INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

TECHNICAL REVIEW OF DEVELOPMENT PROJECTS IN EGYPT

August 28, 1951

Loan Department

Conversion Rates for Egyptian Currency

U. S. $1 = LE .348 (34.8 Piasters)

LE 1 = U. S. $2.872

LE 1,000,000 = U. S. $2,872,000

TECHNICAL REVIEW
OF DEVELOPMENT PROJECTS IN EGYPT

The following projects, included in the development program of Egypt, have been submitted by the Egyptian Government to the Second Bank Mission to Egypt (June 21 - July 17, 1951), as a possible basis for immediate and future Bank loans:

I. Comprehensive Nile Waters Scheme

(a) Lake Victoria project - in Uganda

(b) Lake Albert project - in Uganda

(c) Lake Kioga project - in Uganda

(d) Sudd swamps project - in Sudan

(e) Lake Tana project - in Ethiopia

(f) Merowe (4th Cataract) project - in Sudan

(g) Wadi El Rayan project - in Egypt

II. Interrelated projects at and near Aswan Dam

(a) Aswan hydroelectric project

(b) Nitrogen fertilizer plant project

(c) Iron and steel mill project

III. Railways replacement and development project

I discussed at length with the Government officials in Egypt, and British consultants in London, technical and economic merits of the projects and I visited some of the sites. The following is a brief review of the projects.

I. Nile Waters Scheme

General - The comprehensive development of the Nile River in accordance with a coordinated plan will provide benefits for all countries in the watershed with exceptionally important benefits to Egypt. The planning of the projects in the scheme is in the hands of thoroughly competent and experienced consulting firms and as each project nears completion, it has been the policy of the Government to appoint a commission of international consultants for further study and review of the entire plan. The total cost of the comprehensive scheme, the major part of which should be completed in 15 years, is estimated at about £E 100,000,000 including a foreign exchange requirement of approximately £E 25,000,000.

(a) The construction of a dam and power plant at Lake Victoria in Uganda is now under way and the local and downstream benefits have been agreed between Uganda and Egypt, with Egypt contributing about £E 4.5 million mainly for the overflow damages which will result from increasing the level of the lake. This project will be completed in 1955. The Government decided to meet its share of the cost out of its own resources and no loan is required for this project.

(b) The additional water supply that is planned to be provided by Lake Albert, in Uganda, will be impounded by a dam whose construction will begin in 1957 and which is estimated to be completed in 1965.

(c) Coordinated with the Lake Albert project and scheduled to be completed at the same time will be the regulator at Lake Kioga in Uganda whose construction will begin in 1961. These two projects are estimated to cost £E 17,000,000 of which the foreign exchange cost would be approximately £E 14,300,000.

(d) The project for the Sudd Swamps, in Sudan, which will increase water supply by the reduction of evaporation and other losses, is scheduled to start in 1957 with completion of the first stage in 1965. The entire project is scheduled to be completed in 1976. The Bank has, at the request of the Egyptian Government, given advice regarding the membership of an International Commission of Consultants that will determine the final plan. The estimated total cost is £E 28,000,000 of which the foreign exchange cost would be approximately £E 9,500,000.

(e) The Lake Tana Project, in Ethiopia, will be considered by the Governments of Egypt, Sudan and Ethiopia near the end of this year. It is expected that a plan therefor will be agreed upon providing both local and downstream benefits. The total cost in a previous, incomplete study was estimated at £E 8,000,000.

The engineering of the remaining two important projects: the Merowe Dam, in the Sudan, (already approved by Egypt, the United Kingdom, and the

Sudan), and the Wadi El Rayan Depression reservoir in Egypt is well advanced and the projects will be ready for construction in the near future.

(f) Merowe Dam in Sudan

This main Nile Reservoir, located at the 4th Cataract, will store flood waters for summer use and will be integrated in its operation with other elements of the overall Nile scheme. The site of the dam is under investigation at this time. The designing of the dam will be assigned to a British consulting firm already employed by the Egyptian Government for other major Nile projects. It is expected that the plans and specifications will be submitted for the approval of the Egyptian Government at the beginning of 1952. The project could be advertised for international tenders by the middle of 1952. The project could be completed in 1956. The dam will be a large concrete structure, about 3 miles long and about 300 feet high above bed rock. It is estimated to cost £E 20,000,000 of which the foreign exchange cost would be about £E 2,500,000. The economic benefits resulting from the completion of the project are derived from protection against the large downstream losses due to floods encountered at present. Substantial supplementary benefits are also obtained from the additional water supply that will be available in the low water season for irrigation.

(g) Wadi El Rayan Reservoir in Egypt

The Wadi El Rayan Depression, south of El Fayoum Province, will store flood waters which will be used in the summer low water season to provide water supply to irrigate additional land to be brought under cultivation. The design of the barrage and regulator has been assigned to a British consulting firm which is now exploring foundation and flowage conditions. The wet and dry excavations involved in the inflow and outflow channels between the river and the depression are being planned by the Irrigation Department of the Government. All plans are being reviewed by the British consulting firm. Certain elements of the project, such as roads, bridges and buildings will be ready for local bidding beginning about December 1, 1951. The principal items consisting of the barrage, regulator and the excavation of canals are expected to be ready for international tenders by the middle of 1952. The total cost of the project is estimated at £E 20,000,000 of which the foreign exchange cost would be £E 8,000,000. The economic justification of the project results from the elimination of flood losses and from the additional water supply available for irrigation.

II. Interrelated projects at and near Aswan Dam

(a) Aswan Hydroelectric Project

The dam at Aswan, a granite masonry structure, was built originally in 1902 for irrigation purposes and has been increased in height twice since that time in order to provide additional water for irrigation purposes and in anticipation of the installation of hydroelectric generating equipment.

To avoid silting during flood season, it is so operated that the resulting head available for power production is reduced from a maximum of 33 meters to a minimum of 8 meters.

The design and layout of the power plant are affected by these two unusual features, that is, first, the existence of a dam not originally constructed for power purposes and that has been twice increased in height, and second, the great variation in gross head. Because of its vital importance to Egyptian agriculture, the feeling in Egypt is very strong that no changes or modifications should be made in Aswan Dam which might in any way alter the stresses in the dam or affect its safety in the slightest degree.

A Commission of British and Egyptian engineers prepared studies of several alternatives that were subsequently reviewed by an International Commission of Swiss, Swedish and American engineers. The adopted scheme for which detailed plans and specifications were prepared by a British firm of consulting engineers, was approved unanimously by the International consultants. International tenders for its construction were received on July 1, 1951 and are now under consideration for award.

The power generating equipment will consist of seven 49,500 KVA turbo-generators and 2 - 13,500 KVA units for providing station power for auxiliaries. Maximum annual generation of power is estimated at 1,645 million KWH per year.

Excavation for the powerhouse, the construction of the cofferdam and the stockpiling of the concrete aggregate have been completed. Orders for all major equipment items have been placed in Switzerland, Sweden, and England. Contracts for the balance of the equipment and for the powerhouse construction will be let by October 1, 1951. It is expected that the first unit of this project will be in operation by the middle of 1955 and that the project will be completed by the end of 1957.

The total cost of the project, excluding interest during construction, is estimated at LE 21,510,000 of which the foreign exchange cost is about LE 9,000,000.

Using the maximum estimated production of 1,645 million KWH per year, the cost of energy is computed to be the equivalent of 2 mills U.S. per KWH. This cost would be satisfactory for power generated for use in the electro-chemical and electro-metallurgical industries.

(b) The Nitrogen Fertilizer Plant Project

Chemical Construction Company of New York, retained as consultant on this project, is currently working on plans and specifications suitable for use in requests for bids. Plans and specifications should be submitted to the Egyptian Government by August 27, 1951.

The plant which will be located about 20 KM north of the Aswan Dam near the Nile and the railway, is based on the production of ammonia from hydrogen obtained from the electrolysis of water and nitrogen obtained from liquid air. A portion of the ammonia will be converted to nitric acid by combustion with oxygen, a by-product of both hydrogen and nitrogen production. Ammonia and nitric acid will be combined to form ammonium nitrate which will be physically mixed with about 50% of crushed limestone or Nile mud to form a finished product containing 20.5% nitrogen.

The capacity of the plant is estimated at about 380 tons per day or about 370,000 tons per year. It will require about 1,350 million KWH annually. However, the plant will actually have more than adequate capacity to consume all of the energy produced by the hydroelectric installation. It is estimated that the first unit of this plant can be completed in 1956 and the entire plant brought into production by the end of 1957.

The total cost of the project is provisionally estimated at LE 25,000,000 of which LE 13,000,000 would be in foreign exchange.

If power is sold to the fertilizer plant at 3 US mills per KWH, annual savings in cost of fertilizer produced in the proposed plant over imported fertilizer are estimated to total the equivalent of about $8 million U.S. Net annual savings in foreign exchange resulting from the project would amount to about $16 million U.S. The production of the existing plant at Suez and of the proposed plant at Aswan would make Egypt virtually self-sufficient in nitrogen fertilizers.

(c) The Iron and Steel Mill Project

The establishment of an Egyptian steel industry was studied by an international commission in 1949. The report of this commission gives the only description of this project which is available at the present time. It does not include a geological and mining survey of the Egyptian iron ore deposits. The Government is considering the retention of an international consultant but has not yet made definite selection.

The project, as conceived by the commission, involves the use of ore from the Aswan area delivered by rail and handled in the conventional manner. Pig iron would be produced in four or five electric furnaces. Steel would be produced in three Thomas converters according to standard practice for this operation. Two rolling mills, a small blooming mill and a sheet bar and billet mill, would be provided at Aswan. These mills would be conventional in design. Gas fired soaking pits and reheating furnaces would be used. The rolling mill for finished products would be located at Cairo. This plant would consist of reheating furnaces for the semi-finished steel from Aswan, a light plate and sheet mill, a merchant and rod mill and one or more wire mills. Scrap and scale from this mill would be returned to Aswan for processing into steel.

The capacity of the Aswan steel plant has been fixed on the basis of the average firm power available from the proposed Aswan power plant. This is estimated at 44,400 KW which will generate 390 million KWH. This energy will produce about 137,000 tons of pig iron per year, which, in turn, will produce about 115,000 tons of finished steel products of the types contemplated. The use of all firm power for the steel plant would necessitate the closing down of the proposed fertilizer plant during four months of high flood.

Since little engineering has been done on these projects as yet, only rough cost estimates are available. Based on these estimates, the cost per ton of annual capacity would be about $370 which is high compared with a large blast furnace works producing similar products.

The Minister of Finance agreed that the Bank Mission should not give further consideration to this project at this time.

III. Railway replacement and development project

The railway system, owned by the Government, is standard gauge and totals 4,210 kilometers. In 1950, it carried 57,618,000 passengers and transported 7,618,000 tons of goods. About three-fourths of the total passenger and cargo traffic was handled in the "Delta Region," north of Cairo, including the Suez Area.

During the period of the second world war, 1939 to 1945, the Egyptian State Railways system was called upon to meet tremendously increased requirements of both civil and military transport. Since it was practically impossible to import rolling stock and track during the war period and for a few years thereafter, it was necessary to maintain the existing rolling stock continually in service.

A study was made of the condition of the system and a program laid out for essential renewals of rolling stock above 30 years service and of rails over 40 years in service. The study included the necessary extension of sheds, maintenance and repair shops, as well as new installations to service the new units and the system. The foreign exchange cost of the most urgent replacements and shops is estimated at £E 13,000,000. This amount would be spent over a five year period.

In addition, the Railways program provided for new lines, a petroleum pipe line from Suez to Cairo, and electrification of suburban lines estimated to cost a total of about £E 18,000,000 of which the foreign exchange would be £E 10,000,000.

While the detailed engineering studies of all of the items in the program are not ready for Bank review, the urgent renewals and shops projects can be prepared for consideration within a short time. The necessary financial information is being prepared and its submission has been promised by the

Egyptian State Railways in the near future.

Conclusions and recommendations

(a) Available information on the Merowe dam and Wadi El Rayan reservoir projects lead me to conclude that, from the technical point of view, both projects have been soundly conceived. I recommend therefore, that, when technical reports and specifications have been completed, the Bank should consider these projects as a possible basis for a loan.

(b) I consider that the Lake Tana reservoir project should be restudied so as to include possible benefits for Ethiopia. I recommend that, once a technical agreement between the Governments of Egypt, Sudan and Ethiopia has been reached, the Bank should assist the Governments concerned in the selection of consultants for a new study of the project.

(c) I consider that the power project would be justified only if a sound fertilizer industry was established near Aswan. I recommend that, when the report on the fertilizer plant has been completed, it should be studied by the Bank to determine whether this and the power project could be considered as a possible basis for a loan.

(d) I consider that the iron and steel mill project at Aswan is neither technically nor economically sound, and should not be considered by the Bank.

(e) I consider that the replacement of railway rolling stock, track and modernization of shops is urgently needed and I recommend that a railway consultant be employed to make survey of the rolling stock, permanent way and a study of the shop requirements.

R. A. Wheeler

August 27, 1951

RESTRICTED

Report No. A.S. 40-a

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

THE ECONOMIC DEVELOPMENT OF EGYPT

August 25, 1955

Department of Operations
Asia and Middle East

CURRENCY EQUIVALENTS

£E 1	=	$2.87156
£E 1,000,000	=	$2,871,560
$ 1	=	£E 0.348242
$ 1,000,000	=	£E 348,242

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BASIC STATISTICS

Population and Cultivated Area

Total population	23 million
Cultivated area	6.2 million acres
Population engaged in agriculture	8.7 million
Land per caput of population in agriculture	0.7 acres

National Income: £E 857 million (1953)

Output

	1949	1952	1954
Cotton yarn (thousand tons)	54.3	55.7	64.3
Cement (thousand tons)	876	947	1,237
Index of agricultural production (1946-50 = 100)	106	106	98 (1953)
Raw cotton (million kantars of 45 kg.)	8.9	9.9	7.9

Balance of Payments (£E millions)

	1950	1952	1954
Exports	∕ 188.5	∕ 145.6	∕ 140.0
Cotton	(149.8)	(126.4)	(113.1)
Imports	- 221.7	- 210.5	- 150.0
Invisibles (net)	∕ 19.2	∕ 19.5	∕ 15.0
Balance	- 14.0	- 55.4	∕ 5.0

Money Supply, Bank Credit and Prices

	1950	1952	1954
Money Supply (£E millions, at end of year)	360.5	367.1	361.0
Bank Credit (£E millions, middle of year)	70.4	87.8	90.3
Index of Wholesale Prices (end year)	376	343	342
Index of Cost-of-Living (end year)	306	296	283

Government Budgets (£E millions)

	1951-52	1952-53	1953-54 (est.)	1954-55 (est.)
Receipts	194.0	198.1	197.5	221.8
Expenditures	232.8	208.4	233.1	274.4
Balance	- 38.8	- 10.2	- 35.6	- 52.6

SUMMARY AND CONCLUSIONS

1. The continuing problem of Egypt, a densely populated country of 23 million people, is to raise output commensurate with the growth in population which has already attained an annual rate of 2.5% and is likely to increase further in view of current trends in birth and mortality rates.

