a less wealthy population, but their planners still recognise the need to provide all necessary services, without bottlenecks or delays. Thus, in Al-Obour there is an emphasis on the need to coordinate all aspects of development to ensure that utilities, services and facilities are completed by the time they are needed.

Capitalising on opportunities for public/private partnerships in satellite cities and new settlements can increase substantially the pace of their development and release scarce public funds for investments in costly, but necessary, projects such as the free-standing new towns needed to open up development regions in the desert.

**Bibliography**


*Ministry of Development Homogeneous Sectors Limits and Action Plans*. Cairo, 1984


### Statistical Appendix

<table>
<thead>
<tr>
<th>Governorate</th>
<th>Hay or Markaz</th>
<th>Qisms, Madina or Villages</th>
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|             |                | 12 Nasr City  
|             |                | 13 Masr Al Gadida |
| 2 East      |                | 21 Salam  
|             |                | 22 Mataria  
|             |                | 23 Ain Shams  
|             |                | 24 Zeitoun  
|             |                | 25 Hadaek Al Kobba  
|             |                | 26 Al Wayli  
|             |                | 27 Manshiet Nasser |
| 3 North     |                | 31 Shubra  
|             |                | 32 Al Zawia Al Hamra  
|             |                | 33 Sharabiah  
|             |                | 34 Sahel  
|             |                | 35 Rod Al Farag |
| 4 Central   |                | 41 Zahe  
|             |                | 42 Bab El Sharia  
|             |                | 43 Gamalia  
|             |                | 44 Darb Al Ahmar |
| 5 West      |                | 51 Azbakiah  
|             |                | 52 Muski  
|             |                | 53 Bulak  
|             |                | 54 Abdin  
|             |                | 55 Zamalek  
|             |                | 56 Kasr Al Nil |
| 6 South     |                | 61 Sayyeda Zeinab  
|             |                | 62 Khalifah  
|             |                | 63 Roda  
|             |                | 64 Masr Al Qadima |
| 7 Helwan    |                | 71 Maadi  
|             |                | 72 Helwan  
|             |                | 73 15th of May  
|             |                | 74 Al Tebbin |
| 2 Giza      | 1 Giza City    | 11 Imbaba  
|             |                | 12 Al Agouza  
|             |                | 13 Al Dokki  
|             |                | 14 Al Giza  
|             |                | 15 Bulak Al Dakrur  
|             |                | 16 Al Ahram |
|             | 2 Markaz Imbaba | 21 Ousim  
|             |                | 22 Village M Imbaba |
|             | 3 Markaz Al Giza | 31 Village M Al Giza |
|             | 4 M Al Badrashin | 41 Al Hawamdiah  
|             |                | 42 Villages M Al Hawamdiah  
|             |                | 43 Al Badrashin  
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|             | 5 Markaz Al Saf | 51 Villages M Al Saf |
| 3 Qalyubiya | 1 Shubra Al Khima | 11 Shubra Al Khima (1)  
|             |                | 12 Shubra Al Khima (2) |
|             | 2 M Al Khanka  | 21 Al Khanka  
|             |                | 22 Village M Al Khanka |
|             | 3 M Shbin Al Qanater | 31 Villages M Shbin |
|             | 4 Markaz Qalyub | 41 Qalyub  
|             |                | 42 Villages M Qalyub |
|             | 5 M Al Qanater | 51 Qanater Al Kheriah  
|             |                | 52 Villages M Al Qanater |
## Population Trends in Egypt and Greater Cairo (Corrected for Administrative Boundaries Difference Before 1976)

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<tr>
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### Source
Data for the period 1897 to 1947 are quoted from the Preliminary Master Plan of 1970. Notes: “r” geometric growth rate.

