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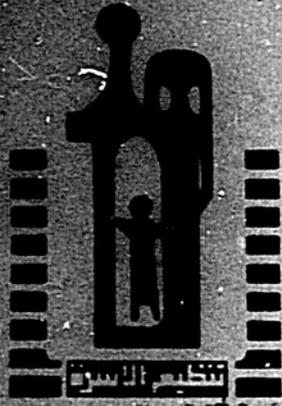
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# Egypt

## THE EFFECTS OF POPULATION FACTORS ON SOCIAL AND ECONOMIC DEVELOPMENT

*THE FUTURES GROUP*

**RAPID**

Resources for the Assessment of  
Population Impacts on Development

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## PREFACE

The Futures Group and its subcontractor General Electric TEMPO, under the RAPID contract with the United States Agency for International Development (AID), are undertaking analyses for a number of countries regarding the effects of population factors on the efforts of these countries to achieve their economic and social goals. These analyses are being carried out for several countries that have well-defined development programs and are seriously determined to make substantial economic and social progress. In each case, these analyses are offered to national leaders for consideration along with comparable research done by the country's own experts in its own institutions.

## INTRODUCTION

The World Population Plan of Action, adopted by 136 countries, including Egypt and the United States, at the World Population Conference in Bucharest in 1974, recognized as a principle that "population and development are interrelated: population measures should be integrated into comprehensive social and economic plans and programmes and this integration should be reflected in the goals, instrumentalities, and organizations for planning within the countries." (Paragraph 95)

"Population" in this sense includes fertility, birth rates and death rates, natural increase, internal and external migration, distribution, urbanization, and other factors. Population is, of course, only one element to be considered in the development process. However, it has a very special importance since the ultimate purpose of economic development is not simply to increase the total goods and services produced—the Gross National Product (GNP)—but to increase the standard of living and the quality of life of the individual, including the value of goods and services available per person.

GNP per capita can be raised by increasing the rate of production of goods and services, or by slowing the increase of population—or, most effectively, by doing both. Where there is a rapid increase in population and government attention is given only to increasing the output of goods and services, the increase in GNP per capita may be limited or even nonexistent, and therefore attainment of goals for improving the quality of life of the individual citizen may be difficult and long-delayed. However, where attention is also given to slowing population growth, the effort to reach development goals for the welfare of the individual will generally be more successful.

This analysis considers all aspects of population and gives particular attention to fertility and distribution. It examines the effects of population factors, including alternative fertility levels and projections of population growth, on the ability of Egypt to attain its economic and social goals.

The effects of population factors on development are well recognized by responsible Egyptian leaders. Although the country has an area of 1 million square kilometers and would appear to have a low population density, actually only about 40,000 square kilometers are inhabited, and the population density in this area is 1,000 people per square kilometer. Indeed, 96 percent of the population finds food and shelter in the historic Nile Valley and delta. The government officially supports a population program to reduce the high fertility and population growth, and family planning services are increasingly available. Nevertheless, the rate of population growth, after a downward trend, turned up again.

President Sadat in his speech before the newly elected Parliament June 23, 1979 pointed out that the "continuously widening gap between production and consumption requires in-depth and intensive study which should aim at producing a better organized and more effective family planning program".

This analysis is provided as a tool which may be helpful in expanding the base of understanding the effects of population factors and of support for government policies and programs to re-establish the downward trends in fertility and population growth rates.

## NATIONAL DEVELOPMENT GOALS OF EGYPT

Egypt's major development goals are set out in the Five Year Plan (1978-1982) prepared by the Ministry of Planning. The major economic and social goals are to:

Provide productive employment for the growing labor force;

Achieve a four-fold increase in GDP per capita by the year 2000, from its 1975 level of LE 150;

Maintain an average annual investment of 28 percent of GDP during the Plan period;

Achieve self-sufficiency in cereal production;

Improve the health and quality of life of the rural, urban, and desert population in order to increase their productive contribution to national development;

Reach 100 percent enrollment for all children of elementary school age;

Reduce rural population pressure in the Nile Valley and delta;

Slow the rate of population growth in Greater Cairo;

Prevent the spread of urban slums and provide adequate housing for all of the people.

These goals and other development sectors and goals central to the success of Egypt's entire development effort will be affected significantly by population growth. This analysis therefore addresses two questions:

Can Egypt attain its social and economic development goals if its current fertility levels and population growth are continued?

If the development program included measures to slow population growth at a greater rate, how much difference would it make to the attainment of these goals and to the social and economic progress of the people of Egypt?

# **Egypt**

## **Population Dynamics**

**Birth Rates, Death Rates, and Population Growth Rates**

**Age Distribution and Child Dependency**

**The Momentum of Population Growth**

**Population Growth Under Different Fertility Assumptions**

## BIRTH RATES, DEATH RATES, AND POPULATION GROWTH RATES

The principal population factor in any country affecting the attainment of its development goals is the total fertility rate (TFR), the average number of children born to each woman during her child-bearing years. Egypt has a high total fertility rate, but the rate is declining. In 1960 this rate was 7.2 children ever born per woman. It had dropped to 6.8 by 1966, and is estimated at 5.4 by 1976.\* This decrease is thought to be due primarily to the early success of the family planning program, the war conditions which postponed marriages and childbearing, increased urbanization, and higher socio-economic development associated with rising educational levels.

Despite the reduction in fertility, the population growth rate has been rising as death rates have dropped even more rapidly than birth rates. The birth rate, the number of live births per 1,000 people per year, declined from 43 in 1960 to a comparatively low rate of 34.6 in 1972, then started to rise again in 1973. It appeared to have stabilized at 37.7 per thousand since 1975, then increased slightly to 38 by 1978. The upward turn after 1973 can be explained by the gradual changes in marital status of the population. The death rate, the number of deaths per 1,000 people, declined from 16.9 in 1960 to 11.7 in 1976, and further to 9.9 by 1978. This decline is a tribute to the continuous improvement in health services. The infant mortality rate has decreased from 138 per thousand in 1954 to 109 per

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\* Although figures or estimates later than 1976 are available for a number of demographic factors, 1976 is the latest year for many of the economic and social figures. Therefore, 1976 is used throughout this analysis as the base year.

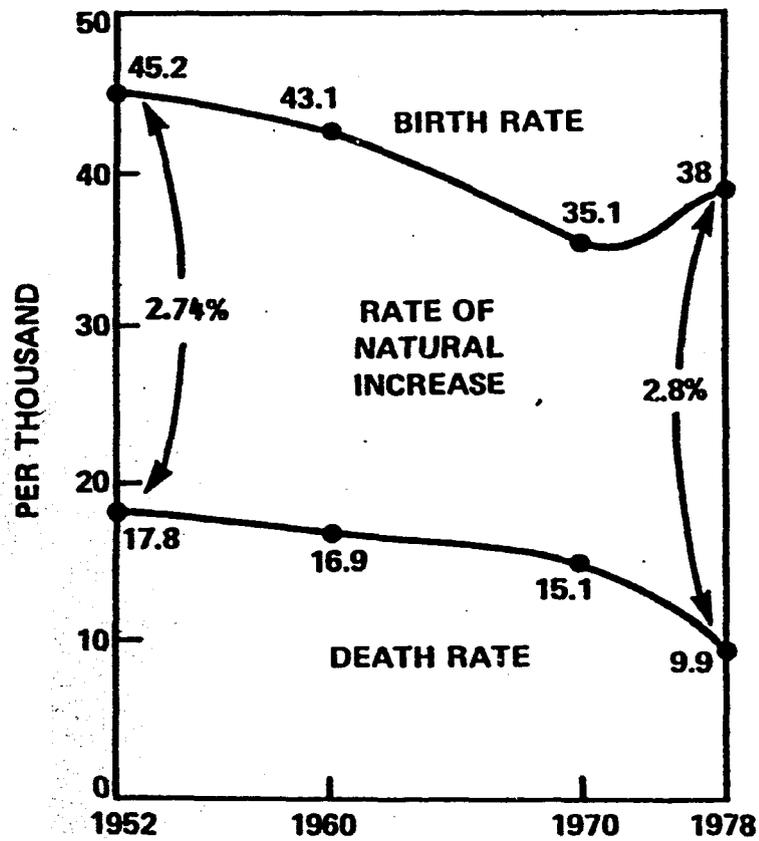
thousand in 1960, and to perhaps less than 90 per thousand in 1976. Better health conditions extended the life expectancy of the average Egyptian to 54 years. It can be expected that these improvements will continue, and the death rate will drop further.

The rate of natural increase in the population is the birth rate minus the death rate. In 1952, it was about 2.8 percent. By 1960, it was 2.62 percent. In the period 1966-1976, the growth rate was reduced by the effects of two wars and years of high emigration to oil countries and elsewhere to an average of 2.31 percent per year. In 1976, it had risen again to 2.6 percent. It is estimated that by 1978, it had increased to 2.8 percent per year. The total population living in Egypt in 1976 was 36.8 million. An additional 1.4 million Egyptians lived abroad, making a total of 38.2 million Egyptians. The estimated total number of Egyptians in 1979 is 41 million.

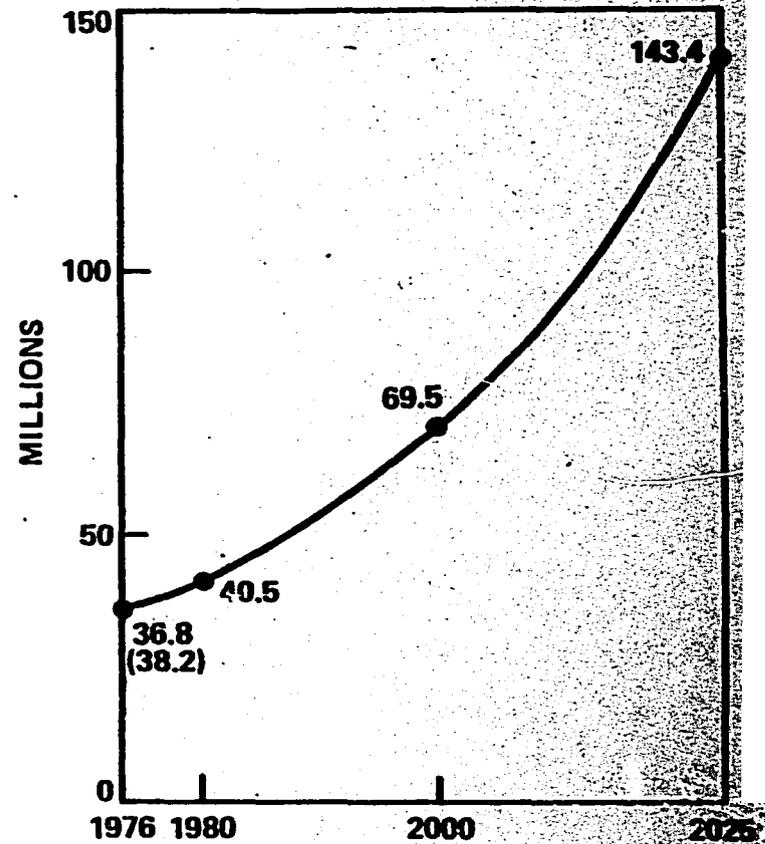
If the total fertility rate remains at its present level of 5.4 children per woman (excluding Egyptians living abroad), the population living in Egypt will double in 29 years, climbing from the 36.8 million in 1976 to 40.5 million in 1980, 69.5 million in 2000, and 143.4 million in 2025, at which time the rate of natural increase will be nearly 3 percent per year.

# Egypt

## Birth Rates, Death Rates and Rates of Natural Increase, 1952 - 1978



## Population Growth, 1976 - 2025 (ASSUMING CONSTANT FERTILITY)



## AGE DISTRIBUTION AND CHILD DEPENDENCY

High fertility--the large number of births per family--accompanied by success in reducing infant and child mortality have given Egypt a high percentage of young children. Over 42 percent of the population is under 15 years of age.

As a result, Egypt has a very high child dependency ratio. This represents the ratio of children under 15 years of age to adults, ages 15-64, and is a measure used to indicate the burden that dependent children place on adults of economically productive ages. For every 100 adults ages 15-64 there are approximately 78 children to be supported, reared, and educated. This means that, on the average, each adult has to support almost one child.

This child dependency ratio is very high, although typical of developing countries. It is strikingly higher than any industrialized country, which typically has two to three adults of economically productive age for each dependent child.

Egypt's high child dependency ratio inhibits progress in both social and economic development programs, particularly in education and health. With such a large dependent population, private and public expenditures focus on the needs of the young. A smaller share of public and private resources is left for investment in other sectors of national importance, such as extractive industries, manufacturing, and agriculture.

At a household level, the presence of many children places a heavy burden on the adults and on limited family resources. When households cannot afford to provide all of their children with proper nutrition and schooling, poverty is perpetuated.

Today's fertility levels determine tomorrow's level of child dependency.

If present fertility continues, by 2000 there will be 82 dependent children per 100 adults of economically productive age.

Attainment of a 3-child family average by 2000 would reduce the ratio to 59 children per 100 adults of economically productive age. This would be 29 percent less than the child dependency ratio under constant fertility.

With a decline in fertility to a 2-child family average by 2000, there would be 30 dependent children per 100 adults of economically productive age. This would be 63 percent less than the child dependency ratio under constant fertility.

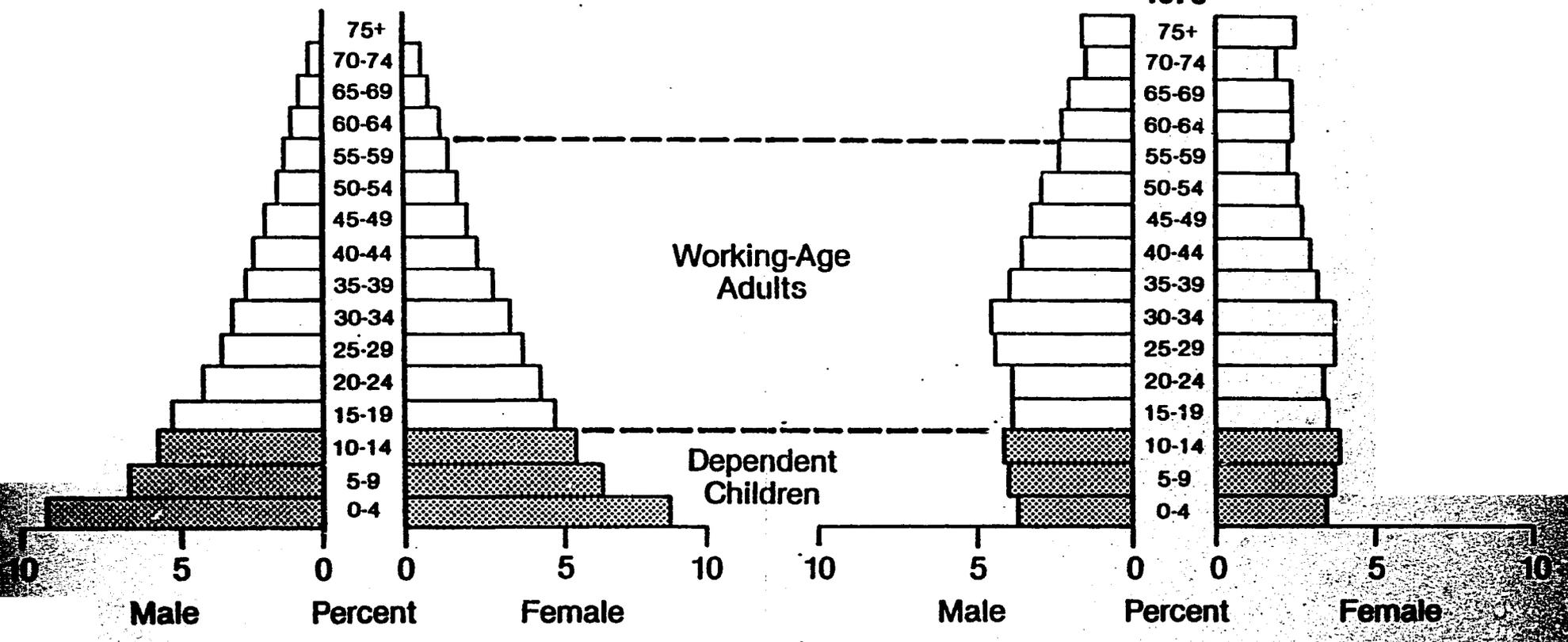
Such reductions in child dependency ratios would reduce expenditures required for services to dependent children. There would be substantially greater potential for savings and increased investment in development programs.

# Egypt

## Age Distribution and Child Dependency

**Age Distribution  
Egypt  
1976**

**Age Distribution  
Industrialized Country  
1976**



For each dependent child in Egypt there are only 1.25 working-age adults.

For each dependent child in most industrialized countries, there are 2 to 3 working-age adults.

## THE MOMENTUM OF POPULATION GROWTH

The size of Egypt's population is increasing very rapidly. It is virtually impossible to stop this growth at once. At best, it will take several decades to do so.

If the present very high level of fertility—an average of 5.4 live births for each Egyptian woman during the course of her reproductive years (15-49)—continues, the present rapid population growth will of course also continue. Even if fertility levels should drop today to replacement levels, an average of two children for each couple of reproductive age, the population would continue to grow for about 40 years.

This is because the number of young people entering their reproductive years substantially exceeds the number of people moving out of that period of life. Even with no more than an average of 2 children per couple, the number of births each year would continue to exceed the number of deaths for about 40 years. This phenomenon is often referred to as the "momentum of population growth."