2. Despite a relatively static agricultural production over the last few decades, Egypt has managed to maintain its admittedly low living standard thanks largely to the substantial progress of its manufacturing industries. Further economic development, however, is now primarily dependent on a considerable expansion of agriculture. The possibilities of supplying the domestic market with manufactures which can be readily produced in Egypt without unduly high cost have in large measure been exhausted, and Egyptian industry, with minor exceptions, will be unable to compete in the foreign market for some time. While some new industrial projects will undoubtedly be launched and the government is promoting two large ventures for the production of nitrogenous fertilizer and iron and steel, the future expansion of industry is likely to be slower than in the past unless the purchasing power of the domestic market can be greatly strengthened. In the production of minerals no substantial increase in output can be anticipated, except, to a limited extent, for iron ore and, perhaps, for petroleum. In the last two years the government has granted many concessions for oil exploration, and there is reason to believe that petroleum output, after a probable decline in the next two years, may rise to a level approximating present consumption of petroleum products. Whether or not Egypt will be able to produce oil for export will largely depend on the outcome of exploration in the western desert.

3. In the past Egypt has witnessed a growing population pressure on the available land which the agrarian reform measures now being successfully carried out cannot in the last analysis mitigate, however desirable the social consequences of these measures may be. An expansion of the land under cultivation, which in Egypt is synonymous with irrigation, is an inescapable necessity. The government has launched a well-conceived program to raise yields both through improvement of drainage and the dissemination of better seeds, but the possibilities are limited, for Egypt already has a highly developed, intensive agriculture which achieves some of the highest yields in the world. For this reason it has pinned its hopes on the great expansion in the irrigated area which would be accomplished by carrying out the Sadd el-Aali project.

4. The present government is tackling the problem of economic development with great vigor. In many respects its determination to do something for the economic and social advancement of the country has given the people, long accustomed to indifferent, dishonest government, new hope for the future. At the same time these development efforts have created new and serious problems.

5. The government's development programs have been slowly gathering momentum under economic and financial conditions which up to the present have been generally favorable. Government receipts and expenditures have apparently been kept in balance during the last two years despite rising outlays on development; and the balance of payments, which was characterized by increasingly heavy deficits in the three years 1950 to 1952, showed a small surplus in 1954. In large measure this improvement has been due to the reversal of the previous government's disastrous cotton marketing policy under which large stocks had been purchased at high prices, thus limiting exports and supporting domestic purchasing power and the demand for imports at a high level. In some measure it was also attributable to the curtailment of supply transactions by which prices of other farm products had been supported and the cost-of-living subsidized.

6. In the last two years the liquidation of stocks of cotton and probably other commodities have greatly assisted the government in meeting rising development expenditures without serious financial strain. In the future, however, the problem of financing will become increasingly acute. The government has undertaken heavy financial commitments in connection with development projects in all fields - railway rehabilitation, roads, inland waterways, communications, rural community centers, schools, hospitals, potable water supply, agricultural development etc. No doubt all of these are highly desirable and many are really needed to overcome the consequences of neglect in the past. Yet in its desire to move ahead on all fronts the government had adopted a rather pellmell approach to development with little consideration of the financial resources likely to be available in the long run. If the Sadd el-Aali project, which will probably entail average annual expenditures of £E 30 million (ca. $86 million) over the next 10 years, is now also to be undertaken, a thorough review of development programs and financial resources will have to be undertaken in order to ensure an appropriate balance between the two. Over-all planning, establishment of priorities and careful budgeting of resources will become increasingly urgent in the next year or two. To some extent there is already an awareness of this need within the government, and a determination to give Sadd el-Aali priority over all projects. At the same time the pressures to carry on with all programs without restriction are also strong.

7. Any assessment of the resources available to finance development over the next decade, during which expenditures on this account will be particularly heavy cannot be made at this time with any exactitude. In terms of rough magnitudes, however, it is not improbable that Egypt will be able to marshall, apart from foreign borrowing, on the average almost £E 35 million per year, including £E 2.5 million from the ordinary budget, £ 10 million from the utilization of foreign assets which are still very high £ 15 million through public loans, £E 3.5 million from certain extraordinary resources such as the confiscated property of the former royal family and £E 3.5 million through foreign aid. From its own resources Egypt should be able to finance about half of the foreign exchange component of the public investment in Sadd el-Aali. Except for the anticipated draft on the country's foreign exchange resources, the country should not resort to deficit

financing through the banking system since this would quickly lead to an uncontrolled expansion of money supply and, in view of the country's limited capacity to increase output over the next decade to an excessive demand for imports and a substantial inflation of prices.

8. Even with the help of foreign borrowing, the country will be able to find the resources to carry out the Sadd el-Aali project only if the rest of the development program is severely tailored to the available resources. Heavy external outlays will undoubtedly strain the balance of payments during the next decade. The use of £E 100 million of the country's large foreign exchange reserves should, however, go far toward bridging a deficit during this period. Moreover, a considerable amount of U.S. aid will be available over the next few years because nearly all of the $40 million allocated in 1954-55 remains undisbursed and additional allocations may be forthcoming. The balance of payments will undoubtedly depend to a large extent on the government's policies with respect to the marketing of cotton which still accounts for over 80% of the country's export proceeds. While the government has undoubtedly fixed cotton export prices at too high a level in the current season, new policies announced for the 1955-56 season afford ground for the hope that it will be less inclined in the future to interfere with the smooth flow of cotton into the world market.

9. Provided the Sadd el-Aali project is carried out as envisaged in the project report and some further industrial development takes place, the long-term prospects of the balance of payments should be reasonably favorable. The expiration of the Suez Canal concession in 1968 will provide the country with additional foreign exchange income of about £E 15 million per year and the prospects of higher earnings from the tourist trade are also bright. While the prospects of oil production are necessarily uncertain as yet, it is likely that, with some increase in output the savings in liquid fuels consumption arising from the development of hydro power, the country will be more self-sufficient in the long run.

10. In about 15 years, foreign exchange receipts and payments may be expected to balance at a level of about £E 275 million or approximately 25 per cent higher than in 1954. Within this total Egypt should be able to service a reasonable foreign debt, particularly, if some of the uncertainties inherent in the outlook are resolved favorably over the coming years. The government now has virtually no foreign debt.

11. While there is no prospect that Egypt will be able to pay for necessary dollar imports out of its own dollar earnings, the country has been continuously successful in importing a considerable volume of dollar goods against payment in non-dollar currencies. It is reasonable to expect that this will also be possible in the future, particularly since Europe's dollar position may well be easier than in the past. Moreover, Egypt still has a substantial reserve of around $220 million in gold and dollars which can, if necessary, be used to make necessary dollar payments. Thus, while prudence would dictate that as much as possible of any foreign debt be contracted in non-dollar currencies, some dollar debt service may be possible.

THE ECONOMIC DEVELOPMENT OF EGYPT

I. INTRODUCTION

Egypt with its 23 million people is one of the most densely populated countries of the world. Although the total area of the country is about one million square kilometers, virtually the entire population is concentrated within 36,000 square kilometers, an area only 10% larger than the Netherlands. This inhabited region is confined to the 1,500-kilometer Nile Valley and for the most part is only 2 to 20 kilometers wide, fanning out below Cairo into the Delta which at the Mediterranean reaches a breadth of 200 kilometers.

Of the total population 68% is classed as rural and 32% as urban.[1/] Over half of the urban population live in the two principal cities of Cairo and Alexandria which together probably have some 3.8 million inhabitants.

The rich alluvial soil of the Valley brought down by centuries of Nile floods is the principal asset of Egypt. Since Egypt enjoys virtually no rainfall except along the narrow Mediterranean litoral, agriculture is wholly dependent on irrigation from the Nile. The yield of the soil, however, is very high, and a sunny, warm climate the year-around makes possible continuous cropping limited only by the available supply of water.

Aside from these agricultural assets, the country apparently has only modest natural resources. Some petroleum is produced - enough for about 60% of Egypt's needs - and it is possible that prospecting and drilling now being carried on may yet result in a rich strike. Phosphates and manganese exist in sufficient volume to permit some export; and significant quantities of iron ore have been discovered in Upper Egypt. Small amounts of other minerals are produced, but there is little evidence to suggest that Egypt possesses great mineral wealth.

Owing to the heavy pressure of population on resources, Egypt has remained a poor country. According to the official estimates, which may well be inflated, per capita income in 1953 was £E 39 ($112). Since there are wide disparities in income, 90% of the people live in great poverty. Average weekly wages in manufacturing are £E 1.94 ($5.57), in trade and industry as a whole £E 2.23 ($6.40), and in agriculture, about £E 1.00 ($2.87). Daily food consumption averages about 2,300 calories per head, and per capita consumption of cotton textiles is 2.5 kg. per year. Health and educational standards are low. The death rate is still close to 20 per 1,000 and the infant mortality, officially recorded at 124 per 1,000 live births, is probably almost twice that high in reality. Half of the total population and most of the rural population are affected by endemic diseases such as bilharzia and ankylostomiasis (hookworm) and, to a lesser extent, malaria. Seventy-five percent of the population is still illiterate and less than half of the children of primary school age actually attend school.

1/ Only the population of the Governorates of Cairo, Alexandria, Canal, Suez, Damietta and the provincial and district capitals is classified as urban.

The Population Problem

While it has always been difficult to expand output as rapidly as the population increases, this problem may well become more acute in the future. In the decades immediately preceding the second World War, both the birth and the death rate tended to be rather stationary. In the decades before 1927 and 1937, for instance, the increase in population was rather modest - 11 and 12% respectively. Since the war, however, the annual rate of growth has been between 2 and 2.5%. While the birth rate, which was about 43 per 1,000 before the war, has shown a slight tendency to rise, the death rate has markedly fallen - from a range of 25-27 before the war to 18-20 in recent years. The infant mortality rate has also been dropping.1/ Improvement in public health has undoubtedly been responsible for this trend.

Experience in underdeveloped countries points to the probability that the death rate will continue to decline more rapidly than the birth rate. In fact, the birth rate may well rise, for the population is still becoming "younger". In 1947, 49% of the people were less than 20 years of age. This fact, combined with the effect of a continuing fall in the still high infant mortality rate, will tend to increase the proportion of people in the fertile age groups. The death rate, and particularly infant mortality, is likely to drop with improvements of environmental sanitation and more effective attacks upon endemic diseases. The present government is intent upon raising the standard of public health by building a large number of community centers including hospitals and clinics and by providing pure drinking water to all Egyptian villages. At the same time the campaign against endemic diseases, supported by foreign technical assistance, is likely to make progress. All these measures will help to reduce the death rate even though no dramatic or quick results can be anticipated.

In the long run a decline in the death rate may also bring in its train a reduction in the birth rate. In Egypt, as in most underdeveloped countries of the Middle East and Asia, children and especially male children are still regarded as a form of "old age insurance". If it becomes clear over time that the "survival rate" of male children is improving decisively, there will presumably be a greater inclination to limit births. The actual adoption of birth control, however, depends on finding an effective, cheap and simple method.

The present government is keenly aware of the population problem. A special committee has been studying its economic implications, and the establishment of 12 birth control clinics has been authorized. Among Moslems there appears to be no significant opposition to birth control on religious grounds. It is realized, however, that there are no easy or rapid means of reducing population growth. Over the next two decades at least the country faces the prospect of a further rise in the rate of increase. Even assuming that the rate of growth is maintained at only 2.5% in the first decade and rises to 2.6% in the following decade, the population by 1975 will be 37,182,000 or 61% greater than at present.

1/ See Table 1 on population movement in the Statistical Appendix.

Such an increase in the population would not necessarily mean that a fully equal rise in national income would be necessary to maintain present living standards. With the decline in the infant mortality rate the population will for a long time become progressively younger and with the rising proportion of children in the population the same standard of living standard can probably be retained on the basis of a somewhat lower consumption per capita than at present. The seriousness of the projected growth in population is also to some extent mitigated by the fact that the improvement of health and extension of life which will bring about the decline in mortality rates and the increase in population will also reduce the personal distress which a high incidence of disease and mortality bring in their wake.

In the last two decades it has apparently been possible to maintain the standard of living despite a growing population. Thus present consumption of foodstuffs, tea and coffee, cotton goods and soap is about the same as prewar and that of tobacco is even considerably higher. 1/ Evidently, as will be indicated later, this has been made possible largely by the comparatively rapid expansion of the non-agricultural sectors of the economy.

With the more rapid growth in population anticipated for the future, the question is posed whether and to what extent production and income can continue to keep pace with the increase in population. For this purpose it is necessary to examine the development of production in the past and the production potentialities for the future, and to assess the resources, both public and private, which might be mobilized to support the necessary rate of development.

1/ See Tables 2 and 3 in the Statistical Appendix.

II. AGRICULTURE

Agriculture has always been the dominant occupation of the Egyptian people. In 1953, 8.3 million people or well over half of the gainfully occupied population were engaged in agriculture and animal husbandry. Agriculture contributes about 90% of Egypt's exports. According to official estimates compiled for 1948 and 1953, agriculture and animal husbandry contributed about 30% and 32% of the national income for these years, but it is quite probable that agricultural income was somewhat underestimated and that income in other sectors was overstated. In any event agriculture indirectly accounts for a considerable proportion of the income generated in such sectors as trade and finance, transport, industry and government.

Population Pressure on Land

As Table 1 indicates, the area of cultivated land and the cropped area have expanded much less rapidly than the population. From 1897 to 1953 the total population increased by 283% while the cropped area rose by only 38%; and from 1937 to 1953 the population rose by 38% while the cropped area increased by 12%. During the first period the cropped area per inhabitant fell by about 30% and in the second by about 20%. The pressure of population

Table 1

Population and Agricultural Area a/

	Total Population ('000)	No. Engaged in Agriculture ('000)	Cultivated Area ('000 feddans) b/	Cropped Area: Area ('000 feddans)	Cropped Area: Feddans per Head: Total Population	Cropped Area: Feddans per Head: Engaged in Agriculture
Total in 1953	21,935	8,340	6,109	9,322	0.42	1.12
Compared with:						
1897	383%	n.a.	121%	138%	0.61	-
1937	138%	112%	116%	112%	0.52	1.12

a/ For more detailed figures, see Table 4 of Statistical Appendix.
b/ 1 feddan = 1.038 acres.

on the land has produced a considerable exodus to the cities and has led to chronic unemployment and underemployment in both rural and urban areas.