### Population and Rates of Birth, Death, and Natural Increase, 1952-77

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### Statistical Appendix

#### Part of the Giza Governorate in the GCR

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#### Age Structure, 1960-70

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*na. Not available.

a. Preliminary estimates

Source: Central Agency for Public Mobilization and Statistics (CAPMAS)

The following inter-governorate administrative changes have been considered:

- Manshiet Al-Qanater included in Giza Governorate, although in 1966 in Qalyubiya Governorate at that time, it was in Giza Governorate in 1960 and 1976
- Tebbin included in Cairo Governorate in 1960 and 1966, although in Giza Governorate at that time
- Arab Abu Tawilah included in Cairo Governorate in 1960 and 1966, in Qalyubiya Governorate at that time

Excluding those outside the country and in occupied zones on Census date

Growth rates calculated with 13.5, 5, and 7 years between the 1947-60, 1960-66, and 1966-76 Census, respectively

Forecasts for July 1981 with assumptions on growth rates and migration patterns

Urban: including Ousim, Al Badrashin, Al Hawandiah, Al Khanka, Qalyub, and Qanater Al Kheiriah, although some of these population centres were regarded as rural until the 1976 Census
### Average Growth of Built-up Areas (1945 to 1977)

<table>
<thead>
<tr>
<th>Governorate</th>
<th>1945 to 1968</th>
<th>1968 to 1977</th>
<th>1945 to 1977</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hectare/Year</td>
<td>%</td>
<td>Hectare/Year</td>
</tr>
<tr>
<td>Cairo</td>
<td>233</td>
<td>2.56</td>
<td>370</td>
</tr>
<tr>
<td>Giza</td>
<td>81</td>
<td>4.74</td>
<td>86</td>
</tr>
<tr>
<td>Qalyubiya</td>
<td>40</td>
<td>8.05</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>354</td>
<td>3.10</td>
<td>490</td>
</tr>
</tbody>
</table>

### Changes in Land Use between 1968 and 1977 in the Greater Cairo Agglomeration

<table>
<thead>
<tr>
<th>Type of Land Use</th>
<th>1968</th>
<th>1977</th>
<th>Absolute Increase</th>
<th>% Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1968/77</td>
</tr>
<tr>
<td>Residential</td>
<td>10,600</td>
<td>13,100</td>
<td>2,500</td>
<td>57</td>
</tr>
<tr>
<td>Economic Activities</td>
<td>1,800</td>
<td>3,500</td>
<td>1,700</td>
<td>38</td>
</tr>
<tr>
<td>Public Facilities</td>
<td>3,700</td>
<td>4,000</td>
<td>250</td>
<td>5</td>
</tr>
<tr>
<td>Total Built-up Area</td>
<td>16,100</td>
<td>20,600</td>
<td>4,500</td>
<td>100</td>
</tr>
</tbody>
</table>

### Evolution of the Built-up Area of the Greater Cairo Agglomeration on Arable and Desert Land (hectares)

<table>
<thead>
<tr>
<th>Year</th>
<th>1945</th>
<th>%</th>
<th>1968</th>
<th>%</th>
<th>1977</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previously Desert Land</td>
<td>3,000</td>
<td>37</td>
<td>5,600</td>
<td>35</td>
<td>8,400</td>
<td>41</td>
</tr>
<tr>
<td>Previously Arable Land</td>
<td>5,000</td>
<td>63</td>
<td>10,500</td>
<td>65</td>
<td>12,200</td>
<td>59</td>
</tr>
<tr>
<td>Total</td>
<td>8,000</td>
<td>100</td>
<td>16,100</td>
<td>100</td>
<td>20,600</td>
<td>100</td>
</tr>
</tbody>
</table>