Therefore, programs to limit population growth will require determined efforts to involve the maximum number of the population and to reduce family size as quickly as possible, well before the population reaches or surpasses its desirable size.

Otherwise growth will continue beyond the size which can be supported by the available resources at a desirable standard of living.

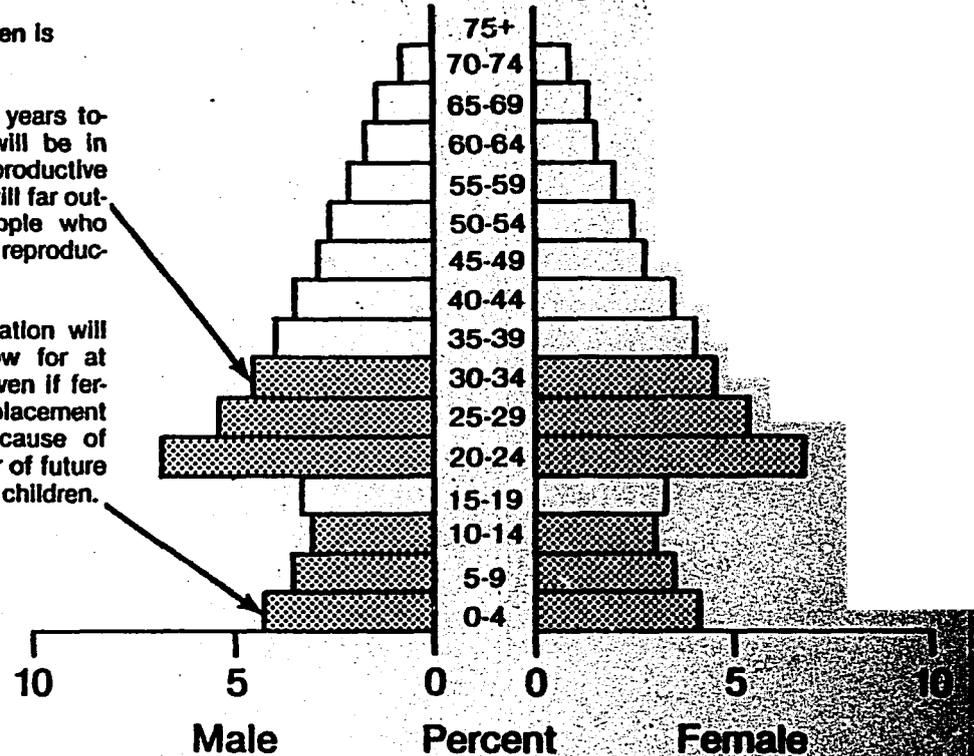
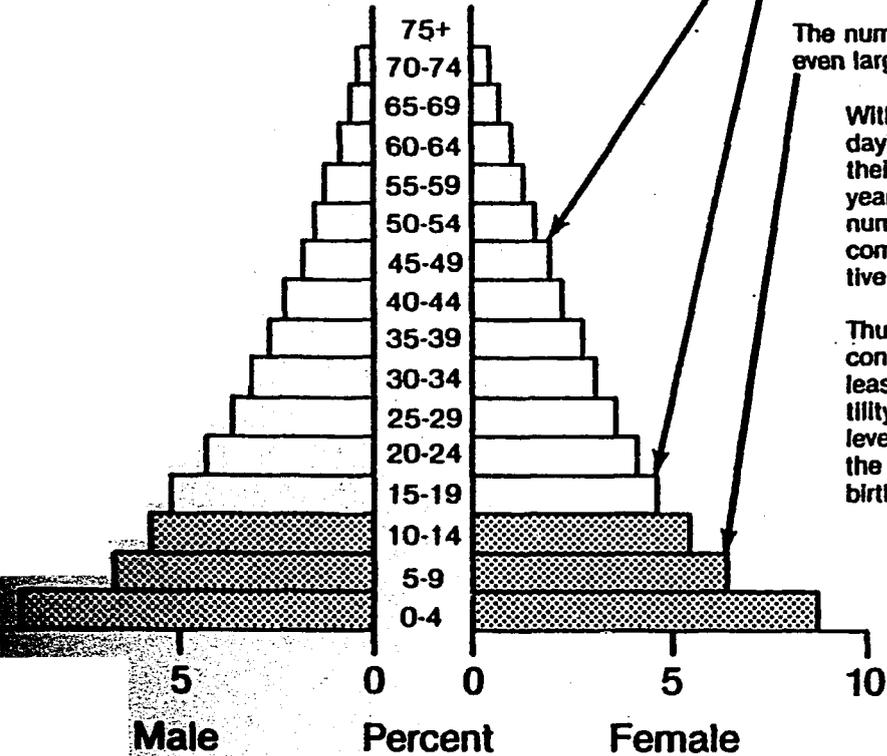
For every decade of delay in achieving a replacement level of fertility, the ultimate population of Egypt will increase by 15 percent.

# Egypt

## Momentum of Population Growth

**Population Profile  
1976**

**Population Profile  
1996  
If Fertility Drops  
to Replacement  
Levels Today**



The number of people leaving their reproductive years is small compared to the number entering them.

The number of children is even larger.

Within 10 to 20 years today's children will be in their prime reproductive years and they will far outnumber the people who completed their reproductive years.

Thus, the population will continue to grow for at least 40 years even if fertility drops to replacement levels today because of the large number of future births to today's children.

## POPULATION GROWTH UNDER DIFFERENT FERTILITY ASSUMPTIONS

Egypt's built-in momentum of population growth will greatly increase its future population. However, if the Government of Egypt quickly achieved full national involvement in its program to reduce the fertility rate, future population growth could be substantially reduced. This can be seen from projections based on three alternative fertility assumptions (each assumes an improvement in health and an increase in life expectancy to 65 years by 2000 and 70 years by 2025):

A. Present fertility of 5.38 births per woman continued. The 1976 population of 36.8 million would be 69.5 by 2000, 89 percent larger than in 1976. By 2025 the population would increase to 143.4 million, nearly 4 times the 1976 figure, and would be growing at 3.0 percent per year, doubling in only 24 years.

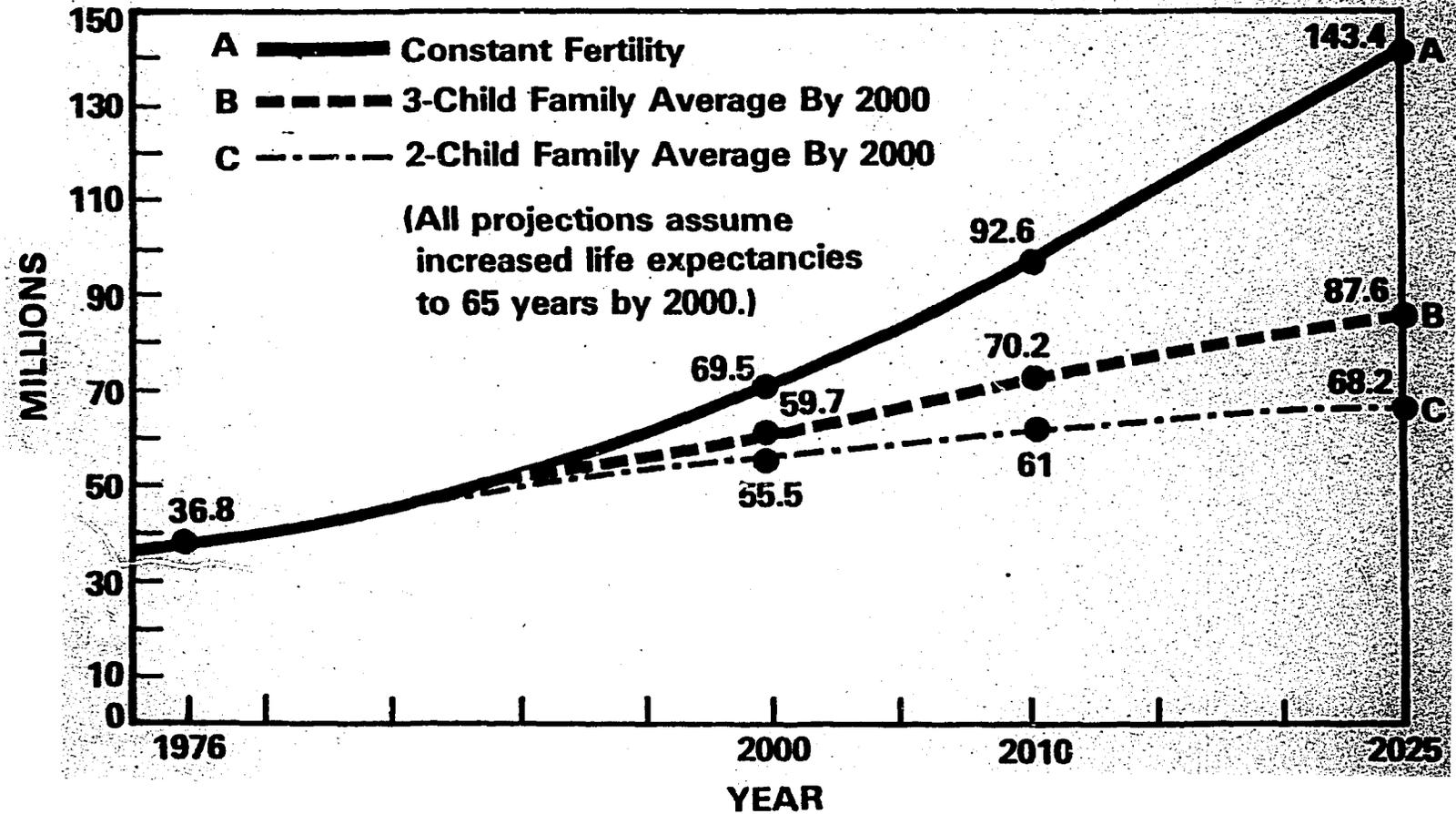
B. An accelerated family planning effort started in 1980 and achieving a total fertility rate of 3 children per couple by 2000. The population would be 59.7 million by 2000, 62 percent larger than in 1976, and 87.6 million by 2025, when the population would be growing at 1.4 percent per year.

C. An accelerated population program started in 1980 and achieving a total fertility rate of 2 children per couple by 2000. The population would be 55.5 million by 2000, 51 percent larger than in 1976, and 68.1 million by 2025. The growth rate would decline to 0.56 percent per year by 2025, and a zero growth rate would be reached in 2040. Because of momentum, zero growth would not be reached until 40 years after attainment of a 2-child family average.

These three fertility assumptions are used throughout this analysis to show how the attainment of Egypt's development objectives will be affected by alternative fertility rates.

# Egypt

## Population Growth Under Different Fertility Assumptions, 1976 - 2025



# **How Will Egypt's Population Characteristics**

## **Affect the National Objectives For:**

**EMPLOYMENT**

**GDP AND GDP PER CAPITA**

**INVESTMENT**

**SELF-SUFFICIENCY IN CEREALS**

**THE NILE VALLEY AND DELTA**

**HEALTH AND QUALITY OF LIFE**

**EDUCATION**

**GROWTH OF CAIRO**

**HOUSING**

## EMPLOYMENT

**GOAL:** Provide productive employment for the growing labor force.

Unemployment and underemployment are already among Egypt's most serious problems. In the future, they will be even more serious and dangerous. They will be a heavy burden on economic and social progress, causing a long delay in the attainment of just distribution of national income, and as in other countries, they will pose a grave hazard to national stability.

Over the period 1960-1976 total employment grew at less than 2 percent per year and did not keep pace with the growth in the labor force. In 1976, the unemployment rate was close to 13 percent. In 1978-1982, the labor force is projected to grow at about 3.2 percent per year. Under the 1978-1982 economic plan, employment in the agricultural sector is projected to grow at 1.6 percent a year, reversing the decline of recent years, while employment in non-agricultural activities is projected to grow at 4.9 percent. Total employment is projected to increase at 3.2 percent per year. If these rates of growth in employment can be attained, the unemployment rate will not rise above 13 percent. Even so, the rate of growth in the labor force and the requirements for new jobs for young people in later years will present severe problems if present fertility continues.

Four important aspects of employment are affected by population size and growth rates:

- the size of the labor force
- the number of children dependent on the labor force and for whom it must provide
- the ratio of capital to labor
- the number of new jobs required for young people entering the labor force.

## Labor Force

The labor force participation rate for males age 6 and over is 53 percent, that for females age 6 and over is only 9.2 percent. The participation rate for females has been increasing and is expected to increase in the future.

In 1976, the size of the labor force equaled 58 percent of the population ages 15-64, a total of 11.61 million. Assuming that the labor force participation rate increases to 68 percent\* by the year 2025, the labor force will grow enormously. Increases in the size of the labor force will not be affected by reduced fertility until after 1995, when children born today start to enter the labor force. Reduced fertility today will slow the rate of growth of the labor force after 1995.

With constant fertility, the labor force will have 24.1 million participants in 2000, 32.9 million in 2010 and 53.3 million in 2025.

If a 3-child family average is attained by 2000, the size of the labor force would be 23.7 million people in that year, 29.6 million in 2010 and 38.5 million in 2025.

With a decline in fertility to a 2-child family average by 2000, there would be 23.5 million workers in the labor force in that year, or 540,000 fewer than with constant fertility. In 2010, the labor force would be 28.2 million, 4.7 million fewer than with constant fertility. By 2025, 32.3 million workers would be in the labor force, or 21.0 percent fewer than with constant fertility.

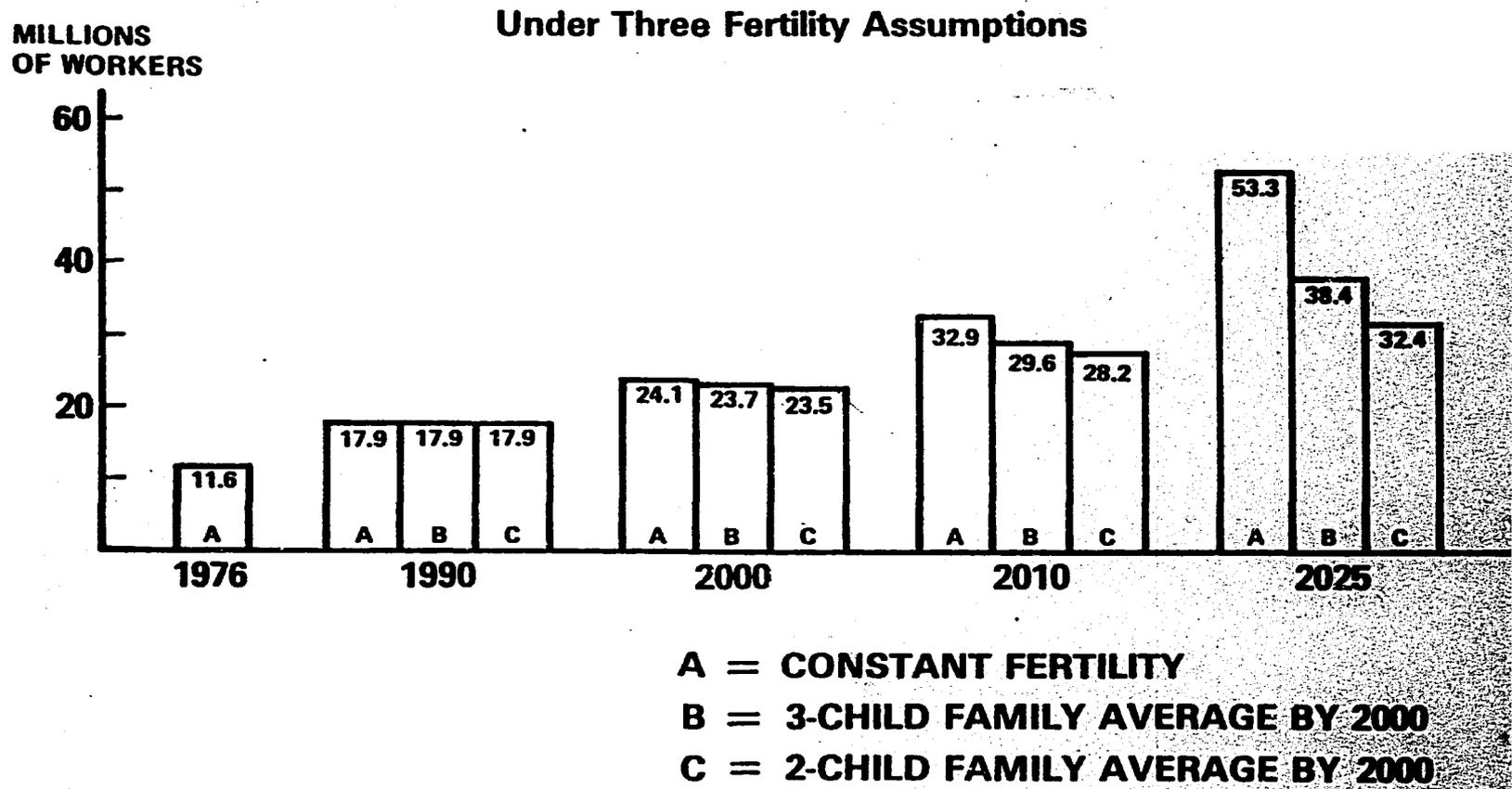
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\* It seems likely that there will be a steady increase in the number of women who enter the labor force. Although these numbers will be partly offset by the number of both men and women who stay longer in school, the net effect is likely to be a slow but steady increase in the labor force participation rate.