Land in Egypt is predominantly farmed by peasants working small holdings with the use of hand implements and animal drawn plows. Irrigation is usually by animal-powered waterwheels or saqias and man-operated lift devices of various kinds. In 1953 there w e r e 8,850 tractors in Egypt. Even large properties have generally been farmed by tenants in small plots rather than as integrated units. In 1952/53, 63% of the agricultural land was farmed by tenants of whom about 72% paid cash rents and 27% were sharecroppers. Land hunger led to a steady rise in rents from an average of LE 7.17 per feddan in 1935-39 to LE 29.90 in 1951/52 - an increase of more than 300% as compared with a rise in the wholesale price of food products of only about 225%. With land ownership unevenly divided the bulk of the peasants own only a fraction of the cultivated land. Table 2 below, giving the distribution of ownership before enactment of the agrarian reform law in 1952, shows that peasants owning less than 5 feddans of land represented 95% of the total number of landowners but owned only 35% of the total area, while those owning 200 feddans and over were only 0.08% of the total and owned a little over 20% of the cultivated area. As many as 1,469,167 people or 53% of the total number of landowners owned less than 1/2 feddan each.

Table 2

Land Ownership in Egypt in 1952
(before Agrarian Reform Law)

Size of Holding (feddans)	No. of Landowners	Area Owned ('000 feddans)
Under 1	1,981,339	770
1 to 5	617,860	1,342
5 to 200	159,347	2,661
200 to 800	1,835	625
800 to 1,000	92	87
1,000 to 2,000	127	220
Over 2,000	61	277
	2,760,661	5,964

Agrarian Reform

High rents and unequal land distribution prompted the new republican regime to enact an agrarian reform law in September 1952. The provision of the law having the widest impact was that fixing rentals at no more than 7 times the basic land tax, or, in the case of crop-sharing, at a maximum of 50% of the crop after deducting all expenses. This led to an immediate reduction of rents affecting approximately 4 million tenants. In some cases rents were cut by as much as one-half, although the general average rent per feddan in 1953/54, after the reform, was LE 20.54 as compared with LE 29.90 just before the reform.

The most striking feature of the law, however, was that limiting the size of landholdings to 200 feddans per family unit or respectively to 250 and 300 feddans in case of families with one and more than one child. With

a few exceptions, land in excess of these limits was to be taken over by the government and redistributed provided the owners did not themselves sell it in accordance with certain stipulations. The indemnity to be paid by the government was fixed at 70 times the basic land tax, substantially below the prevailing market price for land. Owners were to be compensated in the form of 30-year bonds carrying 3% interest. The government was to sell the land to peasant-cultivators in such a way as to bring their holdings up to a maximum of 5 feddans and at a price equal to that paid by the state plus 15% to cover costs.1/ The beneficiaries were required to pay over 30 years and to pay 3% on the outstanding balance so that the government would have sufficient funds to meet service on its agrarian reform bonds. The whole requisitioning and redistribution program was to be carried out in five years.

The Higher Committee for Agrarian Reform established to supervise the execution of this program has on the whole carried out its task in an intelligent and constructive manner. After allowing for exemptions and some 95,000 feddans sold by owners themselves, about 420,000 feddans of land are subject to requisitioning and redistribution. This includes 180,000 feddans of land belonging to the former royal family which was at first subject to expropriation with compensation but was later confiscated. Of the total, the government had taken over about 300,000 feddans by the end of 1954 and redistributed over 100,000 feddans. Issuance of bonds, however, has lagged, for by the end of 1954 only £E 11 million was outstanding against a required total of £E 37 million. Nor had the Committee made any arrangement up to March 1955 to make amortization payments on these bonds. Ultimately about £E 120 million of bonds are expected to be issued.

The redistribution of land, which will probably benefit about 200,000 families, has been carefully planned so as to create the minimum possible disturbance to irrigation and drainage systems and established cropping patterns. The government has utilized the agrarian reform as a vehicle for giving a further stimulus to the cooperative movement, which is already much farther advanced in Egypt than in other countries of the Middle East.2/ In each locality the beneficiaries of the reform are organized into agricultural cooperatives which provide farmers with the requisites of production, organize the cultivation of the land, assist in marketing and render other agricultural services. Perhaps a more dubious feature is the government's insistence that these cooperatives, which at least in their initial stages operate largely under its control, employ tractors at least for the initial plowing of the land. It is contended that this replacement of animal power, which would also be promoted by the substitution of power pumps for water wheels in irrigation, would result in substantial savings in animal feed and a considerable increase in the productivity of livestock which would no longer be kept primarily for draft power.

1/ Orchard lands, however, were to be distributed to graduates of agricultural institutes in parcels up to 20 feddans.

2/ In 1953 there were 1756 multi-purpose agricultural cooperatives having a membership of 752,320, total capital and reserves of £E 7,210,290 and a volume of business amounting to £E 7,000,000.

By and large the whole agrarian reform program will probably be carried out without significantly disturbing agricultural output. The program has been socially desirable in that it has raised to some extent the depressed incomes of the peasants affected. Even those who have acquired new land under the law enjoy higher net incomes, for the annual charges on their land are less than the rent they formerly paid. It is realized, however, that agrarian reform hardly provides a long-term "solution". Unless the land hunger is a appeased by greatly expanding the area under cultivation, there will inevitably be further fragmentation of land holdings and pressures will develop for higher rents. There are already signs that the demand for land is so great that a considerable number of proprietors have been successful in concluding clandestine arrangements with their tenants calling for the payment of rents higher than the legal maximum. The shift in income from the large landed proprietors to the peasant cultivators which has been brought about by agrarian reform may adversely affect savings and investment, since peasants presumably tend to consume all or nearly all of their income. On the other hand, the large property owners often used a large amount of their incomes for conspicuous consumption or for investments, such as in luxury housing, which were not highly beneficial to the economy. There are some indications that peasants are saving some of their increased income, and the government is anxious to encourage this trend. For instance a scheme has been drawn up whereby the beneficiaries of land distribution would invest the difference between the rent they formerly paid and the annual charges on newly acquired land in bonds of the Federation of Cooperatives.

Trends in Agricultural Output

Despite the growth in population agricultural production and income have been virtually stable over the last two decades. A new index of agricultural output recently calculated by the National Bank of Egypt, using weights based on relative 1946-50 crop values, indicates that the total production of all field crops in 1953 was about the same as the average for 1935-39. While the gross income from agriculture and animal husbandry rose,

Table 3

Index of Agricultural Production
(1946-50 = 100)

Year	Index for 10 Principal Crops	Index for All Field Crops
1935-39 (Aver.)	101	99
1945	84	86
1947	92	93
1949	106	106
1951	99	97
1952	107	106
1953	99	98

in current prices, from £E 101.5 million in 1939 to £E 370.2 million in 1953-54, the real increase, taking into account the intervening rise in prices, was probably very small.

The stability of agricultural output in the face of an increase of over 10% in the cropped area has been due to declining yields attributable to a combination of factors including poor drainage, deterioration of seeds and probably some loss of soil fertility. There is some indication that this decline has been halted and reversed. It should be noted that yields are still among the highest in the world. The high productivity of Egyptian agriculture results not only from the high fertility of the alluvial soil, but also from the practice of excellent crop rotations including soil-building leguminous crops, the use of berseem or Egyptian clover for green manuring, the continuous application of considerable quantities of fertilizer and manure and generally intensive cultivation.

Cotton

Cotton is the most important agricultural crop. Although occupying only about 18% of the cropped area, cotton accounted for 35% of the gross value of agricultural production (i.e. exclusive of livestock) in the two-year period 1952-53. More important, cotton contributes over 80% of Egypt's exports. The price of cotton and government marketing policies respecting this commodity not only determine the tread in the balance of payments, but have an important effect on government finances and on the volume of bank credit outstanding.

The cotton produced in Egypt can be classed, by staple lengths, into the following categories: extra-long staple, 1-3/8" and above, represented almost entirely by the Karnak variety grown in the Delta; long-staple, 1-1/4" up to 1-3/8", principally the Giza 30 variety; and medium-staple, 1-1/8" up to 1-1/4", represented almost entirely by the Ashmouni variety. The first and third of these are by far the most important, each amounting for somewhat over 40% of the crop, while the second contributed only around 15% of the output.1/ Although Egypt produces only about 5% of the world's cotton, it does contribute 60% of the output of extra-long staple cotton and 45% of the long and medium-staple cotton.

Because of their superior staple length, all Egyptians cottons fetch premiums over the shorter-staple American cottons. The demand for extra-long staple, which has certain specialized uses such as in the manufacture of thread, tire fabric and fine cloth, has proved rather static. The long-staple competes to a considerable extent with extra-long staple. Finally, the medium-staple is used for virtually the same purposes as short-staple cotton. Its output and export can be expanded provided the premium over short-staple is not too great.

The production and marketing of cotton have been closely controlled by the government. Despite restriction of the acreage, Egypt emerged from the war with large cotton carryovers which were successively reduced until they reached a low of 911,000 kantars2/ (188,775 bales of 478 lbs. net) at the

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1/ Production and export of cotton by staple lengths is given in Table 5 in the Statistical Appendix.

2/ 1 Kantar = 99.05 lbs. or 44.9 kg.

beginning of the 1950-51 season. With the advent of the Korean boom the government removed all acreage restrictions in 1950. Prices shot up, aided by speculation on the Alexandria futures market and the establishment, in March 1951, of floor prices at which the government was prepared to buy any unsold balance of the crop. As a result exports fell sharply in 1950-51 and 1951-52, and by the beginning of 1953-54 the carryover had mounted to 3,443,000 kantars of which the government held 2,680,000 kantars. At the same time the balance of payments developed a growing deficit and the government got into serious financial difficulties. A drastic revision of policies became imperative in 1952. Acreage control was re-established, and in November 1952 the Alexandria futures exchange was closed and the government assumed complete control over marketing. Under the system which has prevailed since then local merchants are free to buy cotton at any price. They must, however, "pass" all cotton through the Egyptian Cotton Commission which sets for each season its minimum buying price and also its re-selling prices. The latter are fixed on the basis of the nearest New York futures contract price of American cotton with premiums for medium and long staple and due allowances for grades.1/

Table 4

Cotton: Supply and Distribution
(Kantars thousands)

Season	Supply				Distribution		
	Carryover		Production	Total Supply	Exports	Local Consumption	Total
	Govt. Stocks	Total					
1937-38			11,009		8,922	511	9,433
1938-39			8.340		8,484	570	9,054
1946-47		7,824	6,066	13,890	6,955	1,099	8,054
1947-48		5,836	6,370	12,206	7,798	1,182	8,980
1948-49		3,226	8,900	12,126	7,883	1,444	9,327
1949-50		2,226	8,704	10,930	8,848	1,286	10,134
1950-51	214	911	8,500	9,411	6,426	1,352	7,778
1951-52	1,114	1,633	8,076	9,709	5,822	1,456	7,278
1952-53	1,816	2,180	9,922	12,102	7,101	1,530	8,630
1953-54	2,680	3,443	7,082	10,524	7,223	1,629	8,852
1954-55	362	1,672	7,700	9,372			

These new measures were effective up to the present season in ensuring the marketing of adequate quantities of Egyptian cotton abroad. Both the minimum buying prices and the selling prices were set at reasonable levels. Exports rose substantially and, since production was also reduced, the government was able to liquidate almost all of its cotton stocks. By the beginning of the 1954-55 season the "statistical position" had improved so much that the government yielded to the temptation to raise prices. The government increased the ECC buying prices by 10-12% which apparently encouraged the withholding of

1/ For the buying and selling prices of the Egyptian Cotton Commission, see Table 6 of the Statistical Appendix.

cotton from the market in expectation of a further rise in prices which failed to materialize. In fixing selling prices it also raised the premiums over American cotton prices from 30% to 40% for Karnak and from 5% to 12½% for Ashmouni. These prices have proved to be too high.1/ Thus by June 8, 1955, only 4.01 million kantars had been exported during the 1954-55 season, as compared with 5.89 million in the corresponding part of the previous season.

Realization of the difficulties caused by these marketing methods led the government to announce in June 1955 steps toward a substantial liberalization of the market. Beginning with the new season, September 1, 1955, the Alexandria futures market will be reopened and export prices will no longer be controlled. While the government will continue to set a minimum price at which it is prepared to buy cotton, the new system should greatly facilitate marketing. It will no longer be necessary for all cotton transactions to pass through the Cotton Commission and the latter will no longer be in the position to set sales prices out of line with world market trends.

Other Crops

While cotton is the crop most important to the economy, Egyptian agriculture is quite well diversified. Cereals, principally wheat and maize, have occupied over the last five years on the average almost half of the cropped area. In an effort to promote self-sufficiency in food, the government has promoted, both during and since the war, the cultivation of cereals by a variety of devices including price supports, government purchases, and, for wheat, prescriptions of acreage and delivery quotas. Despite these measures a considerable wheat deficit developed in the postwar period, although a sharp increase in production in 1953 and 1954 again permitted a significant reduction in imports. In the long run the rapid growth in the population is likely to increase import requirements substantially. Rice is the only cereal exported in significant quantities, but production and export fluctuate sharply in accordance with the availability of water.

Berseem or Egyptian clover, which takes up over 20% of the cropped area, is a very important crop in the rotation scheme. It is used not only as the principal feed for livestock, but also as green manure.

Considerable quantities of pulses are also grown. By far the most important of these is beans which are a staple in the diet of the Egyptian peasant. Onions are worth noting as a crop not because they occupy a large area but because they provide the third largest export after cotton and cotton yarn, accounting in the last three years for about 2.3% of the value of all exports. Finally, it should be pointed out that the area devoted to sugar cane and orchard crops, while modest in relation to the total cropped area, has increased more than proportionately since the immediate prewar period.

1/ The divergence in the spot prices of American and Egyptian cotton is shown in Table 7 of the Statistical Appendix.

Livestock

While agricultural (i.e. crop) production has tended to remain stable over the last few decades, animal husbandry has expanded somewhat. The number of cattle and water buffalos which are the principal source of meat and milk, increased by 21% from 1939 to 1952; and the production of dairy products rose

Table 5

Livestock in Egypt

Year	Cattle	Water Buffalo	Sheep	Goats	Donkeys	Horses	Camels
1939	901,204	887,968	1,896,618	1,088,175	1,069,338	47,058	175,449
1952	1,012,388	1,104,826	1,203,534	703,317	815,655	38,946	164,908

by 30%. On the other hand the total number of goats and sheep fell by 36% during this period, and the number of donkeys and camels, used primarily for transport, dropped by about 20%.