### Greater Cairo Agglomeration — Land Use Summary — 1977 (hectares)

<table>
<thead>
<tr>
<th>Governorate</th>
<th>Residential</th>
<th>Service Facilities</th>
<th>Economic Activities</th>
<th>Total Built-up Area*</th>
<th>Government Property (Defenses)</th>
<th>Vacant Land</th>
<th>Agricultural Land</th>
<th>Total Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cairo Governorate</td>
<td>9,495</td>
<td>3,303</td>
<td>2,720</td>
<td>15,522*</td>
<td>7,728+4*</td>
<td>7,211</td>
<td>2,898</td>
<td>32,359</td>
</tr>
<tr>
<td>3. Qalyubiya Governorate</td>
<td>796</td>
<td>128</td>
<td>543</td>
<td>1,467</td>
<td>4</td>
<td>—</td>
<td>1,621</td>
<td>3,092</td>
</tr>
<tr>
<td>Total in the Greater Cairo Agglomeration</td>
<td>13,137</td>
<td>3,965</td>
<td>3,466</td>
<td>20,621*</td>
<td>6,794+53*</td>
<td>7,211</td>
<td>7,972</td>
<td>42,598</td>
</tr>
</tbody>
</table>

* Undefined buildings included in Total Built-Up Area

Source: 1:5,000 Maps

<table>
<thead>
<tr>
<th>Main activity</th>
<th>Total G C R.</th>
<th></th>
<th>Total Egypt</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1960</td>
<td>%</td>
<td>1976</td>
<td>%</td>
<td>1960</td>
<td>%</td>
<td>1976</td>
</tr>
<tr>
<td>1. Agriculture</td>
<td>172,780</td>
<td>13</td>
<td>0</td>
<td>182,857</td>
<td>8</td>
<td>3</td>
<td>4,406,379</td>
</tr>
<tr>
<td>2. Industry + Mining and Quarrying + Construction</td>
<td>336,721</td>
<td>25</td>
<td>4</td>
<td>748,170</td>
<td>33</td>
<td>9</td>
<td>893,094</td>
</tr>
<tr>
<td>3. Services</td>
<td>815,709</td>
<td>61</td>
<td>6</td>
<td>1,277,571</td>
<td>57</td>
<td>8</td>
<td>2,427,178</td>
</tr>
<tr>
<td>Total</td>
<td>1,325,210</td>
<td>100</td>
<td>0</td>
<td>2,208,598</td>
<td>100</td>
<td>0</td>
<td>7,726,651</td>
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</table>

### Civilian Labour Force by Sector, Selected Years, 1947-79 (in thousands)

<table>
<thead>
<tr>
<th>Sector</th>
<th>1947</th>
<th>1966</th>
<th>1976</th>
<th>1979</th>
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</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>4,086</td>
<td>4,447</td>
<td>4,224</td>
<td>4,161</td>
</tr>
<tr>
<td>Industry</td>
<td>597</td>
<td>1,140</td>
<td>1,257</td>
<td>1,478</td>
</tr>
<tr>
<td>Construction</td>
<td>113</td>
<td>206</td>
<td>434</td>
<td>634</td>
</tr>
<tr>
<td>Trade</td>
<td>590</td>
<td>599</td>
<td>1,016</td>
<td>1,130</td>
</tr>
<tr>
<td>Transportation and Communications</td>
<td>203</td>
<td>340</td>
<td>422</td>
<td>454</td>
</tr>
<tr>
<td>Other services</td>
<td>1,405</td>
<td>1,602</td>
<td>2,276</td>
<td>2,703</td>
</tr>
<tr>
<td>Total</td>
<td>6,994</td>
<td>8,334</td>
<td>9,629</td>
<td>10,560</td>
</tr>
</tbody>
</table>