# Egypt

## LABOR FORCE

### 1976 - 2025



## Child Dependents

One benefit of reduced fertility is the reduction in the number of children dependent on members of the labor force. At the present time, there are 1.31 children per worker. The reduction in the labor force with reduced fertility would be more than offset by the reduction in dependents.

With continued high fertility, the 24.1 million workers in the year 2000 would have 28.7 million children dependent on them, or 1.19 children per worker. By 2010, the 32.9 million workers would have 38.25 million children dependent on them.

With a reduction to a 3-child family average by 2000, the 23.7 million workers would have to support 19.4 million children, or only 0.82 children per worker in that year. The 29.6 million in 2010 would have only 20.9 million children to support.

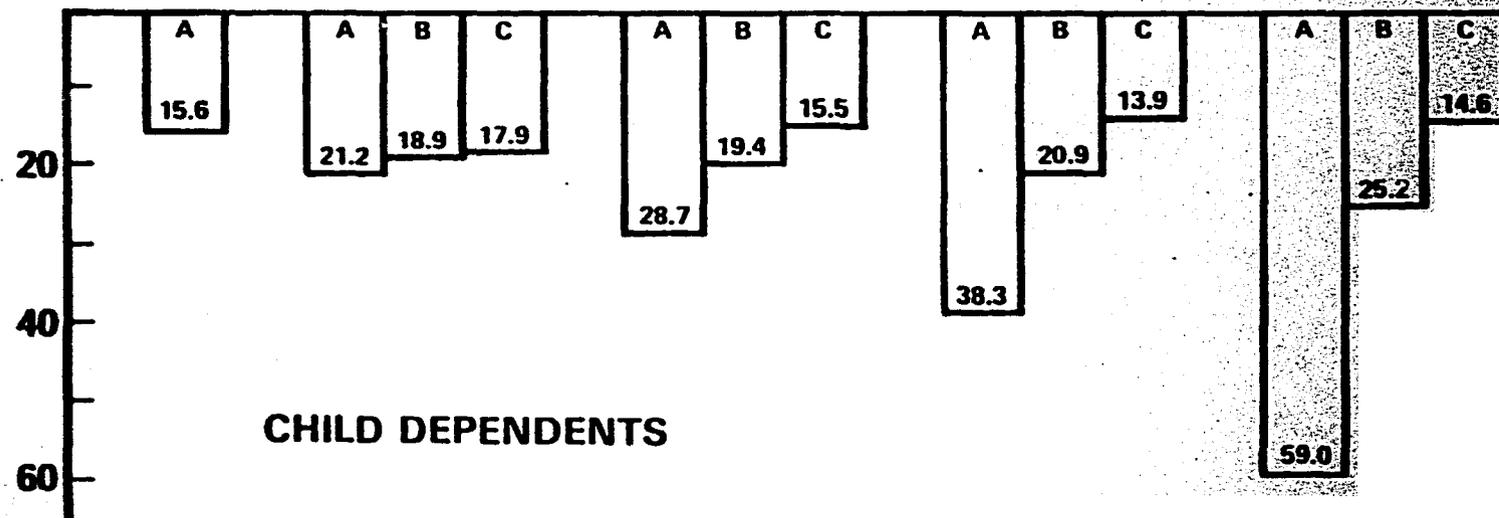
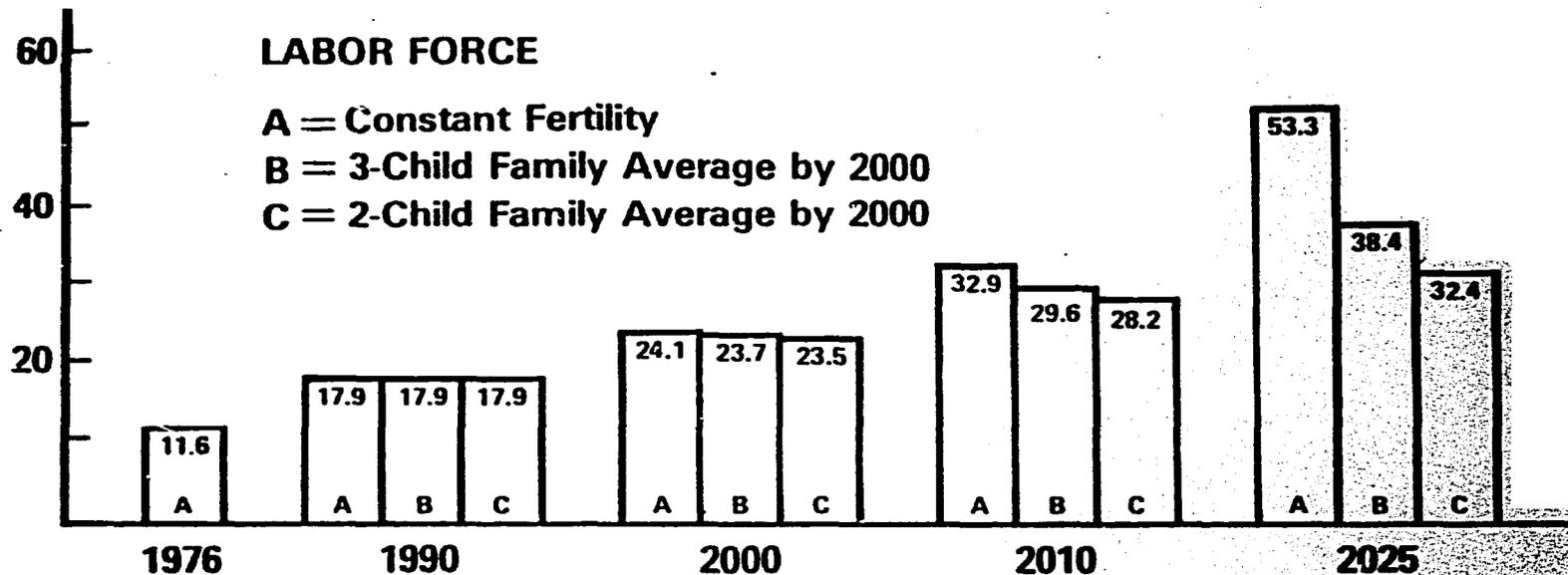
With attainment of a 2-child family average by 2000, the 23.5 million workers would have to support only 15.5 million children, or 0.65 children per worker in that year. Workers in 2010 would be supporting only 13.9 million children, more than 2 workers per child, approximately the level of European countries.

# Egypt

## LABOR FORCE AND CHILD DEPENDENTS 1976 - 2025

**MILLIONS  
OF WORKERS**

Under Three Fertility Assumptions



**MILLIONS  
OF CHILDREN**

## New Job Requirements

If it is assumed that new entrants to the labor force will be in proportion to the present (58 percent) and anticipated (68 percent by 2025) labor force participation rate, then 7.6 million people, mostly young people who are already born, will be needing training and jobs between 1980 and 1995.

If present fertility continues, the number of new labor force entrants needing training and employment will be 12.1 million in the years 1995-2010 and 20.3 million in the 2010-2025 period. These extremely large numbers of entrants will put a severe strain on Egypt's ability to train and find employment for all entrants.

If a 3-child family average is attained by 2000, the number of entrants requiring training and employment would be 8.8 million in the 1995-2010 period, 3.3 million less than with constant fertility. In the 2010-2025 period, 8.7 million entrants would seek training and employment.

If a 2-child family average is attained by 2000, the number of entrants requiring training and jobs would be 7.5 million in the 1995-2010 period, 4.7 million less than with constant fertility. In the 2010-2025 period, only 4 million entrants would seek training and employment. The skill level of the young workers would be high, and their employment and advancement prospects would be brighter.

It should be recognized, however, that the numbers needing training and jobs among the 15-19 year old age group may exceed the participation of the total population age 15 to 64. A reduction in fertility starting now can make a very material difference in the future number of this volatile age group.

In 1976, there were about 751,000 members of this age group (one fifth of the 5-year cohort) who were at least potential seekers of training and jobs.

With constant fertility, the number would increase dramatically to 1,356,000 in 2000, 1,871,000 in 2010, and 2,868,000 in 2025.

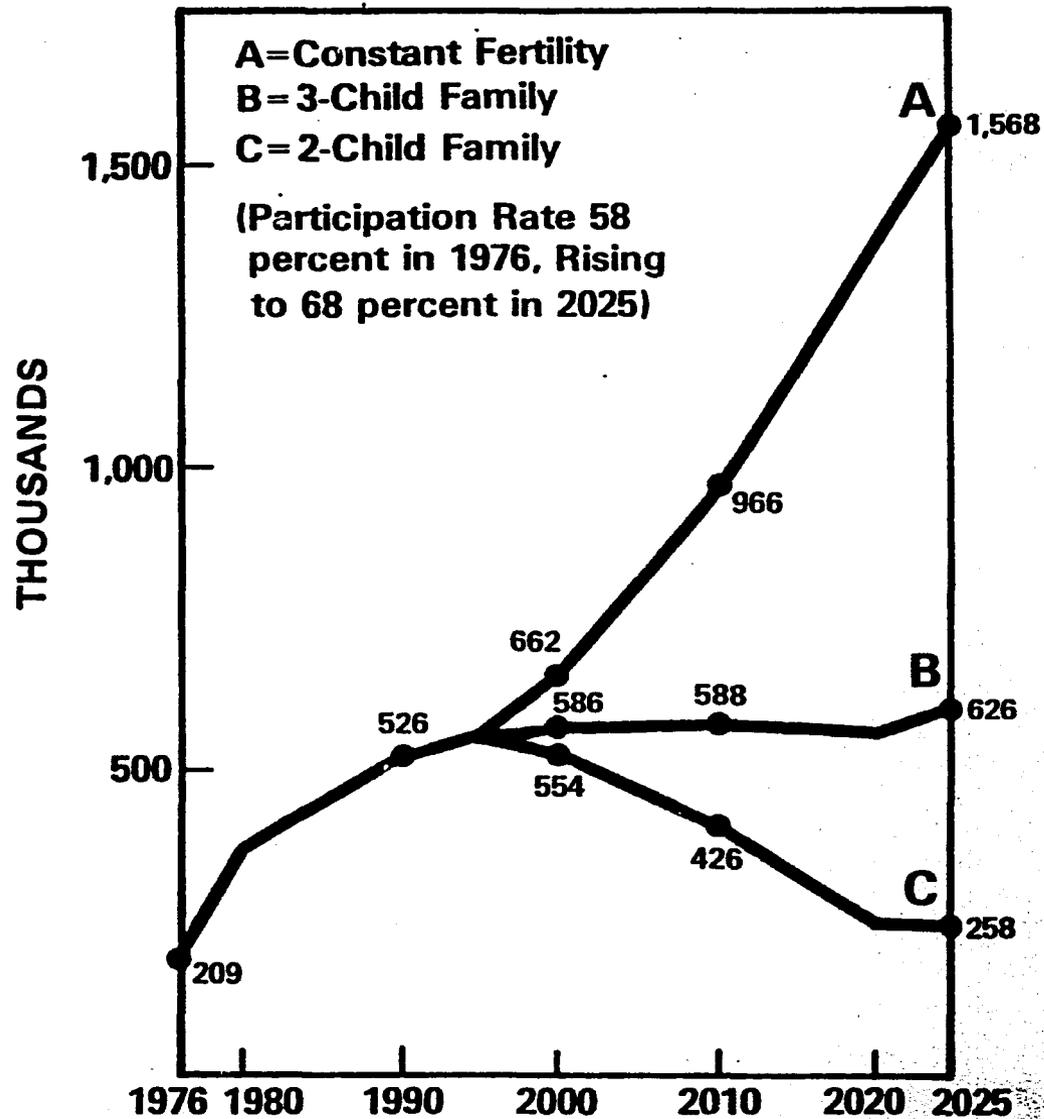
With a 3-child family average by 2000, the number would be 1,235,000 in 2000, 1,289,000 in 2010, and 1,501,000 in 2025.

With a 2-child family average by 2000, the number would be 1,183,000 in 2000, 1,042,000 in 2010, and 973,000 in 2025.

# Egypt

## New Job Requirements Per Year 1976 - 2025

Under Three Fertility Assumptions



### Capital/Labor Ratio

An important indicator of the productive capacity of the workers in the labor force is the capital/labor ratio. Currently, the value of the plant and equipment per worker in Egypt is LE 1,505 (U.S. \$2,152). The increases in capital required to maintain this ratio will not be affected by changes in fertility until 1995, when children born today start to enter the work force. After 1995, the capital requirements would be radically affected by fertility rates.

In order to maintain the present capital/labor ratio under conditions of constant fertility, Egypt's capital stock will have to increase by 58 percent between 1995 and 2010, climbing from LE 31,259 million in 1995 to LE 49,530 million in 2010. By 2025, the capital stock will have to be at least LE 80,141 million.

With the attainment of a 3-child family average by 2000, a 43 percent increase would be required between 1995 and 2010 to LE 44,578 million by 2010. By 2025 the capital stock would have to be at least LE 57,717 million.

If a 2-child family average is achieved by 2000, the capital stock would have to be increased by only 36 percent between 1995 and 2010 to 42,486 million. By 2025, the capital stock would have to be 48,551 million. Increases in excess of these amounts would cause the capital/labor ratio to rise above present levels.

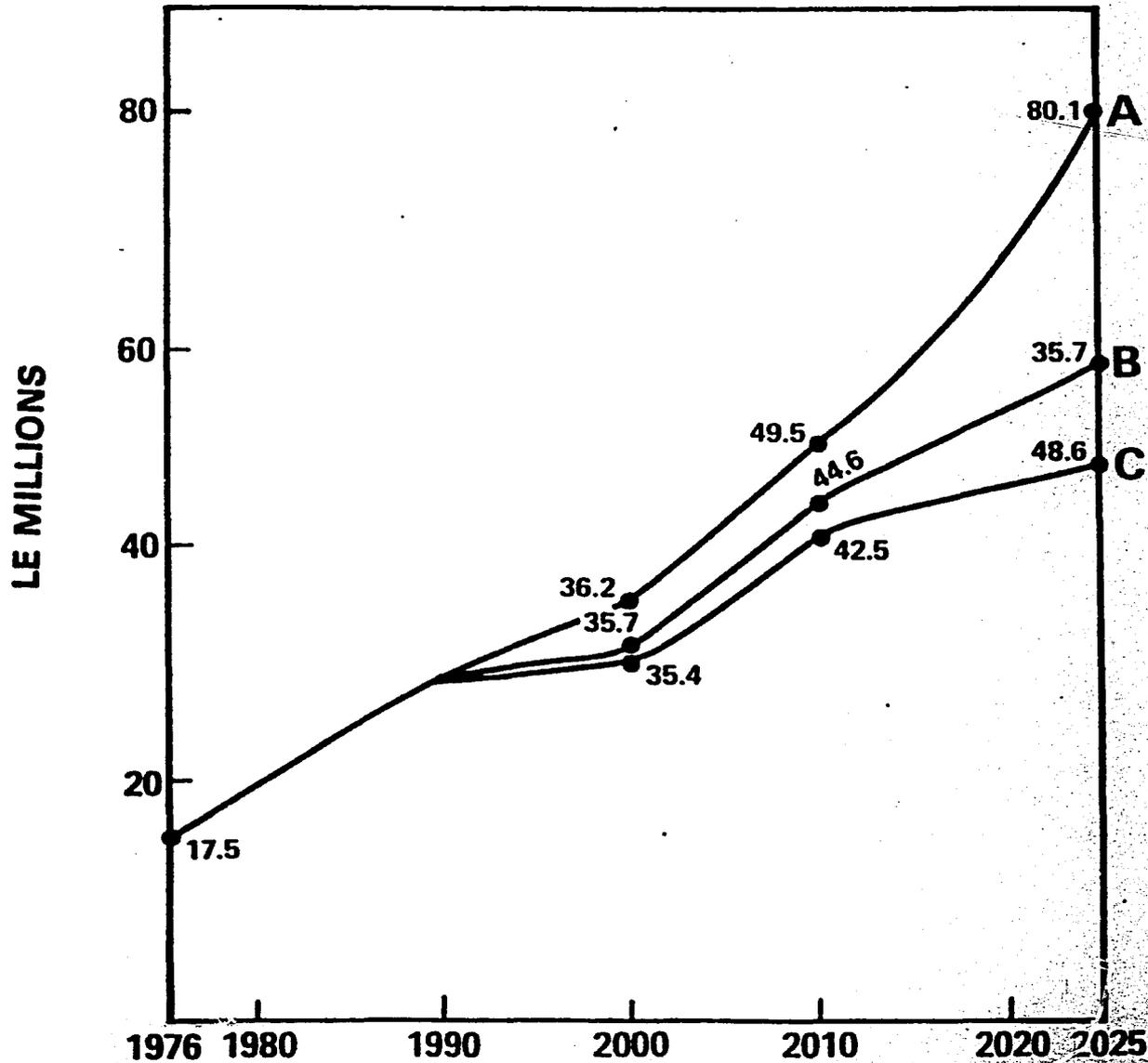
The current capital for worker in urban industry is about LE 2,200 (U.S. \$3,150). The incremental cost of a new job approximates \$20,000. Regardless of the base used, the difference in cost will be greatly affected by the fertility level.