Future Development of Production

With present trends in population growth, it seems clear that every effort must be made to raise agricultural output substantially. The Egyptian government is fully aware of the urgency of this problem and has adopted both short-term and long-term measures to meet it.

In the short run the government is concentrating on improvement of yields, which, although already high, can still be raised. The short-term program concentrates primarily on the propagation and distribution of improved seeds over the three-year period 1953-54 to 1955-56. In wheat the government expects within this period to distribute enough selected seed to cover the entire area devoted to this cereal. For maize the objective is to distribute enough government seed to convert 10% of the area to hybrid maize which yields about 25% more than the traditional varieties; and it is expected that licensed private seed growers will also propagate considerable quantities for distribution. The rice program envisages replacing all the seed now used with new higher-yielding varieties which are said to be resistant also to rice blast. Finally, in 1954 the government initiated a cotton-seed program designed to arrest and reverse the degeneration in cotton varieties which has taken place over recent years. The government, which already has quite effective control over seed distribution, appears to be carrying out all these measures successfully. They involve a subsidy to the growers reported to be about LE 1,183,000 over the entire period

In addition the government is seeking to improve drainage conditions which in some areas of the delta have seriously affected yields. Experiments are being conducted to determine the most effective methods of tile drainage. Other trials are being carried out with the sinking of wells in the hope of achieving the dual objective of lowering the water table and providing some additional water for irrigation.

The government realizes, however, that the only long-term solution is to extend the area under cultivation. For this reason it is determined to build the High Dam (Sadd el-Aali) in Upper Egypt above Aswan. Through this ambitious project, which will probably entail an ultimate investment of about LE 470 million, both public and private, it expects to convert 670,000 feddans of basin-irrigated land into perennially-irrigated land and to put 1,300,000 feddans of entirely new land under irrigation.

If both the short-term and long-term programs are carried out, the cultivated area and cropped area should rise by about 24% and 36% respectively, and, with the increase in yields, total agricultural income might by 1975 be somewhat over one-half greater than in 1953.

After Sadd el-Aali is completed, certain problems regarding the marketing of a much larger output will undoubtedly have to be solved. Foreign markets will have to be found, for instance, for the increased production of fruits and vegetables, and, in view of the competition which may be expected, special attention will have to be paid to processing these products in a form which will make them more attractive to foreign buyers. For cotton, the production of which may well be increased by more than half, it will be all the more important to avoid government interference in marketing. In view of its superior quality, much larger quantities of Egyptian Ashmouni cotton could undoubtedly be sold even in the highly competitive market that will prevail, but only provided its premium over the price of American cotton is determined by the free play of market forces. There is ample evidence that, in view of the profitability of growing cotton in comparison with other crops, the Egyptian cultivator will still have enough incentive to cultivate cotton at prices substantially lower than those at present.

III. MINERAL PRODUCTION

In the field of mineral exploitation the only possibilities which offer some hope for the future are iron ore and petroleum. Deposits of phosphate rock and manganese have been worked for some time. In the last three years the output of these two minerals has averaged, respectively, 515,000 and 219,000 metric tons; and in the future, although production will no doubt fluctuate in accordance with the market, there is little reason to expect that it will substantially exceed this average.

The iron ore deposits in Upper Egypt near Aswan are to be exploited in connection with the new steel plant which will be built at Helwan near Cairo. These deposits are said to be quite extensive and to range in thickness from 0.7 to 1.5 meters. The ore is reported to have an iron content of 50% and is in large part apparently sufficiently close to the surface to permit economical strip mining. Since Egypt possesses no coal, however, the coke to reduce the iron ore will have to be imported.

Crude petroleum has been produced in Egypt ever since 1910. Until the outbreak of World War II it remained rather modest, but thereafter it increased sharply and reached a peak of 2,387,600 metric tons in 1953. In the last three years crude output has averaged about two-thirds of Egypt's requirements of petroleum products. Oil is processed in two refineries at Suez, one, with an annual capacity of 2 million tons, belonging to Anglo-Egyptian Oilfields (Shell), and another, with a capacity recently raised from 0.3 to 1.3 million tons, belonging to the government. The latter has recently announced plans for another small refinery at Alexandria, as well as for a plant producing lubricants. At present the refining capacity is almost equal to Egypt's need for refined products.

The prevailing expert opinion holds that crude output is likely to drop during the next few years. In 1954 there was a substantial decline to 1,986,300 tons. The resources of the existing fields (exploited by Shell and jointly by Shell and Socony-Vacuum), which are located on both sides of the Gulf of Suez, are being rapidly exhausted. A small new field (Ras Matarma) in the Sinai peninsula started producing in 1954 and another somewhat more promising field in Sinai, at El Balaim, is also being developed. It is considered rather doubtful, however, that these and possibly others will be able to compensate for the decline in output from the older producing areas within the next two years.

In the longer run prospects appear more hopeful. The current drop in production is attributable to the virtual suspension of all exploratory work from 1948 to 1953. Adoption of a new law in 1948 restricting concessions to Egyptian companies brought exploration to a halt. In 1953 the new government, anxious to develop the country's resources and more hospitable to foreign capital, enacted a new and more liberal Mines and Quarries Law which opened the way to the granting of numerous new concessions. New concessions have blanketed a wide belt all around the Gulf of Suez and other parts of the Sinai peninsula. For the first time exploration has also been extended to the Western desert area between the Nile Valley and the Libyan border, for which an exploratory concession on liberal terms has been granted.

Around the Gulf of Suez and in the Sinai peninsula there are indications that additional oil will be found and produced. Experience to date and the current knowledge of geologic conditions in these areas tend to confirm a belief that any new fields are likely to be small. While any prediction is hazardous, the best informed opinion is that at best production from these areas might ultimately approximate Egypt's present refining capacity.

About the potential oil resources of the western desert little can yet be said. Preliminary geologic and geophysical studies have provided rather favorable indications and give some support to the hope that, if any oil is found at all, it may be found in considerable quantities. Drilling, however, has just been begun and it will be some time before conclusive results are achieved. The Egyptian-American Oil Company, comprising a group of oil companies which has taken over this concession, has committed as much as $8 million to exploratory work.

If Egypt can develop over the next five or ten years a minimum output of around 3 million tons, present import requirements, entailing an annual outlay of LE 13-14 million, may well be reduced. This reduction is likely to be quite substantial if and when the Sadd el-Aali (High Dam) project is carried out and the hydro-power resources at the dam fully developed, thus permitting the displacement of present thermal plants and the gradual conversion of industry from mechanical to electrical energy.

IV. MANUFACTURING INDUSTRY

The development of manufacturing has compensated largely for the relative stagnation of agricultural output and contributed significantly to the maintenance of the standard of living. Before World War I little manufacturing existed except in the form of small-scale and primarily handicraft enterprises. The period between the two World Wars and particularly the years during and immediately after the second World War witnessed a sharp increase in factory-type production. In the decade 1927-1937 manufacturing employment went up by 66,000 and in the ensuing decade, by 116,000. Out of the total increase of 182,000, factories with 10 or more employees accounted for 153,000. By 1947 manufacturing employment had reached 415,000, but since then it has apparently remained about stationary, being estimated at about 405,000 for 1954. 1/ Production in most industries has, however, continued to increase since 1947.

Existing Industries

The textile industry, particularly cotton textiles, is the most important. Cotton yarn output, which was negligible in 1931, has risen steadily, attaining a record 64,300 metric tons in 1954. Egypt has become more than self-sufficient, net exports in 1953 amounting to 8% of output. Some expansion of the industry, focussed largely on the production of fine yarn for export, is continuing. In the production of cotton cloth Egypt falls only slightly short of self-sufficiency, but it has been unable to sell any significant quantity in a highly competitive world market. The rayon industry has developed rapidly in the last five or six years. In 1954 production of rayon and staple fiber yarn - 6,200 tons - reached about 80% of consumption, and the output of fabrics was, measured in yardage, about a fifth of that of cotton fabrics and sufficient, on a net basis, to supply all domestic demand. The woollen industry is much less significant: yarn production has tended to stagnate in recent years, but the output of fabrics has continued to rise and imports of fabrics are now only about 10% of domestic output. There is a small production of jute fabrics amounting, however, probably to only about 10% of domestic requirements for fabric and sacking.2/

The food and beverage industry ranks in importance with the textile industry. It includes canning, milling, production of alimentary pastes, sugar, candies, glucose, starch, beer and other beverages. Output in these industries has risen generally more slowly than that in the textile industry. Sugar production, however, increased from 162,000 tons in 1946 to a record of 262,000 tons in 1954, and the production of glucose and starch in which Egypt is close to self-sufficiency, has also risen markedly. In such products as macaroni, spaghetti, etc., Egypt can also meet virtually all its requirements. There is some opportunity for further expansion of canning, although imports are very small.

The apparel (clothing and shoes) industry ranks about third, although it is primarily a small-scale and handicraft industry. The industry is by now

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1/ See Table 9, Statistical Appendix for development of manufacturing employment.

2/ Detailed estimates in the output of manufactures are given in Table 10 of the Statistical Appendix.

capable of meeting nearly all domestic requirements although it has difficulty in meeting import competition from the standpoint of both price and quality. Imports of undergarments, socks and stockings have been about halved since 1938, and total imports of knitted wear are now less than £E 1 million annually.

In the field of building materials the production of cement and brick assumes greatest importance. The output of cement, which was 780,000 tons in 1948, reached a peak of 1,237,000 tons in 1954. In 1953, 117,703 tons were exported. Production of flat glass, 7,200 tons in 1953, was about 70% of total domestic supply in that year, but in other types of glassware Egypt remains largely dependent on imports.

In the chemical industry Egypt has, above all, developed the production of matches, alcohol, soap and glycerine, fertilizers and the extraction of vegetable oils. There is a very small output of caustic soda and a few industrial acids. Egypt can supply its own needs in soap and vegetable oils. The production of fertilizers has risen from 71,000 tons in 1950 to 268,000 tons in 1954, although in the latter year imports still amounted to about 521,000 tons.

The paper and printing industries and the woodworking and furniture industries are also of some importance. Egypt has long been the printing and publishing center of the Arab world and exports a considerable volume of Arab books. The production of paper and cardboard has developed since the last war, reaching an output of 24,203 tons as compared with imports, including newsprint, of about 67,000 tons valued at approximately £E 4.5 million.

A small volume of metal and metal products is produced. Iron and steel output, based on scrap, reached 90,000 tons in 1954 as compared with only 1,000 tons in 1948; and there is a small production of copper, also from scrap. Among the metal products produced are a considerable quantity of utensils (mostly handicraft), various items of hardware, razor blades and a large variety of ornamental products. Among miscellaneous manufacturing activities, there is a small output of electric light bulbs, batteries and other items of electrical equipment and some manufacture and assembly of transport equipment. An electric wire and cable plant has recently been established. In addition, the government has set up during the last year a number of plants producing small arms and ammunition.

Prospects for Industry

There are no doubt additional industrial opportunities which will be developed in the future. A plant to produce, in the first stage, about 180,000 rubber tires and tubes annually is expected to open in Alexandria before the end of the current year. Plans are going forward to merge the existing small jute products manufacturing company into a larger enterprise which would produce 20,000 tons of jute sacking and hessian per year. The production capacity for finer cotton yarns and rayon is being further extended. A small company has been formed to produce ceramics (domestic utensils, tile, sanitary ware), although difficulties may be encountered in finding raw materials of satisfactory quality. There are two projects, one or both of which will probably be carried out, to produce writing and printing paper, one from baghass (sugarcane waste), the other from rice straw, cotton and flax wastes and rags. A small company is also being organized with participation of Belgian capital to manufacture goods wagons for the railways.

The largest manufacturing projects planned are a steel mill and a fertilizer plant. A steel mill costing about £E 18 million is to be built at Helwan near Cairo by the German firm of Demag which itself will participate to the extent of £E 1.5 million. The government contribution will be £E 2 million in the form of iron and steel equipment previously purchased in Germany; and it may have to be increased to the extent private financing is not forthcoming. The plant which is to be completed by the middle of 1957 will have a capacity to produce 265,000 tons of ingot and 200,000 tons of finished steel. According to present plans, the fertilizer factory will be erected near Aswan and will utilize the electrolytic process, drawing the necessary power from the hydro plant now being installed at the old Aswan dam. About 400,000 tons of ammonium nitrate would be produced. Although bids for the construction of the plant have been received, the contract has not been let. The necessary financing for the project has not yet been assured. The two plants are expected to make Egypt largely self-sufficient in iron and steel and nitrogenous fertilizers. Whether production will necessarily be economic is another question. It may prove difficult for Egypt to produce steel at a price competitive with the landed cost of imports ex-duty, although Egyptian authorities claim that the delivered cost of iron ore will be so low as to make the iron and steel competitive. Egypt could make fertilizer at a competitive cost, but the most economic process should be selected.

The present government is anxious to stimulate industrial production as much as possible. One of the tasks of the National Production Council, a government organization established in January 1953, is to study industrial possibilities and stimulate interest in carrying out particular projects. The government is also seeking to have the Industrial Bank, an institution founded in 1949 of which the government owns just over half the capital, assume a more active role in promoting new industrial ventures.1/ Under legislation enacted in 1953 and amended in 1955 companies are entitled to rather generous tax exemptions on new ventures approved by the government in the fields of industry, mining, oil, hotels and land reclamation. While the announced policy of the government is to stimulate and encourage private enterprise, its actions have not always been consistent or free of the uncertainty which sometimes deters private initiative. It decided, for instance, to push ahead with a major expansion of the government oil refinery even though the Shell group would have been willing and able to expand capacity. In its anxiety to promote major new projects, it has tended to leave insufficient initiative and leadership to private business whose participation it wants to enlist. The government also manifests from time to time a distrust of the "oligarchic" or "feudal" character of Egyptian business, which was reflected, for instance, in some respects in the amendment to the company law enacted in 1955. Finally, many businessmen were originally repelled by the very rigid restrictions imposed by the new government on the dismissal of personnel, although it is generally agreed now that these restrictions are being more reasonably applied and are, to some extent, a legitimate precaution in a country as overpopulated as Egypt.

1/ In 1954 new loans, credits and direct participations by the Bank amounted to £E 1,711,000 as compared with only £E 1,822,000 in the preceding four years of the Bank's life.