---

1. Indicates census year
2. Includes fishing
3. Includes mining, manufacturing, and electricity

Labour Force by Economic Activity — Greater Cairo Region (1976)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cairo Gov</th>
<th>%</th>
<th>Giza Urban</th>
<th>%</th>
<th>Giza Rural</th>
<th>%</th>
<th>Qalyubiya Urban</th>
<th>%</th>
<th>Qalyubiya Rural</th>
<th>%</th>
<th>Total G.C.R</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Agriculture</td>
<td>17,433</td>
<td>1.2</td>
<td>16,701</td>
<td>4.6</td>
<td>86,183</td>
<td>48.3</td>
<td>8,153</td>
<td>6.0</td>
<td>54,387</td>
<td>52.1</td>
<td>182,857</td>
<td>8.3</td>
</tr>
<tr>
<td>2 Mining + quarrying</td>
<td>5,768</td>
<td>0.4</td>
<td>1,475</td>
<td>0.4</td>
<td>382</td>
<td>0.2</td>
<td>572</td>
<td>0.4</td>
<td>508</td>
<td>0.5</td>
<td>8,705</td>
<td>0.4</td>
</tr>
<tr>
<td>3 Industry</td>
<td>383,849</td>
<td>26.9</td>
<td>76,854</td>
<td>21.4</td>
<td>28,312</td>
<td>15.8</td>
<td>57,134</td>
<td>42.2</td>
<td>16,997</td>
<td>16.3</td>
<td>563,146</td>
<td>25.6</td>
</tr>
<tr>
<td>4 Utilities</td>
<td>15,546</td>
<td>1.1</td>
<td>3,373</td>
<td>0.9</td>
<td>1,253</td>
<td>0.7</td>
<td>1,320</td>
<td>1.0</td>
<td>405</td>
<td>0.4</td>
<td>21,897</td>
<td>1.0</td>
</tr>
<tr>
<td>5 Construction</td>
<td>118,527</td>
<td>8.3</td>
<td>33,396</td>
<td>9.3</td>
<td>10,447</td>
<td>5.8</td>
<td>10,627</td>
<td>7.8</td>
<td>3,322</td>
<td>3.2</td>
<td>176,319</td>
<td>8.0</td>
</tr>
<tr>
<td>6 Commercial</td>
<td>211,164</td>
<td>14.8</td>
<td>51,429</td>
<td>14.3</td>
<td>19,025</td>
<td>10.7</td>
<td>13,368</td>
<td>9.8</td>
<td>6,297</td>
<td>6.0</td>
<td>301,283</td>
<td>13.6</td>
</tr>
<tr>
<td>7 Transport</td>
<td>126,299</td>
<td>8.8</td>
<td>27,703</td>
<td>7.7</td>
<td>8,577</td>
<td>4.8</td>
<td>10,642</td>
<td>7.8</td>
<td>4,542</td>
<td>4.4</td>
<td>177,765</td>
<td>8.0</td>
</tr>
<tr>
<td>8. Finance +</td>
<td>29,703</td>
<td>2.1</td>
<td>7,744</td>
<td>2.1</td>
<td>632</td>
<td>0.4</td>
<td>959</td>
<td>0.7</td>
<td>311</td>
<td>0.3</td>
<td>39,349</td>
<td>1.8</td>
</tr>
<tr>
<td>9 Public Services +</td>
<td>136,172</td>
<td>9.5</td>
<td>36,402</td>
<td>10.8</td>
<td>36,191</td>
<td>22.7</td>
<td>20,590</td>
<td>12.1</td>
<td>26,348</td>
<td>16.7</td>
<td>243,493</td>
<td>17.6</td>
</tr>
<tr>
<td>Defence + Public services</td>
<td>109,301</td>
<td>7.6</td>
<td>27,037</td>
<td>7.7</td>
<td>9,864</td>
<td>3.6</td>
<td>638,086</td>
<td>34.6</td>
<td>130,191</td>
<td>8.0</td>
<td>243,493</td>
<td>17.6</td>
</tr>
<tr>
<td>9b. Private services</td>
<td>32,340</td>
<td>2.3</td>
<td>11,536</td>
<td>3.2</td>
<td>3,144</td>
<td>1.8</td>
<td>6,630</td>
<td>4.9</td>
<td>4,671</td>
<td>3.0</td>
<td>58,321</td>
<td>2.6</td>
</tr>
<tr>
<td>Total</td>
<td>1,429,595</td>
<td></td>
<td>360,402</td>
<td></td>
<td>178,545</td>
<td></td>
<td>135,753</td>
<td></td>
<td>104,303</td>
<td></td>
<td>2,208,598</td>
<td></td>
</tr>
</tbody>
</table>