# Egypt

## Capital Needed to Maintain Present Capital/Labor Ratio

(L. E. 1505 Per Worker)

1976 - 2025



## GROSS DOMESTIC PRODUCT AND PER CAPITA INCOME

**GOAL:** Achieve a four-fold increase from the 1975 level of LE 150\* GDP per capita to LE 600 by the year 2000.

The projected average annual growth rate of 11.6 percent of Gross Domestic Product (GDP) in constant 1976 Egyptian pounds for the period 1978-1982 relies heavily on rapid expansion in sectors such as petroleum, minerals, tourism, the Suez Canal, industry, and on more efficient use of existing capital. This growth rate is unprecedented in Egypt's history and can be attained only under extremely favorable circumstances. Egypt achieved relatively rapid GDP growth, an annual average of 5.7 percent, for the 10 year period 1955-1965. Beginning in 1966, the rate started to decline, and by the early 1970s, was less than 2 percent per year. It showed improvement after 1974: in 1975, it was 8.9 percent and in 1976 reached 9.4 percent. (However, these post-1975 figures may not be comparable to the earlier series because of changes in methods of estimation, of GDP components, and the practice of estimating the current GDP at changing official prices which differ from market prices.)

It is, of course, GDP per capita, rather than total GDP, which indicates a country's ability to meet the basic needs of its people. GDP per capita growth has varied widely since 1950. It declined from LE 92.7 in 1950 to LE 90.2 in 1955 because population increased at a faster rate than GDP. In the 1955-1965 period, when GDP grew at 5.7 percent per year, per capita income increased at about 3.2 percent per

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\* All monetary values in this paper are expressed in 1976 prices. The unit of account is the Egyptian pound (LE). 1 LE = \$1.43 U.S.

year, reaching LE 123.1 in 1965. Between 1966 and 1973, GDP per capita increased at only 1 percent per year to LE 133.8 in 1973. Apparent growth in 1975 and 1976 jumped sharply to 6.4 and 6.8 percent respectively, but for the reasons stated above, these figures may not be strictly comparable with the earlier figures.

Although it is possible to attain a GNP increase in the range of 10 percent per year for short periods, this is not likely for longer periods. Considering Egypt's experience from 1955-1956 to 1976, the growing labor force, increasing capital stock, and technological progress, it seems reasonable to project Egypt's average annual increase in GNP for the longer period 1976 to 2000 at approximately 4.3 percent.

With constant fertility, GDP per capita in 2000 would be LE 232 per year, increasing at an average rate of 1.6 percent per year for this period. The target figure of LE 600 per capita would not be reached until 2026.

With a 3-child family average attained by 2000, GDP per capita in 2000 would be LE 272 per year, increasing at 2.3 percent per year for this period. The target figure of LE 600 per capita would be reached in 2021.

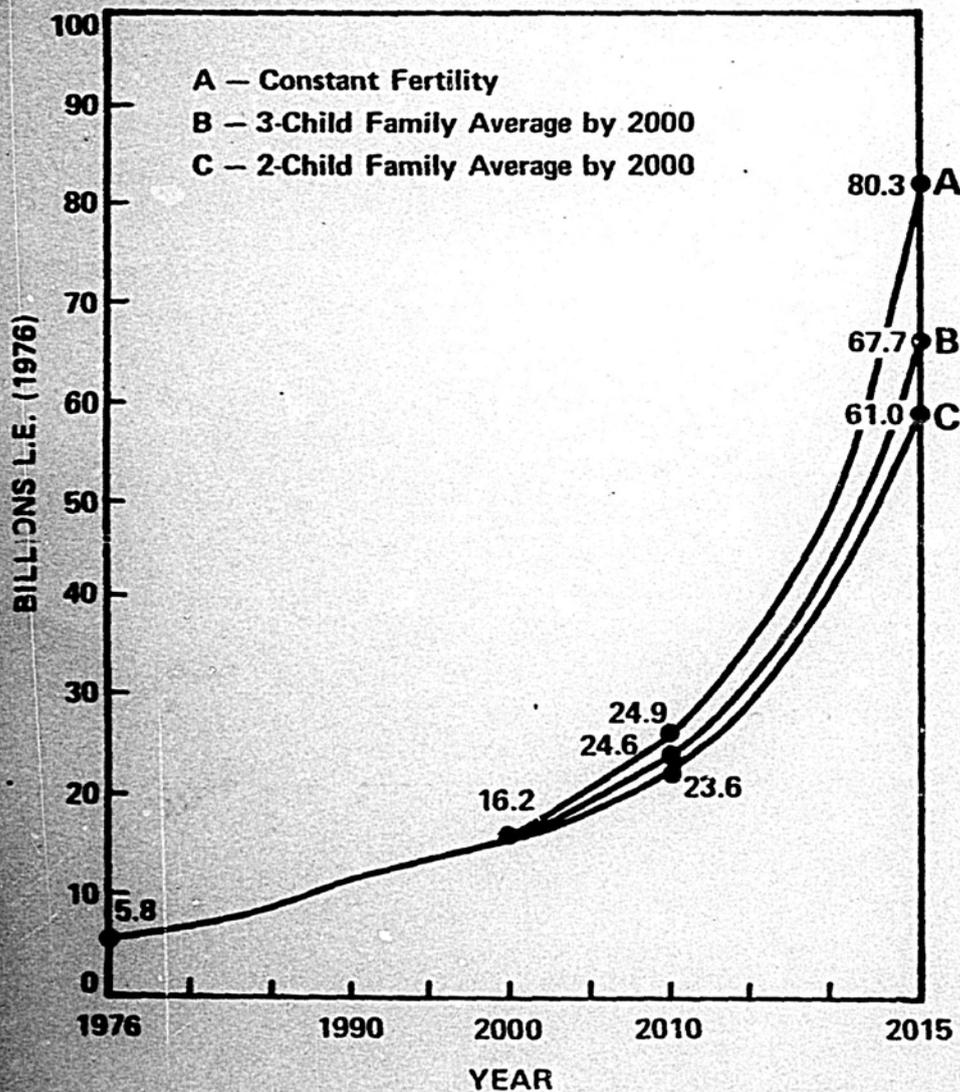
With a 2-child family average attained by 2000, GDP per capita in 2000 would be LE 293 per year, increasing at an average rate of 2.6 percent per year for this period. The target figure of LE 600 per capita would be reached in 2017.

# Egypt

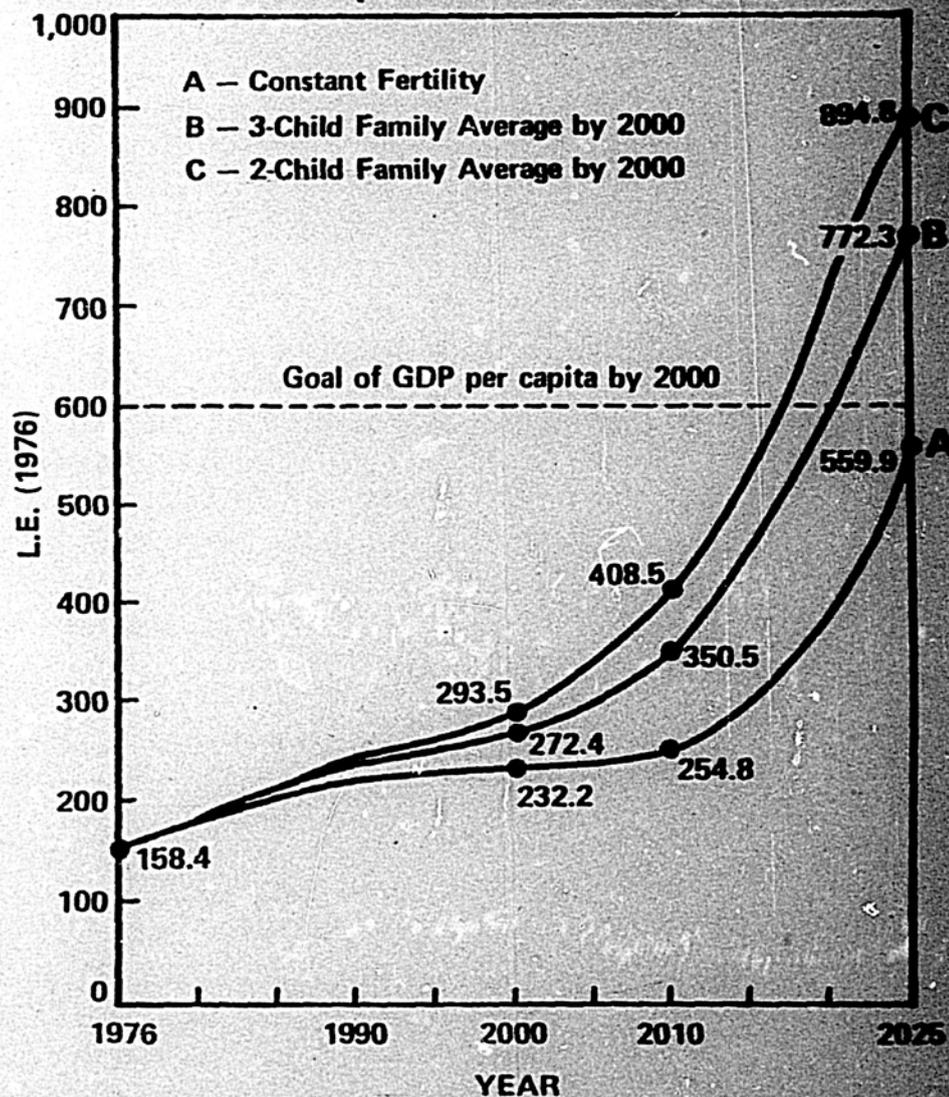
## Gross Domestic Product and Per Capita Income 1976 - 2025

Under Three Fertility Assumptions

Gross Domestic Product, 1976 - 2025



Per Capita Income, 1976 - 2025



Assumes Average Annual Increase of 4.3 Percent

## SAVINGS AND INVESTMENT FOR DEVELOPMENT

**GOAL:** The Plan for 1978-1982 calls for an average annual investment of 28 percent of GDP. The plan also calls for a reduction in borrowing from 11.5 percent of GDP in 1978 to 2 percent of GDP in 1982.

To reach the goal of 11.6 percent increase per year in GDP for the Plan period 1978-1982 will require a very substantial increase in investment and in domestic savings for investment.

### Investment Rate

As much as 33 to 36 percent of GDP each year may be required for investment, considerably more even than the 28 percent projected in the current plan.\* This is an extraordinary investment rate for any developing country and unprecedented for Egypt. The country's investment rate was 16.3 percent of its GDP in 1955, 18.1 percent in 1965, only 13 percent during 1970-1973 when national defense expenses were high. It rose to 27.3 percent in 1975 and declined to 24.1 percent in 1976.

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\* For the period 1970-1976, an average of 2.85 percent of GDP was required to increase GDP one percent. Based on this ratio, over 33 percent of GDP would be required each year to attain the targeted annual growth in GDP of 11.6 percent. In 1976, 3.1 percent of GDP was required to increase GDP one percent. Based on this ratio, almost 36 percent of GDP would be required.

### Domestic Savings

In the past, a high proportion of the total funds for investment have had to be obtained from foreign investment and credit. By 1976, foreign borrowing pushed the public debt to U.S. \$7.9 billion with 5 billion disbursed and debt services of \$629 million. Because of the growing debt service obligations and liquidity problems, there will have to be an increase in the proportion and amounts of investment from domestic sources. However, domestic savings in the 1970s have ranged from 5.4 percent in 1974 to 11.5 percent in 1976, about one-third of the investment rates projected in the Plan. Consumption will have to decrease sharply as a proportion of GDP and substantially larger savings will have to be generated for investment, particularly in productive and high growth sectors. This necessity will be even more important for future years.

The ability of the country to increase savings over the longer future will be significantly affected by whether fertility rates remain high or decrease rapidly. With continued high fertility, it will be difficult or impossible to generate the domestic savings necessary to attain future development goals comparable to those in the current plan. There can be a greater expectation of success with rapidly declining fertility when the changing age structure of the population increases opportunities for saving. When fertility declines, the percentage of the population composed of young people begins to decrease immediately. The ratio of child dependents to numbers in the labor force will drop dramatically. This creates opportunities for saving at both the household and national levels. The effect will tend to be an increase in per capita consumption, but also a decrease in total consumption and increased savings.

The effect of population growth is, of course, only on the potential for savings and investment. Based on historical patterns of consumption, savings, and investment in Egypt (as well as a number of other countries), it is possible to quantify roughly the effects of population growth on domestic savings. Assuming a 9 percent annual growth in GNP:

With constant fertility, domestic savings would be about LE 6.8 billion in 2000 and LE 18 billion in 2010.

With reduced fertility, even though per capita consumption will tend to increase, total savings will also tend to increase.

If a 3-child family average is attained in 2000, domestic savings would increase to about LE 7.0 billion in 2000 (3 percent higher than with constant fertility) and LE 20 billion by 2010 (11 percent higher than with constant fertility).

If a 2-child family average is attained by 2000, domestic savings would be a little over 7.1 billion by 2000 and LE 21 billion by 2010 (17 percent higher than with constant fertility).

Assuming a GNP increase rate on the order of 4.3 percent, with constant fertility the GNP per capita increase would, of course, be small and the possibility for savings very small. With reduced fertility, the GNP per capita would be relatively large and the possibility of savings relatively greater.

## Government Savings for Investment

Rapid reductions in fertility can also make it possible for significant amounts of government funds which must be spent on economically less productive investment under conditions of high fertility to be released for economically more productive investment as fertility drops. This is particularly the case with the large part of government expenditures which go to social services. Expenditures for social services increased from LE 102 million in 1960 to LE 349 million in 1976, rising from 26 percent of total public expenditures in 1960 to about 30 percent in 1976. Larger amounts of investment will be required each year simply to maintain the level of social services already attained.

With constant fertility, maintaining present social service levels will require the expenditure of about LE 660 million in 2000 and 880 million in 2010. The cumulative cost to 2000 will be LE 10 billion with another LE 7.7 billion to 2010.

If a 3-child family average were attained by 2000, social service expenditures would be LE 567 (14 percent less than with constant fertility) and LE 667 million in 2010 (24 percent less than with constant fertility). The cumulative cost to 2000 would be LE 9.5 billion with another 6.2 billion to 2010.

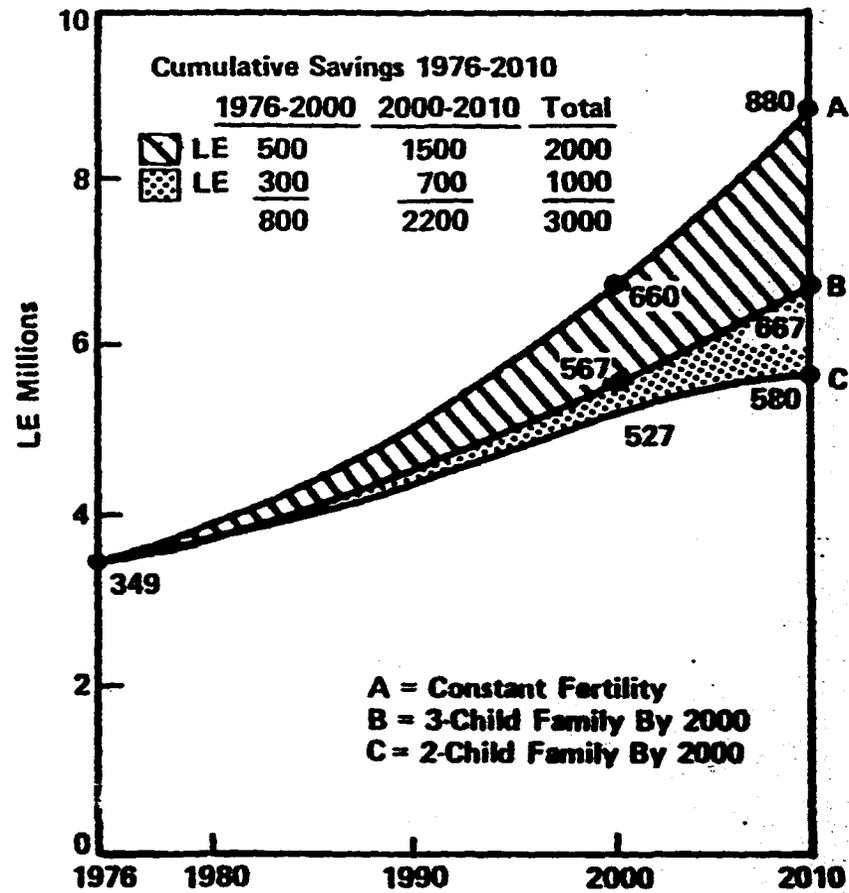
If a 2-child family average were attained by 2000, social service expenditures would be LE 527 million in that year and LE 580 million in 2010, or about two-thirds of that needed with constant fertility. The cumulative cost to 2000 would be LE 9.2 billion with another LE 5.5 billion to 2010.

Government subsidies also require substantial expenditures. In 1976, they were 10.0 percent of GDP. With continued high fertility, their cost will inevitably increase substantially. With reduced fertility, there would be important savings available for productive investment.

# Egypt

## Government Expenditures Needed to Maintain the 1976 Level of Social Services Per Capita (Or Freed for Other Purposes by Reduced Fertility) 1976 - 2010

Under Three Fertility Assumptions



## Effects of Fertility on Per Capita Income and Investment

Rapid reduction in fertility helps increase domestic funds for investment in a third way: by increasing GNP per capita and disposable income it affects the pattern of consumer demand for products and hence decisions of producers' choices as to investment. With high population growth and less income per capita, on the average a greater share of each person's income must go toward buying basic necessities such as food and a lesser share for other consumer goods or for saving for investment. This will tend to dampen sales, investment, and production in manufacturing and related sectors. Although, with rapid population growth, there may be a larger number of consumers, market size is more a factor of aggregate disposable income which tends to increase with declining fertility.