While some established industries will undoubtedly continue to expand and some new industries will be launched and a temporary fillip given to industrial development by a few major ventures in the next few years, it seems probable that over the next decade or two the over-all expansion of the manufacturing industry will take place at a considerably slower rate than in the past 15 years. To a large extent the possibilities of supplying the domestic market at the expense of imports have already been exhausted, at least in the range of goods which Egypt can reasonably be expected to manufacture without unduly high costs. The domestic market is itself very limited, particularly as long as agricultural income tends to stagnate. Complaints of a slackness in domestic market demand are frequently heard. With the exception of a few products such as fine yarn, Egyptian industry is unlikely to find a significant market abroad for some time to come. Efficiency, although rising, is still rather low and costs correspondingly high. Most industries require protection from import competition. While rising public development expenditures will stimulate manufacturing production somewhat, in the long run industrial output will depend largely on the ability to expand domestic purchasing power by lifting agricultural production.

V. SUMMARY OF DEVELOPMENT PROSPECTS

In the next two decades the key factor in developing the production potentialities of Egypt will undoubtedly be the expansion of the agricultural area through the Sadd el-Aali project. It will be primarily instrumental in raising agricultural income by about 50%, and the rise in farm output and farm purchasing power will give a marked fillip to income in the other sectors of the economy, including trade, transport, finance and industry. A much larger volume of agricultural produce, including fruits and vegetables, cotton, oil seeds and cereals, will become available for processing. Income from industry may well rise by more than 50% as the result of the expansion of domestic output, some further import substitution, a limited increase in industrial exports and some rise in mineral output, particularly petroleum. The same may be true of the service sector of the economy.

Even if these production potentialities are realized, Egypt will no doubt face a continuing problem in keeping pace with the growth of population. In view of the probability that the population by 1975 will be about 60% greater than at present, there is little or no prospect that Egypt will have done much more than maintain the present standard of living even taking into account the greater proportion of children in the population by 1975. Maintenance of this standard will, however, represent no mean achievement. In the longer run the prospects may improve, for it is entirely possible that in time the decline in the mortality rate will be followed by some drop in the birth rate, thus diminishing population pressure. Moreover, it must not be supposed that once the expansion of agricultural production through Sadd el-Aali and the corresponding increases in incomes in other sectors

of the economy have been realized, no additional development potential will remain. The agricultural area may be further expanded by such projects as the Jonglei canal scheme in the Sudan, by the use of underground water for irrigation and by possible economies in the use of irrigation water. More important, it can reasonably be expected that in the long run significant strides will be made in industrial productivity and that this, with the accompanying wider dissemination of industrial know-how and skills, will enable industry to undertake a much wider range of manufacturing activities and to export in considerable volume, thus permitting it to contribute a growing proportion of the national income.

Meanwhile, it is important that the government pay greater attention to the population and do everything in its power to encourage and accelerate a decline in the birthrate.

VI. PUBLIC FINANCE AND DEVELOPMENT

During the last two years the government's preoccupation with the task of accelerating development of the country's resources has been increasingly reflected in the budget. For the future the principal problem will be how to finance growing public development outlays without resorting to inflation which would put serious pressures on the balance of international payments and on prices.

Financial Operations in Recent Years

Before considering this problem, it is advisable to review briefly the government's financial operations during the four years preceding 1953-54. In 1949-50 the government's financial position was quite satisfactory. The government was able to reduce its debt and at the same time strengthen its cash resources, partly because its cotton stocks declined and, above all, because the budget, while showing an "accounting deficit," actually led to a cash surplus. In the following three years, however, the situation deteriorated rapidly. While the budget deficit mounted, particularly during 1951-52, the primary cause of the deterioration was the government's cotton

Table 6

Government Financial Operations

(£E millions)

Year	Balance of Revenues and Expenditures: Under Budget	Outside Budget	Total	Offsetting Government Borrowing	Changes in Government Cash Resources
1949-50	- 5.27	+ 34.30	+ 29.03	- 11.0	+ 18.03
1950-51	- 5.44	- 49.26	- 54.70	- 1.0	- 55.70
1951-52	-38.77	- 23.57	- 62.34	+ 24.0	- 38.34
1952-53	-10.23	- 49.50	- 59.73	+ 65.0	+ 5.27

and supply transactions which were financed outside the budget. In order to keep the price of cotton high the government accumulated large cotton stocks which, of course, had to be financed. At the same time it bought large quantities of cereals, flour and even cotton yarn and textiles on the domestic and also on the foreign market for the twin purpose of supporting the prices received by producers and subsidizing the prices paid by consumers. Although losses on sales were supposed to be covered out of the budget, there was no close relationship between these losses and the budget allocations for "reduction of living costs". Besides, the government apparently continued to increase its stock of these commodities until the end of 1952-53. As a result of these and a number of other transactions the government's cash resources during the 3-year period 1950-51 to 1952-53 dwindled by £E 88.57 million despite net new borrowing of £E 88 million.

This picture looks only slightly better when it is considered that the government's holdings of its own debt increased by about LE 11.5 million during this period.

The last two years - 1953-54 and 1954-55 - have witnessed marked changes in the government's financial position. On the one hand, the government has embarked on a large program of capital expenditures which lifted the total estimated budget deficit to LE 35.58 million in 1953-54 and LE 52.57 million in 1954-55. (See Table 7 on Government Budget.) Although final figures on

Table 7

Government Budget [a]
(LE millions)

Government Revenues	1949-50	1950-51	1951-52 [b]	1952-53	1953-54 est.	1954-55 est.
Tax Revenues						
Taxes on income and wealth	16.27	17.45	23.70	26.35	23.25	21.25
Taxes on land and buildings	9.74	11.07	19.00	18.07	22.53	22.71
Export duties	6.68	13.29	13.21	14.45	15.05	15.32
Taxes on consumption & production	67.48	78.94	76.72	70.36	73.16	81.58
Stamp duties	2.44	2.45	3.71	5.06	5.25	5.25
Sub-total	102.61	123.20	136.34	134.29	139.24	146.11
Non-tax Revenues						
Commercial activities & capital [c]	25.20	25.74	27.02	28.02	30.58	44.10
Other	30.73	36.80	30.71	35.84	27.69	31.64
Sub-total	55.93	62.54	57.73	63.86	58.27	75.74
Total Revenues	158.54	184.74	194.07	198.15	197.51	221.85
Government Expenditures						
General						
Salaries, wages, pensions, etc.	39.33	57.38	67.51	72.20	72.59	77.19
General expenditures	34.07	37.06	39.01	30.76	32.36	38.52
New works	21.98	25.25	26.67	18.76	18.87	22.44
Other expenditures	15.60	20.79	33.23	28.64	21.44	15.86
(Debt amortization)	(2.24)	(2.24)	(2.24)	(2.26)	(2.26)	(2.26)
(Support of Suez Canal Zone workers)				(6.79)	(6.00)	(4.60)
(Reduction of living costs)	(7.11)	(12.20)	(18.30)	(13.43)	(6.26)	(1.73)
Armed forces	32.08	27.16	37.22	29.75	28.13	38.30
Sub-total	143.06	167.64	203.64	180.11	193.39	192.31
Commercial activities [c]	20.75	22.54	29.21	28.27	24.12	35.54
Extraordinary capital expenditures					35.58 [d]	46.57 [d]
Total Expenditures	163.81	190.18	232.85	208.38	233.09	274.42
Balance	- 5.27	- 5.44	-38.77	-10.23	-35.58	-52.57

a/ Exclusive of budgets of certain institutions including University of Cairo, University of Alexandria, University Ibrahim Pacha el Kebir, Egyptian Broadcasting System, Kalioub Training Center, Government Insurance and Savings Fund, Agrarian Reform, Permanent Council for the Increase in National Production (administration only), University of El Azhar and Religious Establishments for which, to the extent government financial support is required, funds are allocated in the government budget.

b/ Period of 16 months, including 4-month period March-June 1951 for which special budget was adopted because of change in fiscal year from March-February basis to July-June basis.

c/ Including operations of the state railways, telephone and telegraph administration, postal administration and the government refinery whose gross receipts and expenditures are blanketed in the budget.

d/ Authorizations for "projects for the increase of national production" (National Production Council) and for 1954-55 also for the Foundation for School Construction (LE 4,325,000) to the extent not covered by receipts from the budget. Projects of the Council of Public Welfare Services are excluded.

expenditures are not available and a large part of the appropriations on capital account were not spent, a substantial increase in actual budget outlays undoubtedly took place. On the other hand, the reversal by the present government of the previous cotton policy and a considerable reduction in supply transactions brought about a liquidation of government stocks and put substantial extra-budgetary cash resources in the government's hands. In fact there has been a net improvement in the government's financial position. During 1953-54 the government debt was actually reduced by £E 28 million and, while no data on the government's total cash resources are available, the government's balances with the National Bank of Egypt increased by about £E 2.9 million. In the first 8 months of the 1954-55 fiscal year (i.e. up to the end of February 1955) net borrowing by the government amounted to £E 24 million, largely as the result of the flotation at the end of 1954 of three development loans totaling £E 25 million, but the government's balances with the National Bank during this period rose from £E 5.2 million to about £E 35.0 million or by £E 26.8 million. The government's operations during the last two years have undoubtedly been deflationary in effect.

The relative ease with which the government has been able to finance its budget expenditures, including growing capital outlays, during the last two years, provides no assurance that the same situation will obtain in the future. As already indicated, substantial extrabudgetary resources have temporarily been available and there has inevitably been a lag in getting the capital expenditures under way. Although data on actual expenditures for the last two fiscal years are not yet available, the National Bank has reported that by the end of November 1954 only £E 13 million out of the capital appropriations of almost £E 36 million for 1953-54 had been spent. It is likely that for the fiscal year ended June 30, 1955, actual disbursements on capital account were no more than 60-70% of the total appropriated.

Development Programs

To examine the prospects of financing an expanding development program, it is necessary first to estimate the probable magnitude of expenditures and then to assessthe probable financial resources.

Development expenditures are now grouped under three headings:

(1) Projects "to increase national production". These are to be carried out for the most part under the supervision of the National Production Council, a body of 22 members consisting of representatives of the ministries concerned and outside experts which was established in January 1953 to study and promote projects for the development of Egypt's resources. Some, however, are entrusted to other agencies. Total budget authorizations under this heading amounted to £E 35.6 million in 1953-54, £E 42.3 million in 1954-55 and according to preliminary reports, may be £E 53 million in 1955-56. This budget, however, is a "catchall" for all sorts of projects of which many are not ready for execution and others may never be carried out. Since actual spending has been far below the target each successive budget contains a substantial carryover in appropriations from the preceding year. While

the budget is on an annual basis, much of it is for approved projects and programs which extend some years ahead.

(2) Budget of the Council for Public Welfare Services. This agency, a counterpart of the National Production Council in the field of social services, was created by law in November 1953 to make plans and policies for, and supervise projects in, education, public health, town planning and social welfare. For the year 1954-55 projects with a total cost of £E 14.5 million were approved, although it is obvious that most of these will be carried out only in subsequent years. The original idea underlying the establishment of the Council was apparently that the proceeds of the confiscated property of the Mohamed Ali (former royal) family were to be used to improve the conditionsof life of the common people in both rural and urban areas, but it has become clear that the Council's program as it is developing will far exceed the income which can be realized from this property.

(3) Fund for School Construction. Beginning with 1954-55 a special fund for school construction was established. It is intended to defray construction expenses through borrowing and to have the Ministry of Education pay in instalments for completed buildings out of its annual budget. For the year 1954-55 the budget of the Fund was fixed at £E 4.82 million of which £E 0.5 million was to come out of the budget of the Ministry.

The total of these capital outlays approved for 1954-55 - namely £E 61.6 million - is undoubtedly extremely large. If the government really contemplated spending this much annually on development quite apart from the cost of carrying out the Sadd el-Aali project, the resulting burden would be well beyond Egypt's capacity to finance. Sadd el-Aali itself is likely to require a total public investment of about £E 333 million over approximately 15 years and an average annual outlay of almost £E 30 million over the next 10 years.1/

The budgeted capital outlays, however, unquestionably exaggerate considerably both the current and prospective actual expenditures on development. It would be surprising if such expenditures have much exceeded £E 35 million during 1954-55. In its anxiety to overcome the neglect in the past and to do something effective for development and public welfare, the government has approved many projects which will probably not be carried out or will be implemented on a much smaller scale. Expenditures on a considerable number of projects and programs included in the 1954-55 budget will decline sharply in the next few years.

Nevertheless, there is little doubt that the government has been ill-advised in approving time after time projects and programs entailing large commitments for future spending without fully taking into consideration the resources which would be available to finance them. It is impossible today to obtain an accurate picture of the total financial commitments which the government has undertaken. Moreover, there has been a proliferation of agencies charged with various development programs and little overall planning and direction.

1/ See Annex "Estimated Investment in Sadd el-Aali".

A brief analysis of the various programs involving spending commitments for the years 1954-55 and subsequent years may be useful:

Railways - This program includes about £E 2.5 million to complete electrification of the Helwan (Cairo suburban line), about £E 13 million for urgent renewals of track and rolling stock, about £E 3.5 million for other projects. The renewals program is no doubt urgent, for maintenance and replacement on the Egyptian State Railways has long been neglected. The whole program is scheduled for completion by the end of 1956-57 although it will probably take two years longer and some additional expenditures on renewals may well be considered necessary.

Navigation - Projects totaling around £E 5 million for completion of certain navigation canals and, above all, for expediting the canal traffic between Cairo and Alexandria have been authorized. The program which will take at least till 1959-60 to complete is probably justified by the important role of water transport in Egypt. Significant additional outlays will probably be unnecessary.

Roads - The provision of £E 8.9 million for this purpose, including provision for a new highway between Cairo and Alexandria through the Delta, is apparently only the first "short-term" instalment of an ultimate, much more ambitious program. While there will undoubtedly be considerable pressure to add to the present commitments, the priority of further road investment will need to be carefully reviewed in view of the availability of rail and water transport throughout most of Egypt, the relatively small number of motor vehicles (89,000 in 1953) and the dry climate which makes dirt roads rather easy to maintain and serviceable during the whole year.

Telecommunications - The extension of the telephone service, to which nearly all of the £E 17 million is devoted, appears to be rather urgent. Moreover, this program, which is to continue over another 5-6 years, is likely to be financially self-liquidating within a short period as the result of higher telephone receipts.

Electric power - The amount of £E 29.5 million is earmarked for the completion of the hydroelectric works at the existing Aswan dam (£E 17.7 million) which is to start operating about 1959 and for the construction of a new thermal station in Cairo and accompanying distribution facilities (£E 11.8 million). Presumably no additional major projects will be necessary if the Sadd el-Aali project with its large hydro plant is carried out.

Oil refinery and pipeline - The two projects under this heading are the expansion of the government oil refinery from 300,000 tons to 1,300,000 tons, which is now virtually completed, and the construction of a "black-products" line between Suez and Cairo, which is scheduled for completion within the next year.