Population

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population (thousands)</th>
<th>Urban population (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>19,022</td>
<td>6,200</td>
</tr>
<tr>
<td>1960</td>
<td>26,085</td>
<td>9,864</td>
</tr>
<tr>
<td>1966</td>
<td>30,076</td>
<td>12,037</td>
</tr>
<tr>
<td>1976</td>
<td>36,656*</td>
<td>16,086</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate of growth (per cent)</th>
<th>Proportion of total (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>—</td>
<td>32.6</td>
</tr>
<tr>
<td>1960</td>
<td>2.3</td>
<td>37.8</td>
</tr>
<tr>
<td>1966</td>
<td>2.5</td>
<td>40.0</td>
</tr>
<tr>
<td>1976</td>
<td>2.1</td>
<td>43.9</td>
</tr>
</tbody>
</table>

Note: The rate of growth is the annual average for the intercensal years.
*This figure excludes the estimated 1.4 million Egyptians living abroad

Source: 1976 Census — CAPMAS
Development of National and Urban Population, 1947-76

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population (thousands)</th>
<th>Urban population (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>19,022</td>
<td>6,200</td>
</tr>
<tr>
<td>1960</td>
<td>26,085</td>
<td>9,864</td>
</tr>
<tr>
<td>1966</td>
<td>30,076</td>
<td>12,037</td>
</tr>
<tr>
<td>1976</td>
<td>36,656*</td>
<td>16,086</td>
</tr>
</tbody>
</table>

Note: The rate of growth is the annual average for the intercensal years.
*This figure excludes the estimated 1.4 million Egyptians living abroad

Source: CAPMAS, Statistical Yearbook (Cairo, 1977)
### Distribution of the Population by Homogeneous Sector and Directional Growth Zone (1977-2000) (’000 inhabitants)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Center</td>
<td>1</td>
<td>-140</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>1,700</td>
<td>1,730</td>
</tr>
<tr>
<td>North</td>
<td>3</td>
<td>-350</td>
<td>-</td>
<td>-</td>
<td>150</td>
<td>210</td>
<td>10</td>
<td>2,350</td>
<td>2,360</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>-</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>East</td>
<td>4</td>
<td>+300</td>
<td>20</td>
<td>-</td>
<td>130</td>
<td>90</td>
<td>-</td>
<td>540</td>
<td>660</td>
</tr>
<tr>
<td></td>
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<td>-</td>
<td>910</td>
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<td>-</td>
<td>1,270</td>
<td>80</td>
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<td></td>
<td>8</td>
<td>+10</td>
<td>410</td>
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<td>770</td>
<td>1,020</td>
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<td>+540</td>
<td>560</td>
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<td>160</td>
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<td>750</td>
<td>200</td>
<td>-</td>
<td>1,230</td>
<td>350</td>
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<td></td>
<td>7</td>
<td>+330</td>
<td>55</td>
<td>150</td>
<td>310</td>
<td>120</td>
<td>750</td>
<td>1,715</td>
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<td>+130</td>
<td>145</td>
<td>85</td>
<td>380</td>
<td>-</td>
<td>-</td>
<td>740</td>
<td>1,230</td>
</tr>
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<td></td>
<td>11</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>-</td>
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<td>500</td>
<td>-</td>
<td>-</td>
<td>600</td>
<td>1,100</td>
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<td></td>
<td>13</td>
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<td>250</td>
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<td>14</td>
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</tr>
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<td></td>
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<td></td>
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<td></td>
<td>+130</td>
<td>145</td>
<td>750</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85</td>
<td>380</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,090</td>
<td>1,230</td>
<td>3,320</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+630</td>
<td>920</td>
<td>1,900</td>
</tr>
</tbody>
</table>

(1) Greater Cairo Agglomeration identified on 1977 maps
(2) Public or private housing projects identified as of beginning of 1982
(3) As defined by the Ministry of Development and New Communities.
(4) Vacant land as defined in 1981 by Dames and Moore, excluding land located outside the outer ring road (see attached map).
(5) An avoidable development on agricultural land.