With constant fertility, increasing amounts of investment will be required each year just to maintain basic income per capita. About LE 415 million in investment was required in 1976 to maintain LE 158.4 GDP per capita. This investment represented over 60 percent of gross domestic savings and 30 percent of gross investment in that year.

With constant fertility, the investment required to maintain the same GDP per capita each year will increase to LE 854 million in 2000 and LE 1,170 million in 2010.

With reduced fertility, substantially less investment will be required to maintain the same GDP per capita; therefore, more will be available to increase the GDP per person.

If a 3-child family average is attained by 2000, the investment required to maintain the same GDP per capita would be reduced to LE 428 million in 2000 and LE 462 million in 2010.

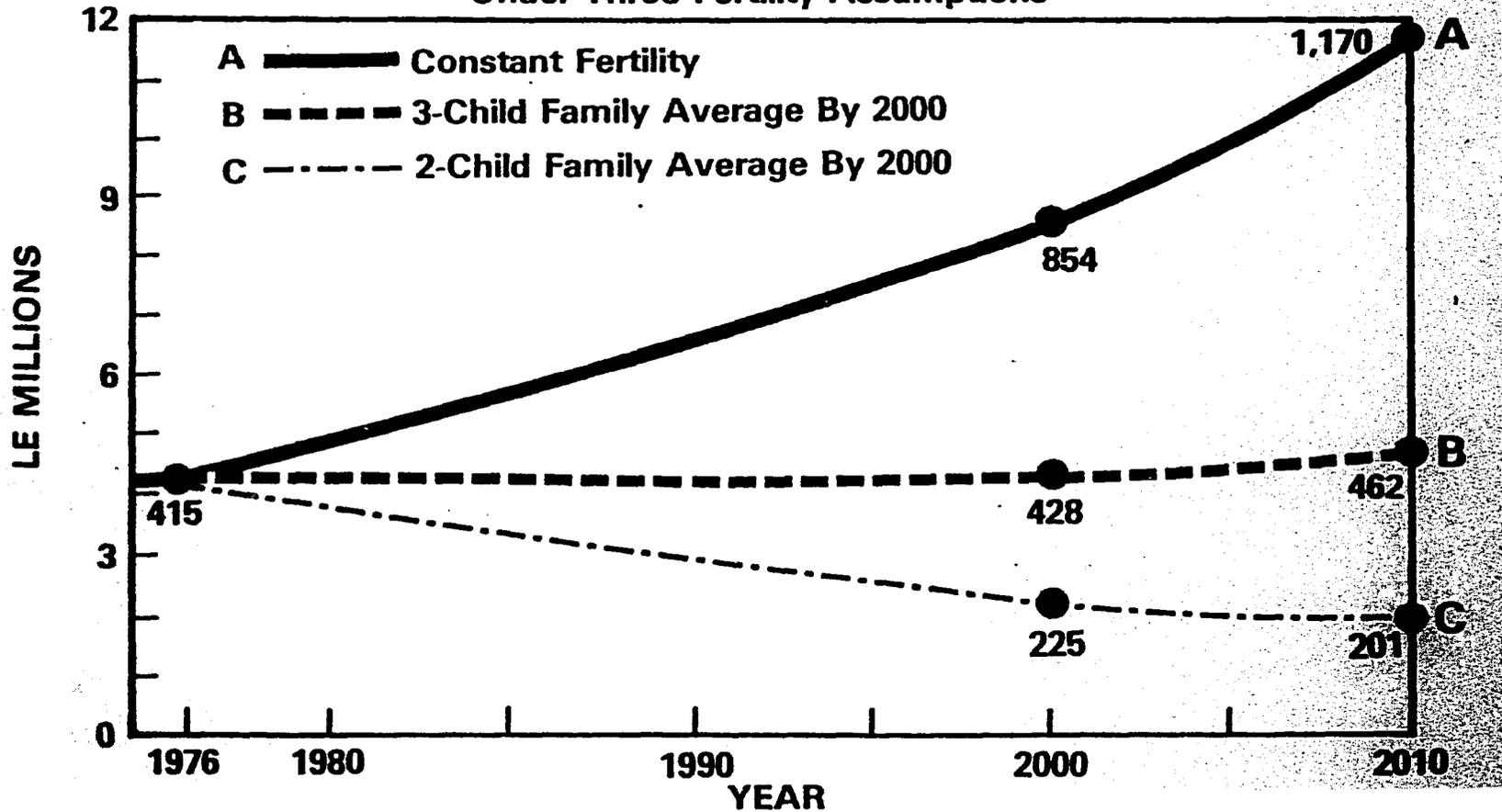
If a 2-child family average is attained by 2000, the investment required to maintain the same GDP per capita would be reduced to 225 million in 2000 and LE 201 million in 2010.

# Egypt

## Funds Required to Maintain 1976 Per Capita Income and Freed for Other Purposes by Reduced Fertility

1976 — 2010

Under Three Fertility Assumptions



The funds required for maintaining the average physical capital and level of services with constant fertility that would be released by reduced fertility could be used to increase the physical capital per worker, leading to increased growth in production and higher wages. This would permit individuals to use a greater percentage of their incomes for buying other commodities besides basic commodities or to save for investment, or both. The government would potentially have a larger tax base to improve social and other services, invest in economic programs, or both.

## CEREAL PRODUCTION, CONSUMPTION, AND IMPORTS

**GOAL:** Become self-sufficient in cereals without reducing the area devoted to other crops.

Egypt's most important foods and food crops are cereals, particularly wheat and maize, also rice and sorghum. Wheat and maize together supply 45 percent of food consumed and about 70 percent of calories. It is obviously desirable to become as nearly self-sufficient in cereals as possible without reducing other crops.

In 1976, Egypt had about 6 million feddans of land under cultivation. Much of this land produced more than one crop per year. The effective production was equivalent to 1.83 times the 6 million feddans cultivated or the equivalent of a "cropped area" of approximately 11.2 million feddans. Of this "cropped area" of 11.2 million feddans, about 4.8 million feddans were used for cereals\* and 6.36 million feddans were used for "other crops".

In 1976, the total requirement for cereals was 10.3 million metric tons (at 280 kilogram grain equivalent per capita per year). The 4.8 million feddans of "cropped area" in cereals produced 8.1 million tons. Some 18 percent of production is kept for seed or lost before reaching the table, so 82 percent, or some 6.54 million tons, was available for consumption as food. Egypt imported 3.1 million tons of wheat and 0.59 million tons of maize at a cost of LE 285 million to make up the difference between cereal consumption and

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\*The crop pattern has remained fairly constant: 1.4 million feddans for wheat, 1.9 million feddans for maize, 1.1 million feddans for rice, and 0.5 million feddans for sorghum.

domestic supply. This was consistent with the pattern of steady increases in cereal imports and government subsidies in cereals since the mid-1960s.

Egypt's goal is to become self-sufficient in cereals without reducing the 6.36 million feddans of cropped area now used for other crops. In order to move toward this goal of self-sufficiency in cereals by 2000, Egypt plans to increase the area planted in cereals and to increase the yield per feddan. (One feddan equals 0.42 hectares equals 1.042 acres.)

Increase in cereal crop area. Egypt plans to increase the land readily available for cultivation by 3.3 million feddans, with a "cropped area" equivalent to 6 million feddans by 2000. This will be a 58 percent increase in the total cropped areas and a 125 percent increase in the cropped area in all cereals attained by 1976. The cost will escalate from the LE 160 per feddan in 1960 to LE 1,000 or more per feddan. The total cost may be in the range of LE 2.4 billion.

Increase in yield per feddan. Egypt already has very high yields for cereal crops. The experience of the 1970s indicates that substantial increases in yields will require huge investments in agriculture on a country-wide scale. It seems reasonable, therefore, to assume that the increase in average yield of cereals will be in the range of 1 percent per year.

One other important factor must be taken into consideration: with the rapid increase in the size of Egypt's cities, industrial construction and expanding infrastructure, some 60,000 feddans of good cultivable land are now being lost each year, and this number will increase rapidly with growing urbanization.

Using the factors stated above, estimates can be made of the increases in food requirements for cereals, domestic production, and the need for imports to 2000.

If present fertility continues, the 69.5 million Egyptians in 2000 will need 19.5 million tons of consumable cereals (requiring 23.7 million tons produced). For self-sufficiency, 11.2 million feddans of cropped area will have to be planted in cereals. With the 6.4 million feddans required for other crops, the total cropped area would have to be 17.6 million feddans, or 9.6 million feddans of readily cultivable land. However, the total cropped area in 2000, including the full 3.3 million feddans of reclaimed land, equivalent to a cropped area of 6 million feddans, would be only 12.9 million feddans, with 6.4 million feddans required for other crops. Only 6.9 million feddans of cropped land can be used for cereals. The deficit in cereal production will be 9 million tons. The requirement for import of cereals (82 percent of 9 million tons) will be 8.1 million tons, approximately twice the import requirement in 1976.

By 2010, 25.9 million tons of cereal will be needed and 13.5 million feddans of cropped area will have to be planted in cereals from a total cropped area of 19.9 million feddans (10.9 million feddans of readily cultivable land), a 78 percent increase over the 1976 total cropped area. Even assuming further land reclamation of 0.5 million feddans each 5 years, because of land taken by urbanization, only 11.7 million feddans of cropped area will be available in 2010. The cereal deficit and import requirement will be 15.7 million tons. By 2025, the cereal deficit and import requirements would be 35 million tons.

If a 3-child family average is reached by 2000, the 59.7 million Egyptians in that year would need 16.7 million tons of cereal, requiring 9.6 million feddans of cropped area in cereals and a total cropped area of 16.6 million feddans (8.7 million feddans of readily cultivable land), a 43 percent increase over the 1976 areas. The cereal deficit and import requirement would be 3.4 million tons.

By 2010, 19.7 million tons of cereal would be needed. The cereal deficit and requirement for import would be 4.5 million tons, a 54 percent reduction from constant fertility. By 2025, the cereal deficit and import requirement would be 7.3 million tons.

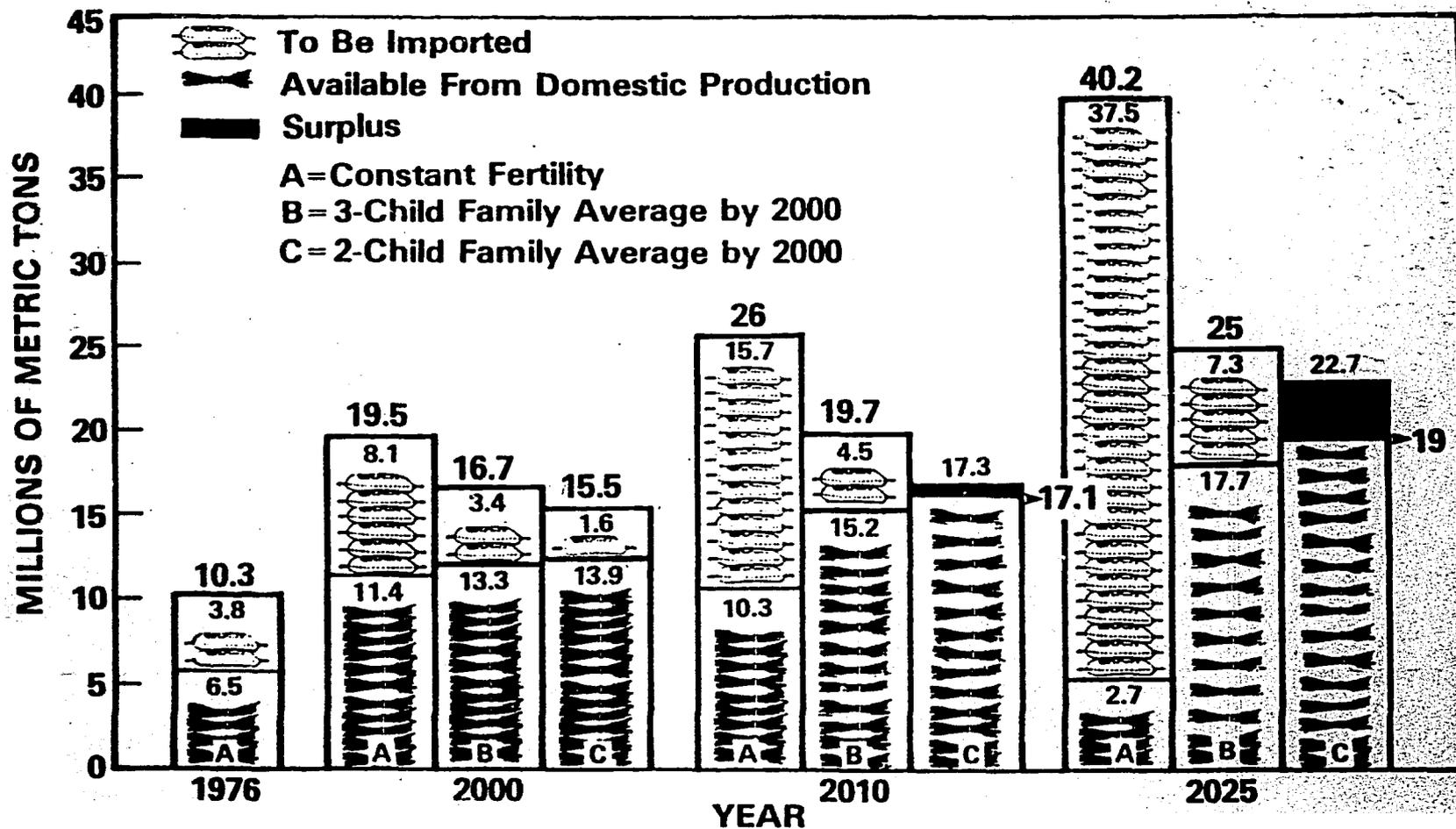
If a 2-child family average is reached by 2000, the 55.5 million Egyptians would need 15.5 million tons of cereal. 8.9 million feddans of cropped area would have to be planted in cereals from a required cropped area of 15.3 million feddans, a 37 percent increase over the 1976 area. However, the cropped area available would be only 14.4 million feddans; the cereal deficit and import requirement would be 1.6 million tons.

By 2010, 17.1 million tons would be needed. Only the same amount of 8.9 million feddans would have to be planted in cereals from the same total of 15.3 million feddans of cropped area. This would be 23 percent less than under constant fertility. But 15.4 million feddans of cropped area would be available. There would be cereal self-sufficiency in that year. After 2010, the total cropped area required would decline steadily. By 2025, there could be a surplus of about 1.7 million feddans of cropped area. In 2025, the cereal surplus would rise to 3.7 million tons.

It is clear from the above analysis that with constant fertility it will become increasingly difficult for Egypt to feed its people. Moreover, water supply is expected to become a real problem, and land reclamation will become so expensive that Egypt might be better off to look for other alternatives. In fact, with constant fertility, the cereal deficit will double from the present level to 7.4 million tons in 2000, and double again every 10 years thereafter to 14.5 million tons in 2010, to 26.6 million tons in 2020. Due to world wide food deficits, international prices of cereals will almost certainly increase sharply in absolute terms and also compared to the increases in prices of industrial commodities. With reduced fertility, it will be possible to move significantly toward self-sufficiency in cereals or even to attain a small surplus.