Land reclamation and settlement - £E 13.1 million has been authorized for this purpose, primarily for projects in Behera and Fayoum provinces which are being carried out under the joint Egyptian-American auspices and in the newly created Tahreer (Liberation) province on the western edge of the Delta by a special agency of the Egyptian government. These are intended not only to reclaim new land, but also to establish model villages which will provide much better living facilities than the Egyptian fellah has had in the past. Although praiseworthy in their intent, they appear to set standards in housing and community facilities which Egypt will hardly be able to afford if generally extended. Moreover, certain aspects of the contemplated operation of the Liberation project, involving communal or collective farming, seem quite impracticable and visionary.

Irrigation and drainage - Although the National Production Council has projected the expenditure of large sums for this purpose, most of this program has evidently not been worked out in terms of detailed projects; and the greater part probably is intended to cover schemes which will later be blanketed in under the Sadd el-Aali project which must be carried out if significant additional water is to be made available for irrigation.

Other agricultural development - Of £E 22.5 million committed under this heading, a considerable part (£E 9.4 million) is earmarked for the distribution of improved seed over the next few years. The cost of most of this will be recovered from the farmers. Projects for control of livestock diseases, afforestation and improvement of drainage in certain cultivated areas are also included. At least one project involving a tentative cost of £E 4.5 million and designed to expand rice cultivation with water from artesian wells, may not be carried out.

Industrial projects - The government will probably put up some of the capital required for the major steel and fertilizer projects, but the amount of its commitment remains highly uncertain.

Rural community centers - This is one of the major programs of the Council of Public Welfare Services which already has undertaken to construct 200 of these centers and envisages spending a total of about £E 31 million on 1,000 of such centers over the next five years. Each center, serving a number of villages, will include hospital and school facilities and is intended to bring government services down to the community level and to stimulate self-improvement and cooperative self-help among the rural population. Although this program appears to be well planned and sound in conception, its phasing in relation to pressing economic investment needs may require consideration.

Potable water program - In 1954-55, £E 5.5 million was budgeted for this project which also falls under the Council of Public Welfare Services, but this sum is only the first instalment on a £E 31.5 million program to provide safe potable water supplies for about 10 million people, primarily in the rural areas, within the next three or four years. This program will no doubt make an important contribution to public health and welfare, although the speed with which it is to be carried out may [illegible] to be reviewed.

Other projects of Public Services Council - About £E 4.4 million was committed in 1954-55 for certain special hospitals, an anti-tuberculosis campaign, and some housing for laborers, students and policemen. These will probably be supplemented by others in ensuing years.

Schools - It is not clear to what extent the £E 5 million for the School Construction Fund for 1954-55 will be increased in the future, particularly in view of the inclusion of schools in the projected community centers.

Additions to these commitments are constantly being made and still others are being discussed. Among the latter are certain port works for Alexandria and Suez, establishment of a mercantile marine, a large program of municipal improvements and the construction of grain silos at Cairo and Alexandria which have long been considered essential.

The "commitments" outlined above are for expenditures on projects and programs beginning with 1954-55 and continuing for varying periods ranging from 1-2 years to as much as 6-7 years. Considering the probability that about £E 35 million was spent in 1954-55, that much of the expenditure on irrigation and drainage projected by the National Production Council will probably overlap with the cost estimate of Sadd el-Aali and that most, if not all, of the outlays on telecommunications are likely to be self-liquidating over a rather brief period, the net expenditure commitments of the government outside the regular budget may be around £E 130 million for 1955-56 and subsequent years. Over the next decade there will undoubtedly be considerable pressure to add to these commitments which in the main cover a period of five years or less. Within this period will also fall almost 90% of the public investment on Sadd el-Aali, or approximately £E illion.

From the above it will be obvious that the present government has adopted a rather pellmell approach to development. To its credit it can be said to have overcome the comparative lethargy of the past and imparted a new dynamism and elan to the country. However, it is seeking to move ahead on all fronts at once and at a speed out of all proportion to organizational and managerial capacity and to the financial resources prospectively available. While financial strains have not yet appeared owing to extraordinary, but temporary resources and the slowness in getting programs under way, they will increasingly appear if the Sadd el-Aali project is simply added to present and prospective development commitments. This danger must be anticipated. There is an imperative need at an early date to establish a high level body assisted by a small group of able experts who would review existing programs, determine priorities and draw up an integrated plan which would keep within the financial resources estimated to be available. Such a task cannot, of course, be done once and for all but must be continuous in the light of adjustments required by experience and changing circumstances.

Potential Financial Resources for Development

At present only a very rough estimate of potential financial resources can be made. Little is known, for example, regarding the volume of private

and public investment in the past and the rate of savings. Moreover, any attempt to predict the probable amount of private investment in the future for which resources must also be found is exceedingly hazardous. Nevertheless, some effort to assess the probable resources must be made. A tentative estimate of these resources is made below. Attention has been focussed on the next decade, for during this period the expenditures on Sadd el-Aali will be continuously heavy and the government will also be under heavy pressure to carry out other development projects which will have a more immediate impact on the social and economic welfare of the people.

In this estimate the possible sources (other than foreign borrowing) of financing capital outlays outside of the ordinary budget have been classified as follows: (1) ordinary budget savings and increased tax receipts; (2) borrowing from the National Bank; (3) borrowing from the public; (4) extraordinary resources, and (5) foreign assistance. Each of these will be discussed in turn.

1. Budget Savings and Increased Tax Receipts

Whether or not resources can be found within the regular budget to finance capital outlays outside this budget is rather problematic.

Estimated tax receipts under the 1954-55 budget - £E 146.1 million - amounted to about 17% of estimated national income for 1953 and were about 42% higher than in 1948-49, but probably only about 25% higher in real terms. It is doubtful that an equally rapid increase can be anticipated in the future because (a) production is unlikely to expand rapidly, (b) tax exemptions are being accorded to new industrial ventures and (c) a reduction in imports resulting from new industrial ventures is likely to lower customs receipts which were estimated at £E 23.75 million for 1954-55 or 16.2% of total tax receipts. Nevertheless, some increase in government receipts can be expected. Although a large part of increasing development outlays will be spent abroad, the portion spent at home will undoubtedly have a limited "multiplier effect", raising national income and tax receipts. With the current investment in telecommunications, railway rehabilitation and expansion of the government refinery, government enterprises may well show more favorable financial results in the future. Moreover, receipts can undoubtedly be raised by improved tax administration on which the Ministry of Finance is currently working with the help of some U.N. technical assistance. There is a very large backlog of unpaid taxes, and more effective administration might double the yield of the global income tax which was estimated at £E 3.25 million in 1954-55.

It is doubtful, however, that over the next decade receipts will increase more rapidly than regular government expenditures. On some accounts expenditures can probably be reduced. Thus appropriations for the support of striking workers on British basis in the Canal Zone, for which £E 4.6 million was still included in the 1954-55 budget, will no longer be necessary; and appropriations for "new works" in the regular budget may diminish somewhat with the incorporation of development projects in various special budgets. Yet total expenditures under the ordinary budget will undoubtedly rise. In the past they have increased almost steadily. The building of

schools, hospitals and community centers to which the government is committed will entail larger operating expenditures. Under the 1955-56 budget, outlays on education and public health have already been increased by £E 5.4 million and total regular budget expenditures for this year have been fixed at £E 238 million as compared with £E 228 million for 1954-55. Finally, army expenditures may rise further with the take-over of Canal Zone bases from the British, although appropriations for the Army were already raised to £E 38.3 million in the 1954-55 budget as compared with an average of £E 31.7 million in the preceding three years.

The Egyptian government should undoubtedly undertake a careful review of expenditures and receipts under the regular budget with a view to determining whether some resources cannot be released for extrabudgetary capital outlays or of ensuring, as a minimum, that there will not be an ordinary budget deficit. Pending such a review it would not be prudent to expect that regular budget surpluses will be available to finance extrabudgetary development expenditures. An amount of £E 2.25 million for debt amortization has, however, been regularly included in the budget; and it is therefore not unreasonable to expect that at least this amount can be spared from the regular budget as an addition to the resources made available from net new government borrowing which are mentioned below.

2. Borrowing from the National Bank

Early in May 1955 the government arranged to sell to the National Bank over a period of years securities with a maximum maturity of 15 years up to a total of £E 100 million. With the proceeds of this borrowing the government is to acquire free sterling from the Bank for financing development. By the end of April 1955 the Bank's holdings of gold and foreign assets still amounted to about £E 260 million, including approximately £ 50 million of free and £ 132 million of blocked sterling. If these holdings were reduced by £E 100 million, the remainder would still almost equal the average annual value of imports in the last two years and represent about 89% of the current note circulation. Such a draft on the country's foreign reserves for development accordingly appears justified and might well be increased over the ten-year period, particularly if experience over the next few years indicates that Egypt can keep its international payments for otherthan these extraordinary development outlays within its current receipts. Insofar as this reduction of foreign balances will affect, however, sterling balances, it will be partially contingent on an agreement with the British for further releases from the "hard core" of £ 80 million blocked sterling which is not covered by the existing sterling release agreement.

Another law enacted early in May 1955 authorized the Ministry of Finance to issue £E 150 million in Treasury Bills and an additional £E 50 million with the approval of the Council of Ministries. Under

previous legislation the limit was also fixed at £E 150 million, but Treasury bills could be used only for financing cotton and for residual backing of the currency issued by the National Bank. In the latter case the government received no counterpart in disposable funds. By the end of February 1955, £E 36 million in "cotton bills" and about £E 42 million in "currency-backing bills" were outstanding. The old regulations governing the issuance of Treasury Bills were probably unduly restrictive, and the new legislation will give the government greater flexibility in financing, particularly in periods when conditions may temporarily be unfavorable to refinancing of maturing loans or to the flotation of additional government loans. A sharp increase in the resort to Treasury bills would, however, have inflationary consequences, so that the government cannot safely rely on this means to increase significantly over the long run the resources available for financing development.

3. Borrowing from the Public

Toward the end of 1954 the government floated three development loans: (1) a 2½% 5-year loan of £E 5 million, subscribed almost entirely by banks excluding the National Bank; (2) a 3% 10-year loan of £E 10 million of which the Post Office Savings Bank took £E 6 million and the National Bank absorbed a residual amount of £E 3.5 million; and (3) a 3½% 15-year issue of £E 10 million which was subscribed by insurance companies, provident funds, companies and a large number of individuals.

This operation, although surprisingly successful, does not necessarily give a correct indication of the magnitude of future borrowing. It is generally conceded in Egypt that borrowing on this scale cannot be envisaged year after year. Bank subscriptions, for instance, were conditioned on assurances that the National Bank would provide additional credit accommodation to the banks on the basis of their securities when and if they required it for seasonal cotton financing or other needs. Subscriptions to the 10-year issue hardly represented true savings, not only because the National Bank had to take up a substantial residual amount, but also because deposits in the Postal Savings Bank, the largest subscriber, have remained virtually stationary and even declined somewhat over recent years. It may also be noted that insurance companies had accumulated funds over the last few years which they were required by law to invest in Egypt and for which they had not found sufficient eligible securities.

Nevertheless, by and large the success of this loan operation exceeded expectations; and certain factors, particularly relating to the long-term issue, give ground for some optimism about the government's future borrowing capacity. The number of subscribers to the long-term loan - 2,987 - was surprisingly large, and there was a gratifying number of small subscribers.

There were 2,356 subscriptions of less than £E 500 each, totaling £E 395,000 and 2,868 subscriptions of less than £E 5,000 each, aggregating £E 1.35 million. It has also become evident that more and more savings are taking institutional form and therefore can be more readily mobilized. The number and assets of insurance and provident funds has been steadily rising.

Various types of funds are likely to be the principal reservoir of government borrowing. Assets of insurance companies have been increasing at the rate of £E 3-4 million per year of which perhaps a third to a half might be regularly invested in government securities. The resources of the government Assurance and Provident Fund are rising at an annual rate of approximately £E 4 million most of which will be available for loans to the government. The government apparently intends shortly to enact legislation requiring all companies employing more than 50 workers to participate in a common Provident and Insurance Fund. According to present plans 12% of annual salaries and wages or £E 6.7 million would be contributed to this Fund. In essence this would be a compulsory saving scheme financed by both employers and workers. While some such scheme is likely to be adopted, accumulations in a Fund of this sort will probably not fully represent a net increase in savings, since the companies' capacity for self-financing their investments may decline and there may also be some drop in other insurance taken out. Some increase in savings available to the government may take place by cooperative societies which the government is intent on promoting particularly in connection with agrarian reform measures. The Wakf or Moslem religious foundation will probably also have an annual surplus of £E 0.5 million, part of which will be invested in government securities.

The extent to which the banks, who subscribed almost the entire 5-year £E 5 million issue at the end of 1954, will be able to absorb additional government loans will depend in large part on the development of their deposits in relation to the demand for business credit. Past experience does not give ground for much optimism. From the end of 1952 to the end of 1954 total deposits with the clearing and non-clearing banks rose by £E 24.3 million or by about 16%, while discounts, loans and advances increased by £E 31.4 million or by 26%. Investments did not change significantly. Prices at the end and the beginning of this period were approximately the same.

The proportionately higher increase in bank lending was made possible by a rise in bank borrowing and some decline in cash and balances with the National Bank. Since the position at the end of 1954 was somewhat distorted by the abnormally high volume of bank credit outstanding owing to the slow marketing of the cotton crop, a comparison between September 1952 and September 1954 might be more appropriate. The same picture, however, emerges from this comparison, although both deposits and loans, discounts and advances rose more slowly (7% and 21% respectively). Even if data (available only for clearing banks) for a longer period are taken, it appears that between the middle of 1949 and the Middle of 1954 deposits rose by £E 17.5 million while loans, discounts and advances increased by £E 34.9 million. It is possible, of course, that over the longer-run future - say 10 years - this

Table 9

Changes in Bank Balance Sheet Items [a]

(£E millions)

Items	Clearing and Non-Clearing Banks						Clearing Banks		
	Sept. 1952	Sept. 1954	Change	End 1952	End 1954	Change	Mid-1949	Mid-1954	Change
Discounts, loans and advances	90.0	108.9	+18.9	113.6	145.0	+31.4	55.4	90.3	+34.9
Investments	18.3	17.7	- 0.6	17.0	18.8	+ 1.8	18.2	15.6	- 2.6
Deposits	150.1	161.7	+11.2	149.5	173.8	+24.3	125.6	143.1	+17.5
Cash and balances with National Bank	60.1	50.4	- 9.7	42.2	37.9	- 4.3	48.1	46.1	- 1.6
Borrowings	0.7	0.9	+ 0.2	4.2	13.0	+ 8.8	-	-	-

[a] See Tables 15 and 16, Statistical Appendix, for fuller banking data.

trend may be reversed. With a slower increase in industrial production and a more or less stable cotton crop, deposits may rise somewhat more rapidly than bank credit, thus leaving the banks some margin for increasing their investments.