# Egypt

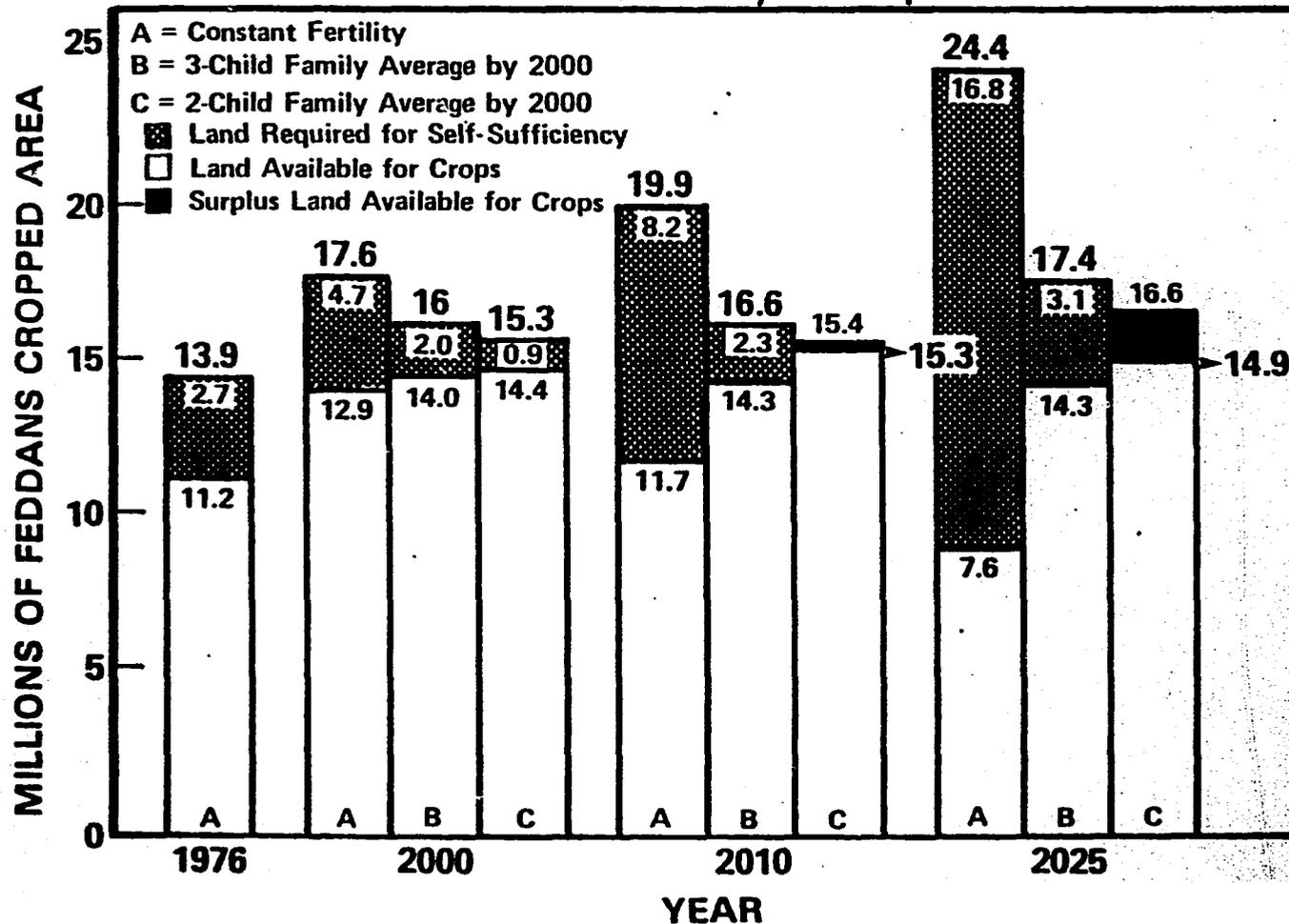
## Cereals Required for Food Consumption, 1976 - 2025 Under Three Fertility Assumptions



# Egypt

## Land Available for Crops and Required for Self-Sufficiency in Cereals (1976 - 2025)

Under Three Fertility Assumptions



## THE NILE VALLEY AND DELTA

**GOAL:** Reduce rural population pressure in the Nile Valley and Delta.

The overpopulation of the Nile Valley and Delta is recognized in the current Five Year Plan, and the government proposes to deal with this problem by attempting to resettle people in developing areas in border Governorates. Resettlement has not occurred yet on a significant scale for a variety of reasons.

During the period 1966-1976, when Egypt's annual average population growth was 2.4 percent, approximately 0.5 percent of the population of the Nile Valley left each year, moving to the major cities. The net increase in the rural population of the Nile was about 1.9 percent per year.

At the present time, the total cultivated area of the Nile Valley is close to 6 million feddans or 1.4 feddans per household or 0.29 feddans per person.\* Agricultural experts agree that 4 feddans of cultivable land are needed to provide an adequate income for a rural household; many household of course live on less.

If outmigration continues at the present rate, the rural population of the Nile Valley will increase by 2.43 million people in the 1980-1985 period. The government's program to relocate 18,200 people (2,600 families) in these years will do little to offset the increase.

If present fertility continues and 0.5 percent of the rural population of the river valley continue to move to urban areas, then the cultivated feddans per rural resident will decline from 0.29 feddans in 1980 to 0.20 feddans in 2000. This 26 percent decline in just 20 years will be followed by a further 22 percent reduction in the 2000-2010 period to 0.14 feddans per rural resident.

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\* Present average household size is assumed to be 5.2 people; it will decline with lower fertility.

If a 3-child family average is attained by 2000, then the cultivated feddans per rural resident would decline to 0.25 feddans in 2000 and decline further to 0.23 feddans per rural resident in 2010.

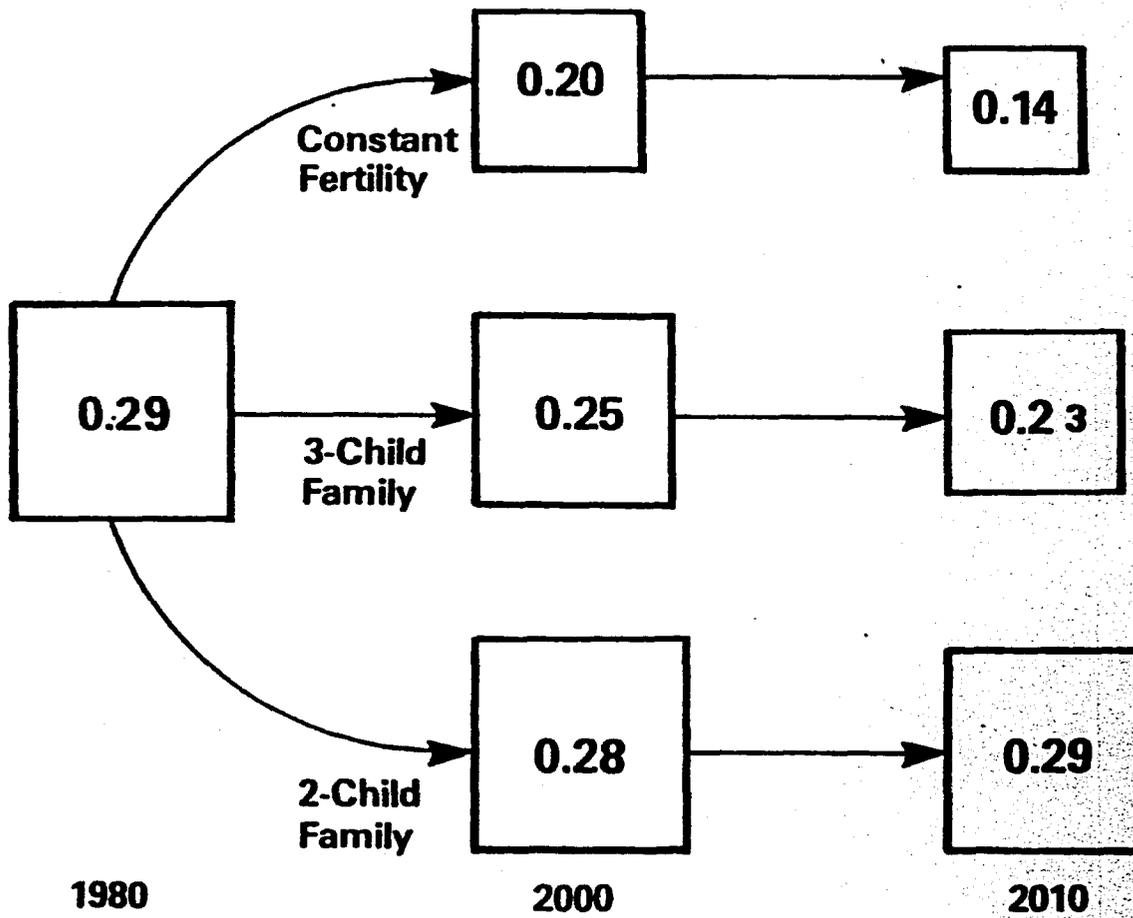
If a 2-child family average is attained by 2000, farm land per rural household would decline only marginally to 0.28 feddans per resident in 2000 and would return to 0.29 feddans per resident in 2010.

With significantly less land available per rural household, rural incomes will decline, and malnutrition and the death rate will increase. These conditions are also likely to lead to accelerated soil exhaustion and increased migration to urban areas. With decreased fertility, these conditions will be substantially better.

# Egypt

## Arable Land Per Rural Person In Feddans

(1 Feddan — 1.04 Acres — .42 Hectare)



It is essential that a balance be restored and maintained between the size of the rural population in the Nile Valley and the amount of cultivable land available to support that population. If present fertility continues, a massive internal migration will be required to relieve the growing population pressures. This will place a heavy burden on the political process, the economic system, and the people directly involved. The financial costs of resettlement may divert scarce government resources from other projects. With lower fertility in the Nile Valley, population pressures and resettlement costs would be reduced, and the funds released could be invested in infrastructure in the developing regions. This would attract gradual and spontaneous migration and promote the balanced development of the entire nation.

With constant fertility, 2.06 million households will have to be relocated between 1980 and 2000 if Egypt wishes to maintain 0.29 feddans per rural resident in the Nile Valley. In the 2000-2010 period, an additional 2.31 million households will have to be relocated.

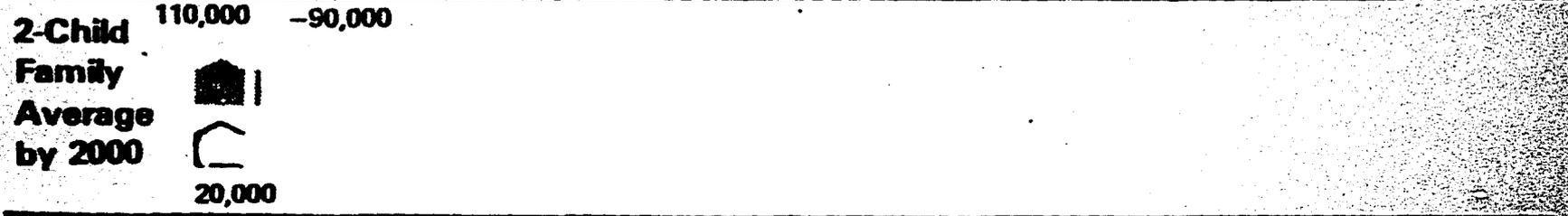
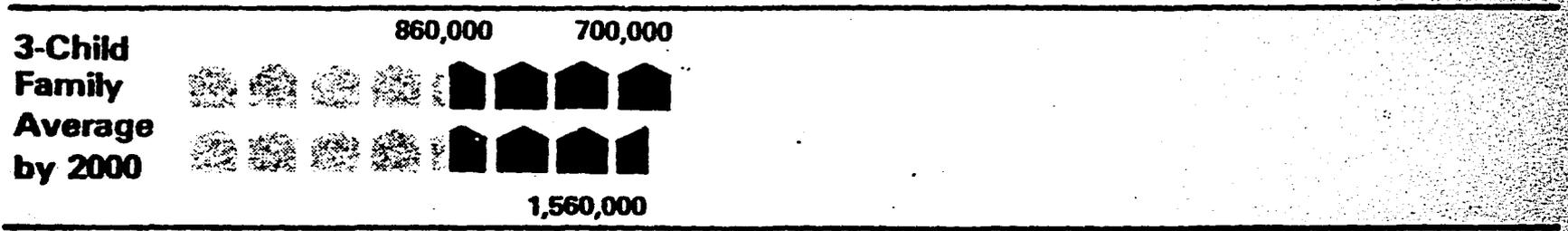
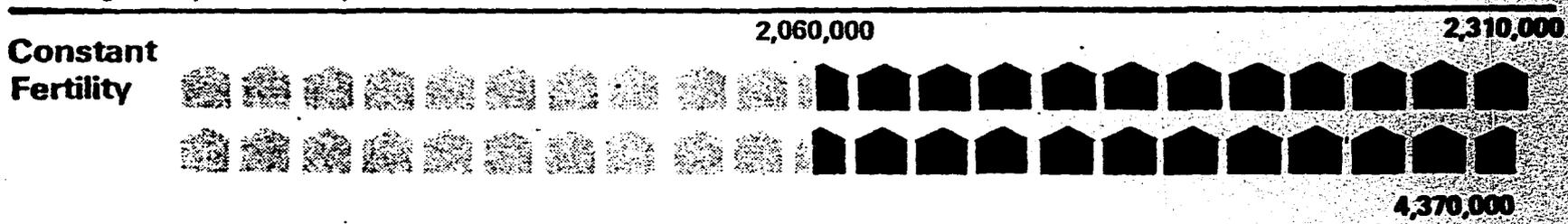
With a reduction to a 3-child family average by 2000, the required resettlement between 1980 and 2000 would still be fairly high, at 860,000 households. In the 2000-2010 period, an additional 700,000 households would be relocated.

With the attainment of a 2-child family average by 2000, population pressures in the Nile Valley would be reduced, and fewer families would have to be relocated. In the 1980-2000 period, 110,000 households would have to be relocated; in the 2000-2010 period, theoretically 90,000 households could be returned to the Valley area. Shortly after 2025, the rural population of the Nile Valley would stop growing and efforts could be directed toward increasing the cultivated feddans per household in the Nile Valley.

# Egypt

## Resettlement of Rural Households Required to Maintain Present Ratio of Cultivated Land Per Person 1980 - 2010

Each Figure Represents 100,000 Households



## HEALTH SERVICES

**GOAL:** Improve the health and quality of life of the rural, urban, and desert population in order to increase their productive contribution to national development.

In principle, all Egyptians have access to health care regardless of their ability to pay. In 1977, the country had an extensive network of 3,500 health units, 2,300 of which were in rural areas. There were 32,000 physicians, 8,000 of whom were working or studying abroad. This means that there was one practicing physician for every 1,500 people. The vast majority of physicians worked for public agencies. Only 700 physicians were in full-time private practice. There were also 23,000 nurses and 5,700 nursing aides. There were 2.1 hospital beds per thousand people. The nine Egyptian medical schools enroll 35,000 students and graduate approximately 3,500 physicians per year. However, the lack of materials and overcrowded classrooms lower the health training standards. The low pay scale in Egypt leads 25 percent of the graduates to leave and practice abroad.

In 1977, the national health expenditures were LE 280 million. The Ministry of Health estimated that per capita national health expenditures were LE 7 or 8. The Health Insurance Organization believes that a per capita expenditure of LE 12 to 14 is required for an effective level of health care to be obtained.

Continued high fertility will require large increases in general health services and expenditures simply to maintain these current per capita service levels.

If fertility remains constant, Egypt will have to double the number of doctors, hospital beds, and other health services and facilities by 2000 just to maintain the existing per capita service levels. National health expenditures will increase from LE 280 million in 1977 to LE 521.5 million in 2000, LE 694 in 2010, and LE 1,075.4 million in 2025, without any improvement in per capita health standards.

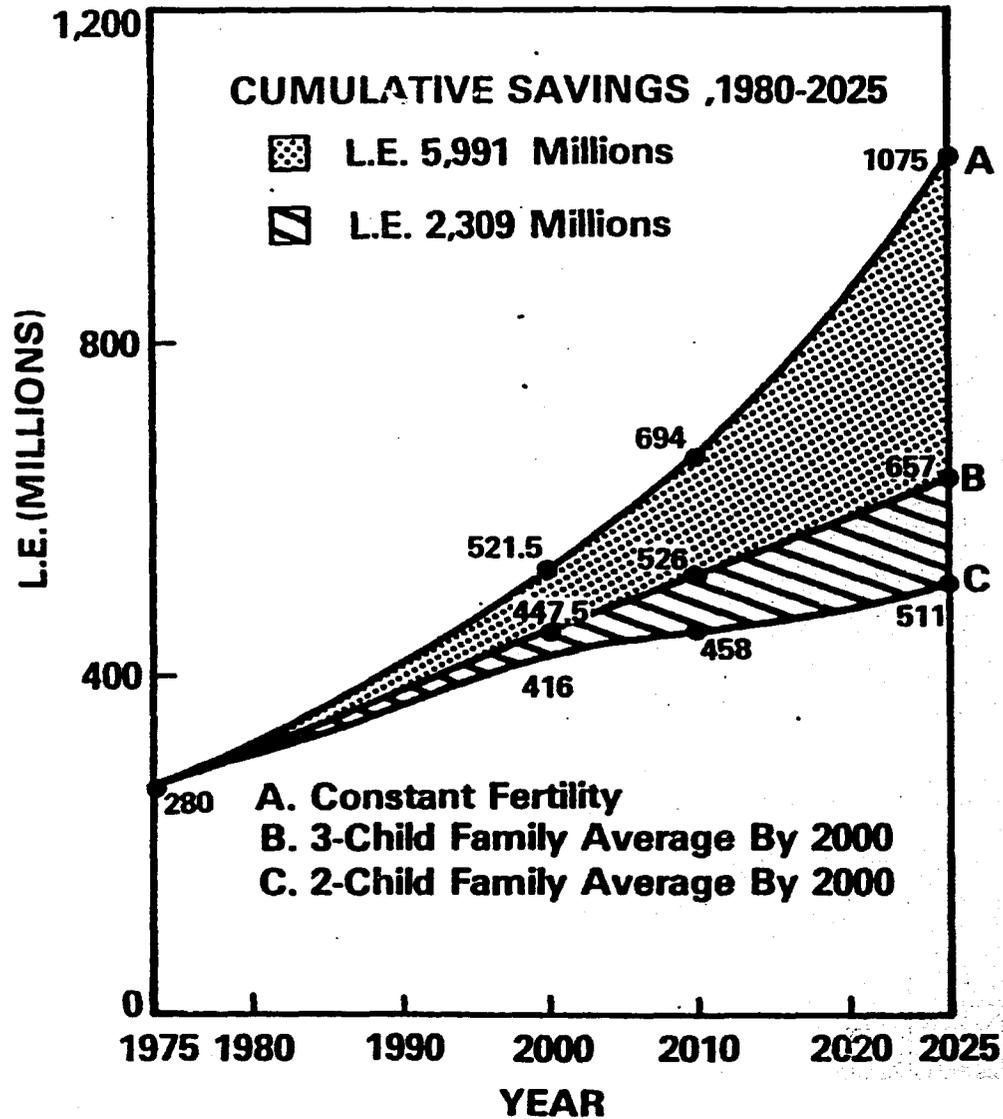
If a 3-child family average is attained by 2000, LE 447.5 million would be needed in that year to maintain present service levels. This is 14 percent less than the amount needed under constant fertility. In 2010, LE 526 million would be required, 24 percent less than with constant fertility. In 2025, LE 657 million, 39 percent less.

If a 2-child family average is attained by 2000, LE 416.3 million would be needed in that year and LE 458 million would be needed in 2010, 34 percent less than that needed with constant fertility. LE 511.1 million would be needed in 2025, 52 percent less than with constant fertility.

With reduced fertility, public health resources would become available for improving service levels and extending services to all of the people.

# Egypt

## Annual Government Health Expenditures at 1977 Rate Per Capita, 1975-2025



High fertility is a major factor in maternal and child illness and death. Many early or closely spaced pregnancies weaken a mother's health and reduce her capacity to provide good prenatal and infant care. Closely spaced births tend to be associated with higher rates of disease and death for mothers and children. High infant mortality in Egypt, 80 deaths per 1,000 live births, results, in part, from early and closely spaced births. Pregnancy and lactation increase maternal needs for protein and other nutrients. Nutrition-related diseases, infection, toxemia, and complications of pregnancy and childbirth are among the main causes of death among females in Egypt.

The addition of each child to a poor family often means that the same amount of food must be divided among more family members. Malnutrition weakens children and leads to serious illness from respiratory and gastrointestinal diseases, which are among the major causes of death for children under the age of five in Egypt. Children reared under conditions of early malnutrition may be physically and mentally impaired.

Both maternal and child health would be improved through delayed first pregnancies, increased intervals between births, and the termination of childbearing at an earlier age.

Under constant fertility, the number of women pregnant in the year 2000 will be nearly 2.4 million.

A program begun now to achieve a 3-child fertility level by 2000 would reduce the number of women pregnant in that year by 42 percent to 1.4 million.

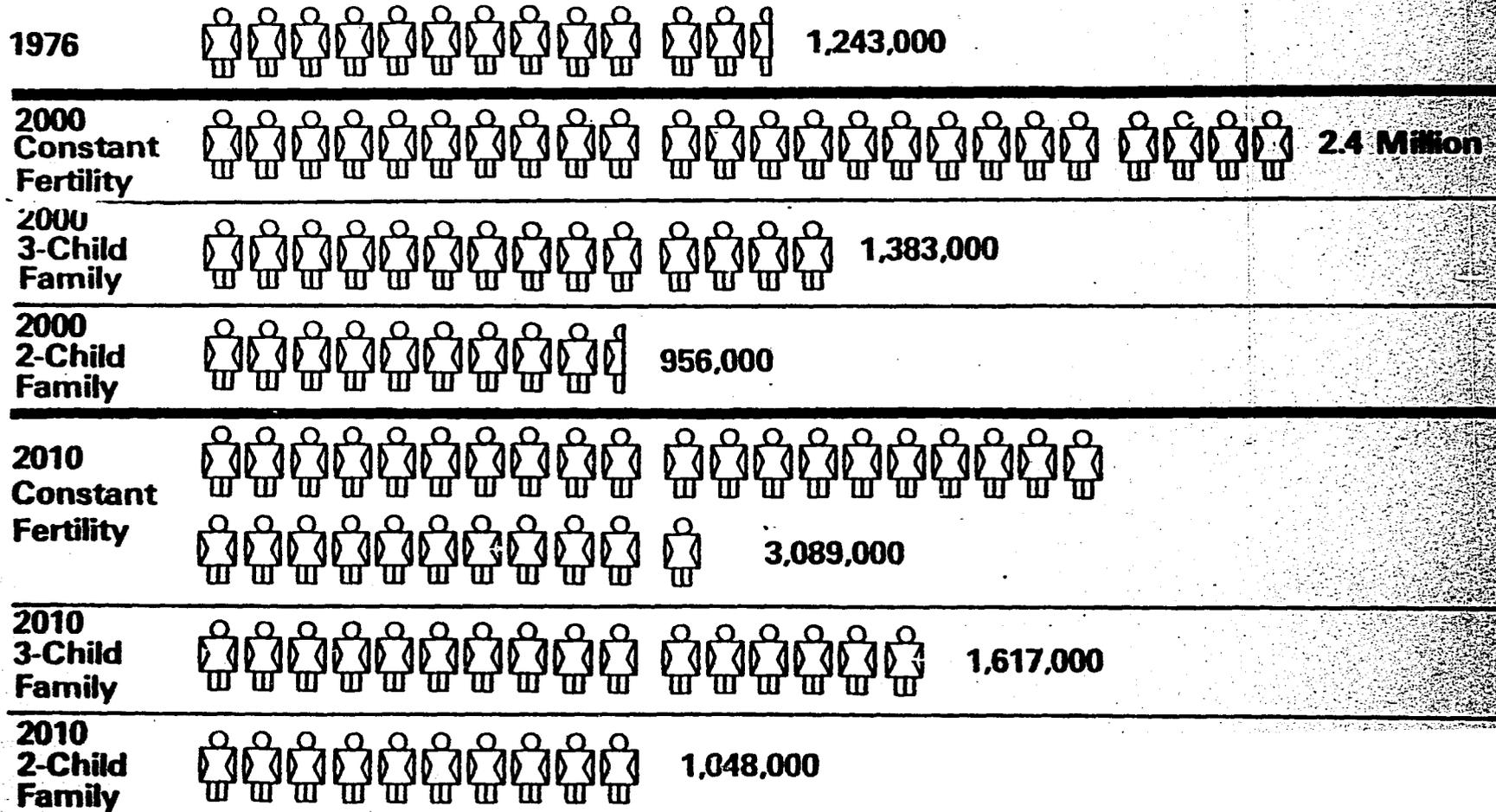
The attainment of a 2-child family norm by 2000 would reduce the number of women pregnant in that year even further to 956,000.

Family planning services that enable couples to space or limit births are important health measures for reducing illness and death among women, infants, and young children. Benefits to the economy are in addition to the direct benefits of family planning as a preventive health measure.

# Pregnant Women in Egypt 1976 - 2025

## Under Three Fertility Assumptions

Each Figure Represents 100,000 Women



## EDUCATION

GOAL: Achieve 100 percent school enrollment of all children reaching elementary school age.

The right to learn and have access to education "as far as mental ability allows" has been recognized for every Egyptian citizen. Through free education and training, Egypt has made its people one of its greatest resources.

In 1976, 43.5 percent of all Egyptians, including 29 percent of all women, had some schooling. By that year, approximately 7 million were enrolled in schools, up from 4.5 million in 1966. Of the 7 million in school, 4.1 million (62.8 percent) were in primary schools (grades 1 through 6), 1.4 million (20.4 percent) in preparatory schools (grades 7 through 9), 0.8 million (11.2 percent) in secondary schools (grades 10 through 12), and 0.4 million (5.6 percent) in universities or other institutions of higher learning. However, the increase in enrollment from 4.5 million in 1966 to 7 million in 1976 has had some negative effects. The student/teacher ratio has deteriorated significantly, and 60 percent of elementary schools and 30 percent of secondary schools were put on a two-period school day system. In spite of the huge increase in the number of students enrolled, the primary school enrollment rate has not increased. It has remained at about 62 percent of the 6-12 age group since 1965-1966.

In 1976, there were about 6.6 million children of primary school age. Of these, 4.1 million (62 percent) were actually enrolled in primary school, while 2.5 million were not in school. Current operating costs in 1976 were LE 76 million.

If current fertility continues, Egypt will have 12.2 million children of primary school age by 2000. If a 62 percent enrollment rate is maintained, Egypt will have 7.6 million students enrolled by 2000, 3.5 million more than the system handled in 1975-1976. In that year, the annual operating costs

for the expanded system will be LE 135.9 million--not counting the cost of teacher training and the building of 90,000 classrooms. By 2010, Egypt will have 16.5 million children of school age. The enrollment at 62 percent would be 10.2 million children. In that year, operating costs would be LE 207 million.

In addition to the financial cost, there will be high social costs because the number of children not receiving a primary education will increase enormously, with consequent negative effects on labor productivity and on unemployment and underemployment.

In 1975-76, there were about 2.5 million children of primary school age who were not enrolled in school. If present fertility continues and the enrollment rate of 62 percent is maintained, the number not enrolled will rise to over 4.6 million by the year 2000, 86 percent more than the present number. By 2010, the number not enrolled will be 6.5 million, about 3 times the present number.

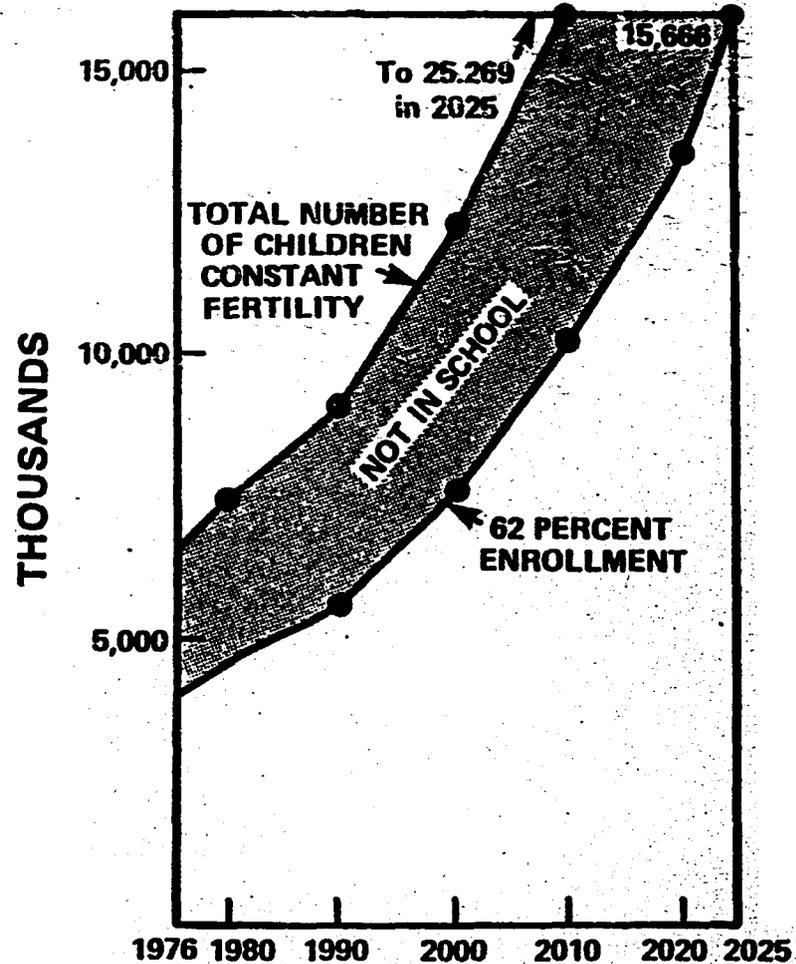
A reduction in fertility would quickly make a substantial increase in the percentage of the child population enrolled in school and a substantial decrease in those not enrolled.

If Egypt attains a 3-child family average by 2000, and the number of students enrolled in primary school increases in the same numbers as for 62 percent enrollment of constant fertility, Egypt would be able to raise the enrollment rate substantially. In 2000, 84 percent of all primary school age children would be in school. One hundred percent enrollment would be attained in 2006. Starting in that year, Egypt would be able to provide primary schooling for all children at no greater cost than for 62 percent of the children of primary school age if present fertility is continued.

If a 2-child family average is attained by 2000, 100 percent enrollment would be reached in 2001. After that date, maintenance of the 100 percent enrollment rate would require only small increases in the number enrolled. In 2001, the total number of school age children would be 7.5 million. In 2010, the total number would be only 6.3 million. The operating cost in that year would be LE 113 million, only 54.6 percent of the cost with continued high fertility and 62 percent enrollment.

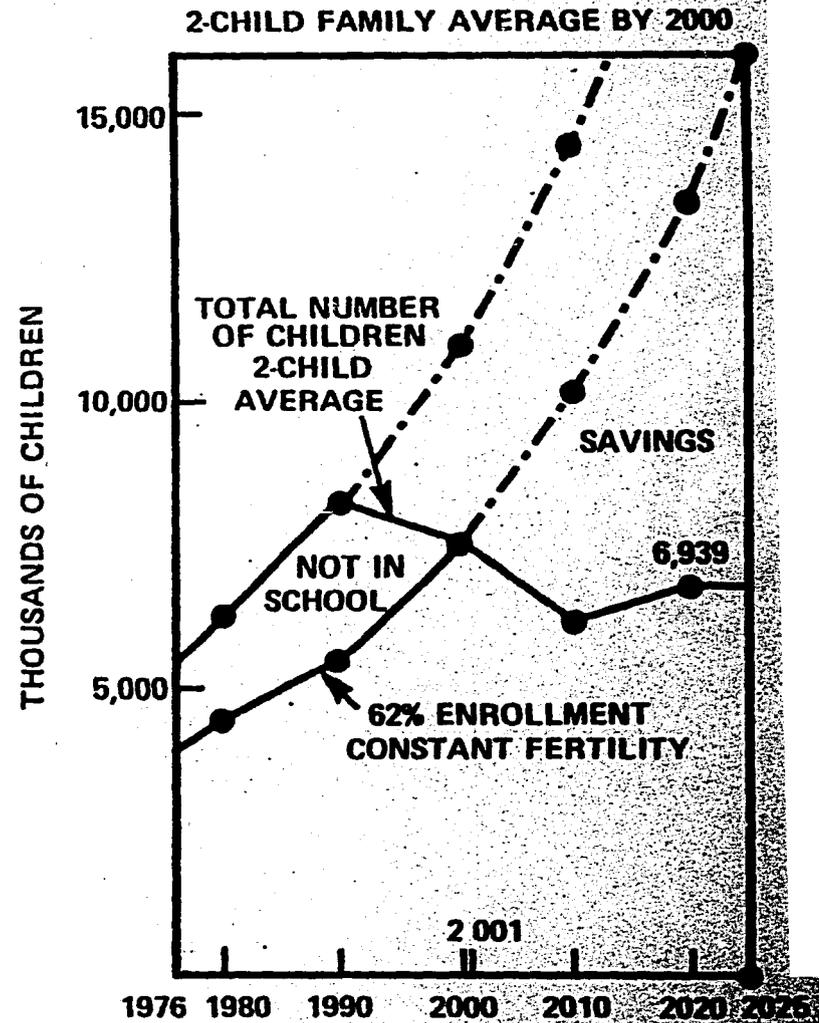
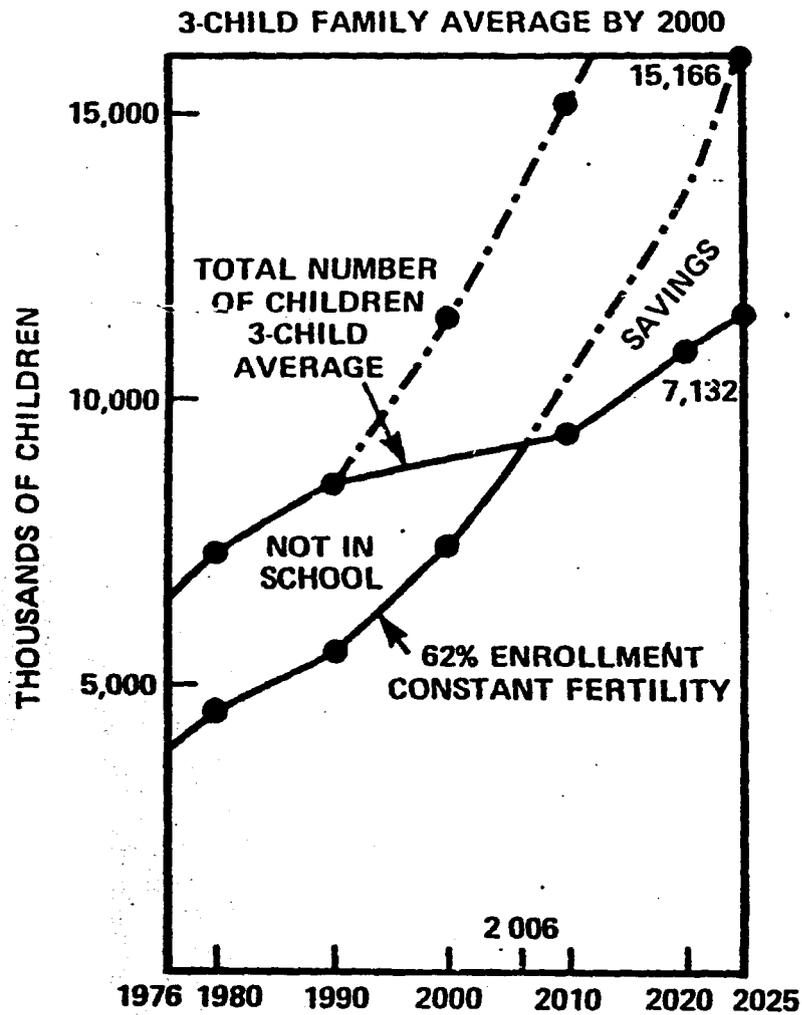
# Egypt

## Primary School Age Children (6 - 12) and Enrollment Under Constant Fertility 1976 - 2025



# Egypt

## Primary School Age Children (6-12) and Enrollment 1976-2025



## CAIRO AND GREATER CAIRO\*

**GOAL:** Slow the rate of population growth in Greater Cairo.

The population of Egypt is becoming rapidly more urban. While 37 percent of the population lived in urban areas in 1960, 44 percent were urban residents in 1976, and at present rates Egypt will be 50 percent urban by 2000. This increasing urbanization is of concern in Egypt, but a cause of even greater concern is the continued concentration of urban population in and around one city, Cairo.