Some government deficit financing through the banking system may be justified in any event even if it results in increased borrowing from the central bank, because normally some money disappears into hoards. The extent of currency hoarding is indicated by the high-proportion of notes of large denominations in the currency circulation. Thus at the end of 1954, 72.3% of the note issue consisted of notes of £E 5 and over and 44.7% of notes of £E 10 and over. A considerable portion of the larger category and probably most of the smaller category represents hoarded currency. As indicated in Table 10 in times of high cotton prices and high incomes such as the years 1950-1952 the amount of large-denomination notes issued rises sharply. Since 1950 the proportion of such notes to the total issue has remained very high even though the absolute amount has fallen since the end of 1952. Normally and over a long period some net increase in the amount of currency hoarded can probably be expected. Thus from the end of 1949 which preceded the abnormal cotton boom to the end of 1954 the amount of currency in notes of £E 5 and over and in notes of £E 10 and over increased respectively by £E 9.9 and £E 5.8 million. In addition some gold is usually hoarded. Thus imports of

non-monetary gold amounted to £E 4,815,000 in 1952, but dropped in the less prosperous years of 1953 and 1954 to £E 240,000 and £E 124,000.

Table 10

Note Issue
(£E millions)

End of	Total	£E 5 and over		£E 10 and over	
		Sub-total	% of total	Sub-total	% of total
1945	119.1	83.6	56.5	50.2	33.9
1949	134.1	99.6	57.3	62.7	36.0
1950	146.0	106.9	73.9	66.8	45.8
1951	160.0	115.1	71.9	71.7	44.8
1952	158.3	116.6	73.7	71.0	44.8
1953	147.5	106.7	72.5	64.0	43.5
1954	153.2	109.5	72.3	68.5	44.7

Individuals, companies, etc., can probably be counted on to invest moderate sums in government securities. Their willingness to make such investments will depend in part on the relative attractiveness and availability of other investment opportunities and in part on the degree of confidence inspired by the government. If the government remains stable and demonstrates its capacity for a constructive approach to economic development, public confidence, which has already become evident, will presumably continue to grow. Small savers are apparently showing some interest in investing in government paper and the government is apparently drawing up a plan to mobilize these savings through the issuance of savings certificates.

Alternative investment opportunities in the long run may not be as great as in the postwar period 1946-52. Although data are lacking, it is generally conceded that a large part of private savings during this period went into urban construction, particularly of luxurious apartment dwellings. Demand for such buildings has declined and new construction fell sharply in 1953. Although there was some revival in 1954 and the government is trying to stimulate the building of housing for lower income groups, it is unlikely that new private construction in the future will attain the volume of the immediate postwar period. It has already been indicated that new investment in industry is likely to be rather modest once the few major ventures now contemplated are completed. The Sadd el-Aali project will entail a considerable volume of private investment in land reclamation and housing, but most of this will be required after the initial 10-year period during which almost 90% of the government expenditures on the project will probably be incurred.

In the light of the above, it is not improbable that the government will be able on the average to raise £E 15 million annually through public loans. While obviously only a first and rough approximation, this estimate checks with the informed opinion of the Egyptian financial community. How

it compares with total private savings is difficult to determine, since no reliable estimates of such savings exist. Informed guesses indicate an annual total of LE 40-50 million (i.e. 4.7 - 5.8% of estimated national income in 1953), but such guesses are largely "intuitive" in character.

4. Extraordinary Resources

These resources consist of (a) government cash balances in excess of working capital requirements, (b) proceeds from the sale of property confiscated from the former royal family, and (c) funds accruing to the agrarian reform organization.

At present the government has considerable cash balances which are probably in excess of the working balances which need generally to be maintained. If they are still high at the beginning of a period for which a development program and a corresponding financing plan have been drawn up, the possibility of some reduction in these balances can be contemplated. While the use of cash reserves is inflationary in effect, the magnitude of this effect is not likely to be very significant particularly if the reserves are drawn down gradually.

The confiscated former royal property is claimed to have a realizable value of at least LE 50 million. Little of this, however, is liquid. About LE 40 million represents land which is to be distributed by the agrarian reform organization and for which 30-year bonds are to be issued to the Council of Public Welfare services for financing its projects. The Council has tentative plans of borrowing money from the National Bank on the security of these bonds, but this operation would clearly be inflationary and undesirable. Its average annual income from these bonds will therefore not be over LE 2.5 million. For the peasants benefiting from the distribution of the land this sum will probably represent in large part additional saving.

At present the agrarian reform organization is accumulating substantial surpluses because it is paying only interest on its bonds while receiving both interest and amortization payments from the peasants to whom land has been distributed. While this surplus is for the time being available to the government, the latter cannot escape its obligation to start amortization payments on these bonds without seriously affecting its credit.

5. Foreign Assistance

Up to the beginning of 1954-55 Egypt had been allocated $15.8 million in U.S. technical assistance and economic aid. The first substantial economic aid program, however, was launched in 1954-55 when $40 million (LE 14 million) was made available, including $7.5 million in the form of a loan repayable in local currency. Of the total, $10.1 million has been allocated for highway projects, $4.3 million for waterways improvement, $16.1 million for railways and $7.5 million for potable water supplies. Only about 10% of this total has been disbursed by the end of 1954-55. In view of the interest of the United States in stimulating economic development and promoting stability in the

Middle East, aid may be expected to continue. While it is difficult to hazard a guess as to the amount, an additional LE 25-40 million may well be forthcoming over the years immediately ahead.

6. Total Resources

Summing up, it may be estimated that over the next decade Egypt's resources, apart from foreign borrowing, might be roughly as follows (in LE millions):

External (foreign exchange) resources		
Borrowing from National Bank (minimum)	100	
Foreign assistance	35	
Sub-total	135	
Domestic resources		
Regular budget resources	25	
Public loans	150	
Extraordinary resources	35	
Sub-total	210	
Total		345

While some additional funds may be obtained by borrowing abroad and a more thorough study may yield a higher estimate of available resources, it will no doubt be imperative to take drastic steps to keep development expenditures from exceeding the resources. Against the total of LE 345 million estimated above must be put probable expenditures of LE 295 million on Sadd el-Aali over the next 10 years and other development commitments of around LE 130 million already undertaken by the government for the years immediately ahead. The necessity for a thorough screening and proper programming of all expenditures on this account clearly emerges. Alongside of Sadd el-Aali which will have its impact on living standards only after a rather long period, the government will undoubtedly have to carry on certain development projects which are sorely needed such as railway rehabilitation and those which are likely to be of more immediate benefit to the people such as schools, hospitals and community centers. However, the pace at which it carries out such projects and the amounts it allocates to them will have to be carefully tailored to the resources available. A careful programming of expenditures and resources will have to keep in mind that, while the available resources which for the immediate period seem quite ample, they must be carefully husbanded to meet the heavy expenditures which are likely to continue over the next decade.

VII. FOREIGN TRADE AND BALANCE OF INTERNATIONAL PAYMENTS

Recent Evolution

Egypt's balance of trade and payments has always been very much conditioned by cotton and the government's policies relating thereto. From 1950 to 1952 inclusive the balance of payments was characterized by growing deficits because the government was buying cotton at high prices, thus inflating domestic purchasing power, and withholding the cotton from the world market thus preventing export earnings from rising as rapidly as the demand for imports. While the foreign exchange proceeds of exports continued to rise from £E 138.7 million in 1949 to a peak of £E 201.9 million in 1951 or by £E 63.2 million, foreign exchange disbursements on imports rose from £E 158.3 million to £E 241.9 million or by £E 83.6 million. With the deterioration in terms of trade and a sharp drop in exports during 1952, the government had to impose severe restrictions on imports. Beginning in October 1952 all imports were subject to individual license. The government also adopted various foreign exchange devices to stimulate exports and discourage imports. Thus in March 1953 it inaugurated the "import entitlement system" whereby exporters who repatriated dollar and sterling exchange (later also West German exchange) were enabled to get transferable "entitlements" conferring a right to import certain articles not otherwise obtainable. These entitlements have been granted to the extent of 100% in return for cotton yarn and cloth exports and of 75% in return for raw cotton yarn and cloth exports and of 75% in return for raw cotton exports, and have been sold at premiums fluctuating in accordance with market conditions. In addition, a considerable volume of transactions under a number of bilateral payments agreements including those with the Netherlands, Belgium and Switzerland have been permitted at free rates departing from the official par value of the Egyptian pound. In essence this has entailed a limited devaluation of the pound and the inauguration of a considerable number of de facto bilateral exchange rates.

In 1952 the balance of payments deficit reached a peak of £E 55.4 million and in the 3-year period 1950-52 the deficit totaled (after deducting a repurchase of pounds from the I.M.F. in 1950) £E 86.2 million, entailing a decline in gold and foreign exchange assets of £E 83.1 million. By 1953, however, the deficit was greatly reduced and in 1954 a small surplus of £E 5 million was achieved. Reversal of the government's cotton policy in 1953 substantially reduced domestic purchasing power and demand for imports. At the same time the measures to limit imports were taking effect and improved harvests permitted the country to get along with much smaller imports of cereals. While the substantial increase in the quantity of cotton was offset by lower world market prices, a further decline in the total value of exports was at least

Table 11

Balance of Payments

(£E millions)

Current transactions:	1950	1951	1952	1953	1954a/
Receipts					
Proceeds of exports	188.5	201.9	145.6	135.3	140.0
Transit trade	1.7	2.6	3.2	2.5	2.7
Insuranceb/	0.2	0.4	1.0	0.7	0.5
Shipping	7.5	7.5	6.8	7.1	7.5
Suez Canal dues	26.2	26.4	26.6	29.1	30.5
Interest, dividends & other revenue	4.6	4.9	4.8	6.3	4.7
British Army expenditures	13.0	14.7	5.8	9.0	5.3
Other Receipts	24.9	33.8	24.9	25.1	29.3
Total	268.3	292.2	218.7	215.1	220.5
Disbursements					
Payments for imports	221.7	241.9	210.5	165.2	150.0
Transit trade	0.9	1.5	2.4	1.5	2.5
Insuranceb/	1.3	1.5	0.9	1.1	1.0
Other commercial payments	2.0	2.5	2.2	2.2	2.2
Shipping	7.0	6.1	6.9	6.3	7.5
Interest, dividends & other revenue	15.8	17.4	16.9	17.4	17.0
Travel & maintenance	8.9	15.3	11.6	9.6	11.0
Egyptian Govt. expenditures	5.1	6.3	5.7	6.6	11.0
Other disbursements	14.5	14.9	15.0	13.1	13.0
Total	277.5	307.4	272.1	223.0	215.5
Balance of current transactions	- 9.2	- 15.2	- 53.4	- 7.9	+ 5.0
Net capital outflow	- 4.8	- 4.6	- 2.0	- 0.4	-
Overall deficit	- 14.0	- 19.8	- 55.4	- 8.3	+ 5.0
Accounted for as follows:					
Changes in assets and liabilities:					
Sterling balances	- 29.0	- 54.4	- 40.1	+ 3.7	- 2.1
Other foreign exchange holdings	+ 5.7	+ 9.9	- 17.7	- 7.8	+ 6.2
Monetary gold	+ 15.9	+ 26.6	-	-	-
Liabilities to non-residents	- 9.6	- 1.9	+ 1.8	- 4.5	+ 0.9
Repurchase from IMF	+ 3.0	-	-	-	-
Errors & omissions	-	-	+ 0.6	+ 0.3	-
Total	- 14.0	- 19.8	- 55.4	- 8.3	+ 5.0

a/ Provisional
b/ Details on imports and exports are given in Tables 17 and 18, Statistical Appendix.
c/ Other than on imports or exports

arrested.1/

In the present year the balance of payments appears again to be deteriorating. Cotton exports have been slow largely because of the new and higher prices fixed by the government for the 1954/55 season. In the first quarter of 1955, in comparison with the same quarter of 1954, exports dropped from £E 45.9 to £E 38.0 million, while imports rose from £E 34.3 to £E 41.0 million. Thus a surplus of £E 11.6 million was converted into a deficit of £E 3 million. The premiums on "import entitlements" which were generally at their lowest in the middle of 1954 have shown a rather steady tendency to rise, reaching in May 1955 10% for sterling, 13.5% for dollars and 12% for Deutsche Marks (all as percent of official rates)2/ If, however, the government carries out its announced intention to liberalize the cotton market, exports may quickly recover, with a consequent strengthening of the Egyptian pound.

Foreign Trade Prospects

To discuss the prospect of the balance of payments in the long run, it is necessary, above all, to envisage how foreign trade will develop in the light of the probable over-all economic development of the country. In the long-run future trade will be affected particularly by the completion of Sadd el-Aali, the further development of manufacturing and possible petroleum discoveries.

1/ The fluctuations in export values as the result of changes in the price of cotton is strikingly demonstrated in the following breakdown, made by the IMF, of the proceeds of cotton exports (in £E millions):

	1949	1950	1951	1952	1953	1954 (first half)
Exports of raw cotton						
Value of 1949 prices	106.1	121.7	80.7	83.2	106.9	59.5
Excess of value at current prices over value at 1949 prices	-	28.1	83.4	43.2	9.4	10.7
Total	106.1	149.8	164.1	126.4	116.3	70.2

It might be noted that Egypt's over-all terms of trade (1949=100) rose to a peak of 178 in 1951 and dropped to 112 and 87 in 1952 and 1953 respectively.

2/ See Table 20, Statistical Appendix.

The balance of trade in agricultural products will obviously be greatly affected by the completion of Sadd el-Aali. The increase in cereals output, however, will be more than offset by the probable growth in the population, so that Egypt is likely to have a heavy deficit in wheat. On the other hand, it should be able to produce a considerable surplus of rice (around 500,000 tons), and there is every indication that this Egyptian rice, which is of good quality, can be produced and sold at a competitive price on the world market. The amount of shorter-staple cottons available for export is likely to increase substantially but, if conservative price assumptions are used, the foreign exchange yield may be no higher than at present. The expansion of perennial irrigation should make it possible to extend considerably the areas devoted to certain fruits and vegetables, including tomatoes, potatoes, citrus fruit and grapes. Conditions for these crops in Egypt are excellent and although it will take some time to solve problems of marketing and transportation, the country should be able to develop a market for these products in Europe over the long run.