In 1966, 14 percent of the total population lived in Cairo City. What could have been Greater Cairo, at that time, had an estimated population of about 6.4 million.

By 1976, Greater Cairo contained 8.0 million people and accounted for 22 percent of the total population and almost half of the urban population.

The natural increase of population in Cairo is about 2.5 percent. With migration adding 0.6 percent, the growth rate is about 3.1 percent per year. Most of the growth is now occurring in the ring around the Cairo Governorate. Population growth has slowed in the Governorate itself, from 4.1 percent per year in the period 1960-1966 to 1.8 percent per year in the period 1966-1976.\*\* This slowing of growth within the city has occurred because residential areas have given way to commercial, industrial, and government development, and land for new housing has been available only outside the Governorate itself.

While migration is a serious problem, the major factor affecting the future growth of Cairo is the high rate of natural increase\*, as can be seen by the following:

\*Greater Cairo, henceforth called Cairo, consists of Cairo Governorate and surrounding urban areas and suburbs as defined in the 1976 census.

\*\*Not including the estimated 350,000 Cairo residents outside the country at the time of the census.

If all movement into Cairo ceased immediately, continued high fertility would cause the population of that urban area to double in 26 years and double again in the following 21 years. In 2010, Cairo would contain 20.1 million people and would be growing at 2.9 percent per year.

With no movement into Cairo and attainment of a 3-child family average by 2000, the population would double in 38 years. In 2010, Cairo would contain 15.8 million people and would be growing at 1.6 percent per year.

With no movement into Cairo and the attainment of a 2-child family average, the population of Cairo would increase very slowly, reaching 13.1 million by 2010, when it would be growing at less than 1 percent per year.

Migration to Cairo will continue, of course, with most migrants in their prime reproductive years.

The government's policies to raise incomes and expand services in rural areas with the object of slowing the rate of migration to Cairo cannot succeed if fertility rates and birth rates in the rural areas are not reduced substantially. In any case, present trends are likely to continue for the next two or three decades.

If present fertility and migration continue, the population of Cairo will almost double to 17.1 million between 1980 and 2000 and increase to 23.7 million by 2010. By 2000, Cairo will account for 25 percent of the total population and this will increase to 26 percent by 2010.

With the attainment of a 3-child family average in urban and rural areas, the population of Cairo would be 14.7 million in 2000 and 18.1 million in 2010.

If a 2-child family average is attained by the year 2000, 13.7 million people would live in Cairo in that year. By 2010, the population of Cairo would be 15.8 million, less than two-thirds of what it would be with constant fertility.

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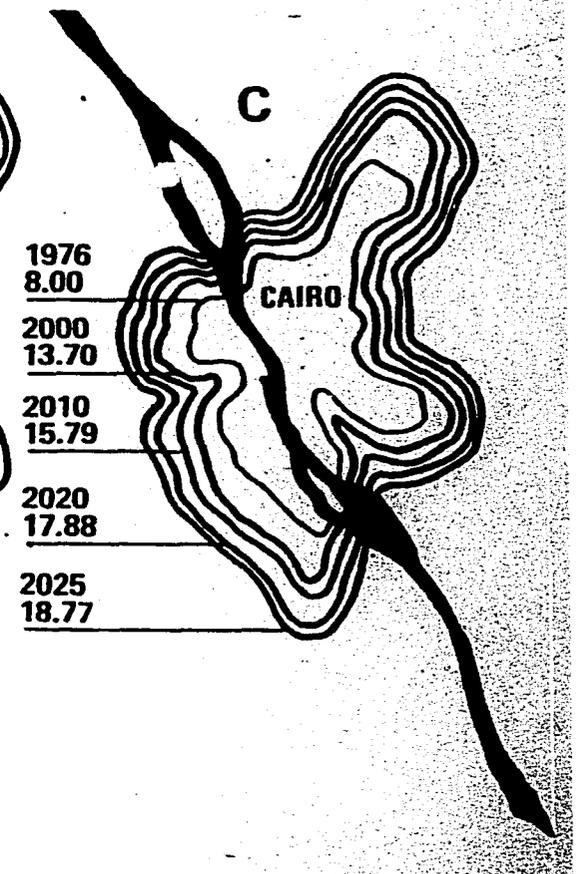
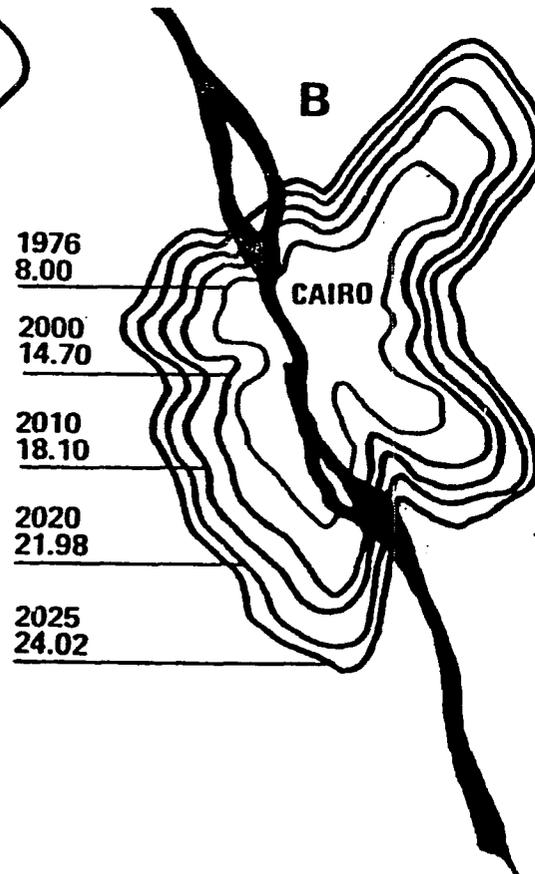
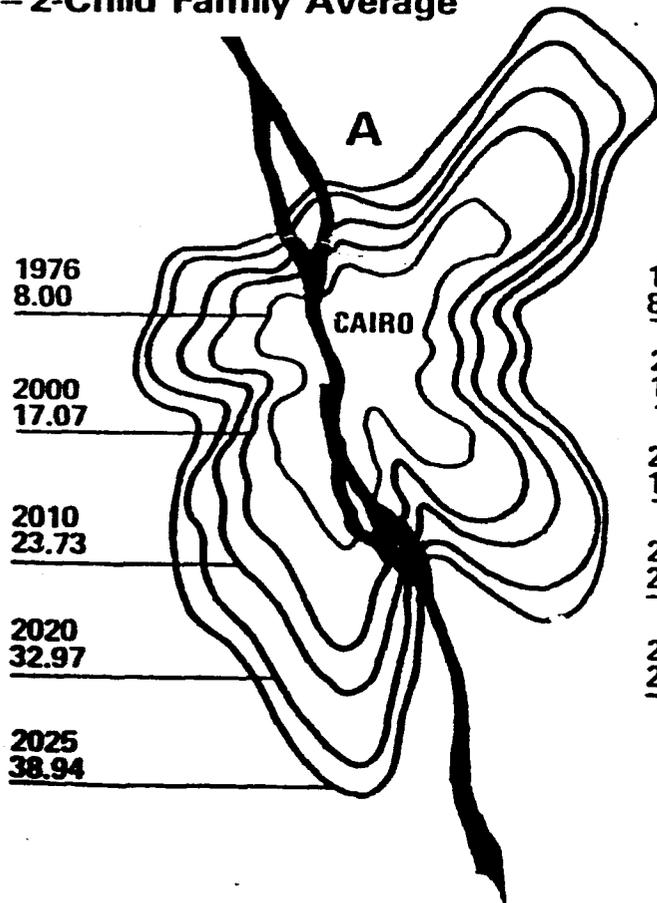
\* Birth rates are lower in Cairo than elsewhere, but death rates are also lower. Thus, the rate of natural increase may actually be higher than in the rest of the country.

# Egypt

## Population of Greater Cairo 1976 - 2025

Under Three Fertility Assumptions

**A=Constant Fertility**  
**B= 3-Child Family Average**  
**C= 2-Child Family Average**



## HOUSING

**GOAL:** Prevent the spread of urban slums and provide adequate housing for all of the people.

The population of Egypt is increasing by 3.7 million people between 1976 and 1980. Given an average household size of 5.2 persons, the number of households is increasing by 720,000. No information is available on the total number of housing units being constructed in this period, but there is strong evidence that the number built will not be adequate to meet this growing need.

Information is available, however, about the housing problem in the urban areas (governorates).

Between 1960 and 1976 the number of urban households increased by 1.4 million, but the number of durable urban housing units increased by 682,000. These units accommodated only 49 percent of new households. The other 720,000 households contributed to the growing urban slum problem in Egypt's cities. By 1977, the urban housing shortage was estimated to be 850,000 units.

The Government's efforts to provide adequate housing for all will not keep pace with the rapidly growing urban population. The national plan calls for the construction of 450,000 units in urban areas alone between 1978 and 1982. However, during this same time frame, the number of urban households will increase by 558,000. Thus, the housing shortage will continue to increase and by 1982 will be more than 958,000 units. The cost of eliminating the housing shortage will be about LE 986 million, assuming a unit cost of LE 1030.\* The total cost, however, will be considerably greater with the cost of housing infrastructure (e.g. roads, sewers) added.

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\* Average cost of units planned for 1978-1982 period.

\*\* Evidence of the cost of housing, inclusive of infrastructure, is provided in the plans for the new towns where the cost per unit is over LE 3,000.

A reduction in fertility will substantially reduce the cost of providing future urban housing needs. The rate of household formation, or the number of new households requiring housing, will not change until after the year 2000 regardless of the level of fertility. However, household size will be reduced, and therefore, less housing space will be required than with continued high fertility. For example, if the average number of people per room in 1975 remains constant at an average construction cost of LE 409 per room, the following will result.

If fertility remains constant and 0.5 percent of the people residing elsewhere continue to move to the cities each year, an additional 8.5 million "standard rooming units" will be needed between 1980 and 2000 at a cost of LE 3.5 billion. In the following 10 years, an additional 7.0 million units will be needed at a cost of LE 2.9 billion.

With a 3-child family average by 2000, about 5.7 million units would be needed between 1980 and 2000, costing LE 2.3 billion, 15 percent less than with constant fertility. An additional 3.4 million units would be needed in the 2000-2010 period, costing LE 1.4 billion, a little over half the amount required in the same period with constant fertility.

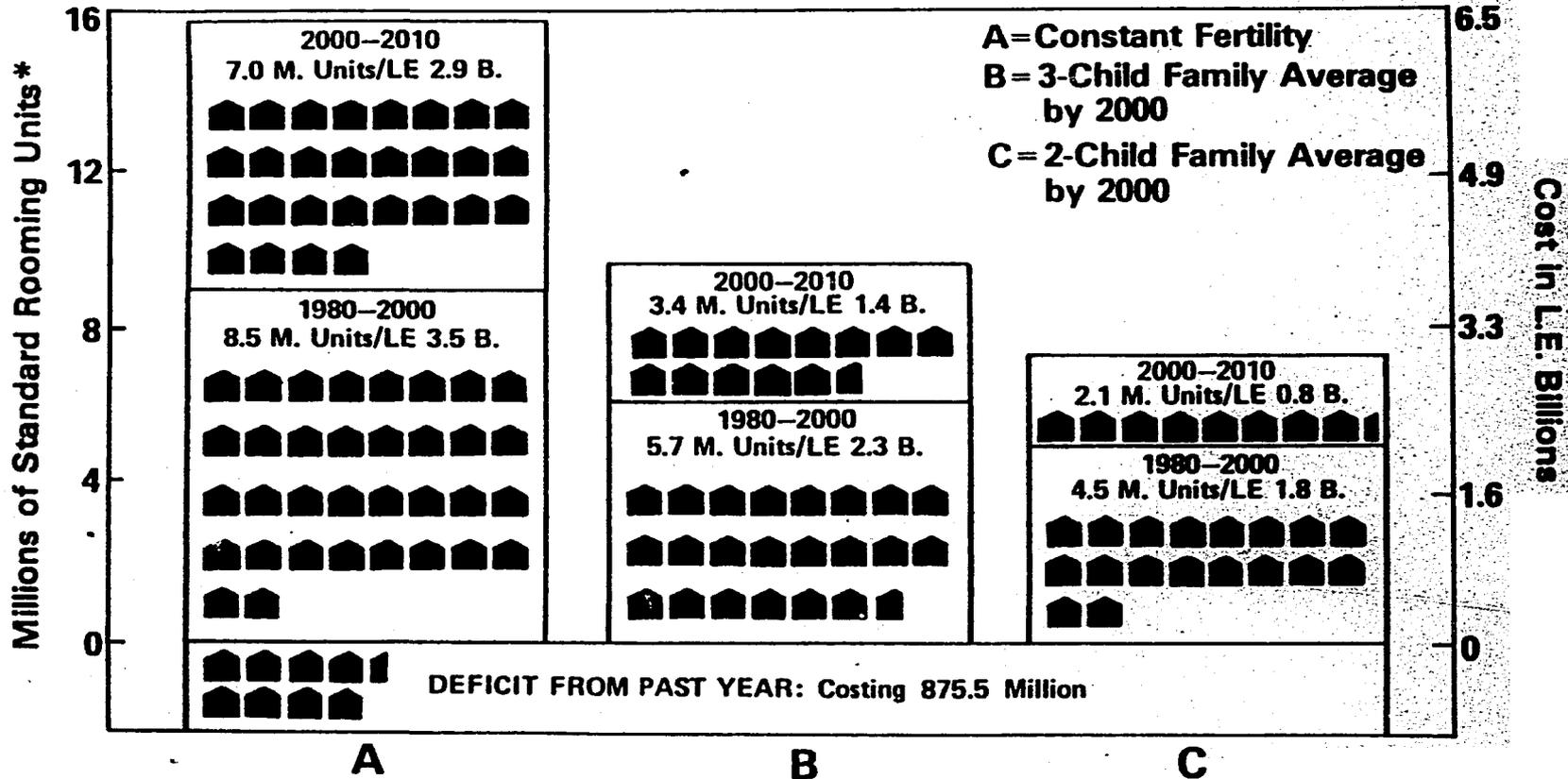
If a 2-child family average is attained by 2000, then 4.5 million units would be needed between 1980 and 2000. An additional 2.1 million units would be needed between 2000 and 2010. In the period 1980-2000, the cost would be LE 1.8 billion, LE 1.7 billion less than with continued high fertility. In the 2000-2010 period, the cost would be LE 0.8 billion, LE 2.1 billion less than with continued high fertility.

These figures do not include costs of infrastructure that must accompany urban expansion. They do not illustrate the additional costs that will be required for streets, sewers, water supply, electric lines, and the necessary social services of schools, police protection, health care, waste collection, and perhaps most difficult of all, public administration.

# Egypt

## New Housing Needed in Urban Areas 1980 - 2010

### Under Three Fertility Assumptions



\*Assumes 1.9 Persons per Room, LE 409 Cost per Unit

🏠 = 250,000 Standard Rooming Units

As Egypt becomes more urbanized and land development expands outward, many new problems will emerge. Increasing land values and construction costs will place a growing strain on the financial system. The cost of basic infrastructure and services will rise due to increased distances between residential and commercial zones. Scarce agricultural land adjacent to the cities will be developed for urban uses. This is already a serious problem in the Greater Cairo area. The most serious problem will be the perpetuation of a large class of urban poor people. The separation of the population by income level and life style will become more striking and the risk of social unrest will increase.

## SUMMARY

Egypt has a high fertility rate, a high population growth rate, and an adverse ratio of dependent children to economically active adults. These factors already seriously retard Egypt's economic and social progress and may make it impossible to attain most of the long-range goals. A substantial reduction in the number of children in the typical family can significantly improve Egypt's prospects and increase the country's ability to attain or approach its development goals. An effective population program can be expected to have the following results:

There can be reasonable assurance of relatively high employment and reduced unemployment and underemployment--with a much more equitable distribution of income among the population.

The ratio of economically productive adults to dependent children will increase.

A per capita income goal of LE 600 can be attained at an earlier date.

Domestic savings for investment will be easier to assemble and a larger proportion of investment can be used for productive enterprises.

The part of the total food requirements met from domestic production can be greatly increased and the volume and cost of imported food substantially reduced.

The health of the individual mother and child can be improved and provision of better health care for all can be realized.

Primary education can be assured for all children at an earlier date and at far less cost, and the savings used for increasing enrollments in secondary schools.

Requirements for housing units will be reduced; with the reduced costs there will be a greater possibility of meeting the need.

If a 2-child family average is attained by the year 2000, the population will continue to grow until the middle of the 21st century when it will stabilize at twice its present level. This will insure Egypt adequate manpower to be a modern industrial state and develop all of its regions. Any delay in the attainment of the 2-child family average will result in continued high rates of population growth and an increase in the size of the stable population that Egypt will ultimately reach. The benefits of slower population growth will be delayed and the stable population that will eventually be reached will have to subsist on a much lower standard of living.

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