In analyzing the prospects for manufacturing industry, it was pointed out that some possibilities of "import substitution" would probably be realized, particularly in the field of fertilizers, iron and steel products, paper and cardboard. In addition, Egypt is likely to develop a limited though growing market abroad for at least some of its manufactures, particularly fine yarn.

The prospects of petroleum development, as already indicated, are as yet extremely difficult to assess. If it is assumed, as a minimum, that Egypt will be able to produce enough for its existing refinery capacity, net import requirements will be considerably reduced particularly in view of the savings in liquid fuels resulting from the installation of hydroelectric plant at Sadd el-Aali.

In the light of these possibilities it is not improbable that sometime between 1970 and 1975 when the full benefits of Sadd el-Aali will be realized, total Egyptian exports will be in the neighborhood of £E 175 million and imports around £E 210 million. This would compare with £E 137 million and £E 160 million respectively in 1954. These projections, of course, are not intended as predictions, but only as indications of probable magnitudes.

Development of "Invisibles"

Among the invisibles in the balance of payments, the items that are most likely to be significantly affected in the future are (1) British Army expenditures in Egypt, (2) income from the tourist trade, and (3) income from the Suez Canal.

At one time Egypt derived considerable foreign exchange income from British Army expenditures on the maintenance and operation of Suez Canal Zone bases. By 1954, however, this income had dropped to £E 5.3 million, and under the terms of the Anglo-Egyptian agreement concluded in October 1954 all British forces are to be withdrawn by June 1956. British civilian

contractors are to maintain certain parts of the Suez Canal bases until October 1961, but it is unlikely that their annual foreign exchange disbursements will exceed £ 3-4 million, and they will completely cease after 1961 unless the agreement is prolonged.

Income from the tourist trade, on the other hand, can be expected to increase substantially in the long run. Egypt in common with other Eastern Mediterranean countries, has experienced a rapid rise in the number of foreign visitors in recent years not only because world economic conditions have been favorable, but also because the airplane has greatly extended the orbit of travel for tourists. In 1954, 344,487 tourist arrivals were recorded. How much these tourists spend is difficult to ascertain, since the Egyptian foreign exchange authorities keep no record of tourist receipts which in the balance of payments are included nearly all under "other receipts". The Egyptian Tourist Administration has, however, made a rather careful investigation which indicates that tourist expenditures may have reached £E 17 million in 1954. While this may be an over-estimate, it can reasonably be expected that income from this source will rise by at least 50% over the next decade or two provided the political situation in Egypt remains stable. Egypt has enormous attraction for the tourist, and the present government is fully alive to the importance of this trade and is carrying out a well-conceived program to foster it.

In the long run one of the most significant increases in Egypt's foreign exchange earnings will accrue when the Suez Canal concession expires in November 1968. At that time the Egyptian government is to receive full and free ownership of the Suez Canal, subject only to the payment of compensation for movable property and staff housing in Egypt, and possibly also for schools, hospitals and churches the company has built. It is reliably estimated that this compensation will not significantly exceed £E 15 million. Moreover, this amount will presumably be paid over a number of years and will in any event be dwarfed by the additional benefits accruing to Egypt from full ownership of the Canal.

In order to understand how Egypt's income will be affected, a knowledge of foreign exchange disbursements and receipts arising from the operation of the Canal is necessary. The Egyptian balance of payments shows the gross receipts from Canal dues, whether paid in London, Paris or Egypt. The dues received in London and Paris, however, are earmarked predominantly for payments by the Canal Company of profits, debt service and other expenditures abroad; and these payments are apparently entered on the debit side of Egypt's balance of payments under "interest, dividends, etc." and "other disbursements". Table 12 sums up the balance of these transactions and shows that Egypt's net foreign exchange earnings from the Canal have in recent years been between £ 13 and 14 million annually. Once Egypt acquires the Canal concession, virtually the entire gross foreign exchange income will become net income except for some disbursements for foreign personnel which would probably be retained and for renewal of equipment etc. On the basis of present receipts and expenditures the increase in Egypt's net foreign exchange income would probably be around £E 12-13 million annually, but in view of the continued increase in Canal traffic that can presumably be anticipated this amount is

likely to be at least £E 15 million by the time the Canal concession ends. In this connection it should be noted that the Suez Canal Company is now carrying out certain works which will increase the capacity of the Canal.1/

Table 12

Balance of Foreign Exchange Transactions: Suez Canal

(£E millions)

	1950	1951	1952	1953	1954
I. Canal Dues Paid					
In London	16.3	17.1	17.4	17.4	n.a.
In Paris	2.3	2.5	2.7	3.0	n.a.
In Egypt	7.6	6.8	6.4	8.7	n.a.
Total	26.2	26.4	26.6	29.1	30.5
II. Payments Abroad					
Staff	0.9	2.8	2.6	3.3	n.a.
Service of bonds & shares	8.3	9.2	9.0	8.9	n.a.
Others	2.6	3.1	3.3	3.8	n.a.
Total	11.8	15.1	14.9	16.0	n.a.
III. Egypt's Net Foreign Exchange Receipts					
Dues paid in Egypt	7.6	6.8	6.4	8.7	n.a.
Transfers from abroad:					
a. to meet company expenditures	2.8	6.0	6.2	3.7	n.a.
b. for payment of Egyptian Government	0.9	1.1	1.0	1.0	n.a.
Total	11.3	13.9	13.6	13.4	n.a.

With respect to other invisibles in the balance of payments it may be expected that in the long run net payments for shipping and insurance will increase somewhat with the volume of foreign trade and that income from foreign investment will decline by several million ultimately as sterling assets are used to finance development. The present government has no doubt tried to encourage such investment by liberalizing restrictions on employment

1/ It is also worth noting that the Egyptian government's own revenues from the Canal, which now total about £E 4 million per year in the form of taxes and royalties, are likely to rise by about £E 10 million when it takes over the concession.

of foreign personnel and the requirements regarding participation of Egyptian capital and by enacting legislation in February 1953 and September 1954 which permits free transfer of profits and repatriation of capital over a period of five years. However, except for foreign capital at present being invested in oil exploration and development, substantial amounts of private capital are unlikely to be forthcoming.

Balance of Payments Prospects and Debt Service

Detailed estimates taking into account the factors influencing the development of foreign trade and invisibles mentioned above, point to the probability that in the long run - say between 1970 and 1975 - the total volume of Egypt's international transactions may be about as follows (in LE millions):

	Receipts	Payments
Merchandise trade	175	210
Travel	25	15
Suez Canal (net)	30	-
Other invisibles	45	50
Total :	275	275
Compared with 1954 totals:	220	215

This projection rests on a rather detailed analysis of the composition and volume of future exports and imports. Conservative assumptions on the volume and prices of exports have been adopted. Some allowance has also been made for a possible underestimate of the total volume of imports derived from a detailed estimate of the probable development of individual imports or categories of imports.

Within receipts and payments of these orders of magnitude there should be a margin for foreign debt service. At present the Egyptian government has no foreign debt except for the recent loan of $7.5 million, repayable in local currency, from the U.S. government. In addition, it has guaranteed a small sterling debt of the City of Alexandria of which only £ 156,000 was outstanding at the beginning of 1955. 1/ Egypt will also have an ultimate liability to pay the equivalent of about LE 4.5 million as its share of the

1/ An Egyptian fertilizer company had outstanding at the end of May 1955 a debt of $4,350,000 to the Export-Import Bank. This debt does not carry a government guaranty, but the National Bank guarantees transfer of service.

cost of raising the Owen Falls Dam at the headwaters of the Nile. The volume of suppliers' credits outstanding, if any, is not definitely known, but on the basis of present information it is not believed to be significant.

Egypt's ability to service any significant additional foreign debt is, of course, predicated on the maintenance of political and social stability and the avoidance of inflation and prolonged interference in the marketing of cotton both of which would seriously impair the balance of payments. In the short run political stability appears reasonably well assured, but there are indications that the government may not yet be fully aware of the inflationary dangers in their development plans. In the long run the prospects of maintaining political as well as economic and financial stability will be greatly enhanced if Egypt is able to carry forward a development program centering about the Sadd el-Aali project which will at least permit it to maintain the present standard of living.

If over the next few years some of the current uncertainties regarding the government's economic and financial policies, the country's political and social evolution and the prospects of additional oil output are resolved in a manner that would improve the outlook, Egypt's ability to service foreign debt may well improve.

The Dollar Balance of Payments

Egypt's trade with the dollar area normally shows a deficit. 1/ In only one out of the last 7 years, namely in 1950, did Egypt have a small surplus in its trade with the U.S. and Canada and then only because imports were abnormally low while the value of cotton exports was rising. Apart from this year, the average annual deficit over this period amounted, according to U.S. and Canadian figures, to about $20 million, and, according to Egyptian figures to $55 million. Moreover, in addition to direct imports from the U.S. and Canada, Egypt also purchases petroleum products from

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1/ See Table 21, Statistical Appendix.

"dollar oil companies". Such imports have averaged $18.5 million annually over the last four years.

Until 1947, when it left the sterling area, Egypt was able to draw on the sterling area pool to meet its dollar requirements. Since then it has had to resort to a wide variety of devices to keep its dollar accounts in balance. Among these have been (a) substantial indirect imports of dollar goods against payment in non-dollar currencies, although at a considerable increase in cost, (b) a special arrangement with Britain, made in 1947, under which Egypt receives the currencies, including dollars (probably amounting to $7-10 million annually), in which Suez Canal dues are paid in London, (c) an arrangement, part of the Anglo-Egyptian financial agreement due to expire at the end of 1960, under which the U.K. agreed to make certain amounts of dollars available for the importation of dollar oil (averaging $14 million annually over the past four years), and (d) a special one-time release by the U.K. of £ 14 million in dollars incidental to the conclusion of the Anglo-Egyptian financial agreement in 1951.

The extent to which Egypt has been able to buy dollar goods with non-dollar currencies is indicated by the following comparison of actual dollar payments for imports from the American monetary area and imports from the U.S. and Canada according to Egyptian customs figures (in £E millions):

	Dollar Payments for imports from American Monetary Area	Imports from U.S. and Canada
1951	11.0	67.2
1952	21.8	54.2
1953	14.3	36.5
1954 (9 mos.)	9.2	13.8

Most of the dollar goods were paid in sterling and through the so-called "export pound" system which was inaugurated in 1947 and discontinued in January 1955. At one time so much sterling was used for such imports that Egypt was compelled to use substantial amounts of its dollar reserves in 1952 and probably also in 1953 to replenish its free sterling holdings. Under the "export pound" system imports from hard currency areas could be paid in Egyptian pounds which were usable in turn for payment of exports from Egypt. Many foreign merchants took advantage of this means of payment and sold large quantities of dollar goods to Egypt against such export pounds but only at a substantial advance in price. 1/

For the future there is no prospect that Egypt will be able to balance its transactions with the dollar area out of its own dollar earnings. Exports to the dollar area consist almost entirely of long-staple cotton for which there is no expanding market and which are unlikely to average more than $20-25 million annually. Necessary imports from the dollar area, on the other hand, are unlikely to be less than $40-50 million, and in the

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1/ For an analysis of dollar receipts and payments, see Table 23, Statistical Appendix.

long run may substantially exceed this figure as Egypt's cereals deficit grows. Even with the dollar income from the Suez Canal it will not be possible to bridge this deficit.

This does not mean, however, that Egypt can service no dollar debt. It is a striking fact that Egypt has been able continuously to import large quantities of dollar goods from European countries against payment in non-dollar currencies. In other words, Egypt's non-dollar earnings have actually been convertible into dollars to some extent. If this has been possible in the past during years when the dollar supply in Europe was rather stringent, it is reasonable to expect that it will also be possible during the future when Western Europe's over-all dollar portion may well be easier. Moreover, Egypt still has a considerable reserve of gold and dollar holdings on which it could, if necessary, draw. As of the end of April 1955 dollar assets of the government and banks amounted to $50 million and gold holdings, stemming in large part from a conversion of dollars into gold in 1951, were valued at $174 million. While some dollar debt could therefore be serviced it would obviously be prudent for Egypt to contract as much as possible of any foreign debt in non-dollar currencies.

Short-term Balance of Payments Prospects

Over the next five to ten years, the balance of payments is likely to be under considerable pressure because of the rapidly accelerating development program. The foreign exchange component in the public investment in Sadd el-Aali alone is likely to be on the average £E 13 million per year; and the few large industrial projects (steel and fertilizers) will also require substantial expenditures abroad. An excessive drain on foreign assets can be avoided only if the government keeps total development outlays within the real resources available and adheres to sound cotton marketing policies. Quite apart from foreign borrowing, certain external resources will be available to meet extra foreign spending. It has already been mentioned that nearly all of the $40 million in U.S. aid remains unspent and that additional aid may be made available. It has also been indicated that Egypt can safely draw down its foreign exchange reserves at an average annual rate of £E 10 million. The government is at present negotiating with the United Kingdom to accelerate the release of blocked sterling which will fall to £ 10 million a year from 1957 to 1960 inclusive and to obtain release of the "hard core" remaining at the end of 1960. While additional sterling releases would give the government greater flexibility in financing its requirements abroad, they would also tempt it to dissipate these reserves too rapidly. Since development expenditures are likely to strain the balance of payments for a rather long period, it is important that foreign reserves should be husbanded carefully and their use spread over a considerable number of years.

STATISTICAL APPENDIX TABLES

TABIE 1

POPULATION MOVEMENT

Total Population			Crude Birth and Death Rates			
Year	Population (000's)	Percent Increase over Previous Decade or Year	Year	Live Births per 1000	Deaths per 1000	Infant Mortality per 1000 live births
1897	9,715		1920-24	42.8	25.7	140.7
1907	11,287	16	1925-29	43.9	26.5	152.5
1917	12,751	14	1930-34	43.7	27.1	162.5
1927	14,218	11	1935-39	42.8	26.9	162.9
1937	15,933	12	1945	42.7	27.7	152.8
1947	19,022	19	1947	44.0	21.0	
1948	19,494	2.5	1948	43.0	20.0	
1949	19,888	2.0	1949	42.0	21.0	135.5
1950	20,393	2.5	1950	44.0	19.0	129.6
1951	20,871	2.3	1951	45.0	19.0	124.0
1952	21,403	2.5	1952	46.0	18.2	
1953	21,953	2.6	1953	45.0	19.8	

TABLE 2

PER CAPITA CONSUMPTION OF STAPLE PRODUCTS

	Prewar Average (1935-39)	1948	1949	1950	1951	1952	1953
Calories (calories per diem)	2,366	2,336	2,466	2,296	2,337	2,328	2,319
Protein (grs. per diem)	70.0	66.8	71.7	67.8	68.4	68.7	68.0
Cereals (kg. per annum)	182.1	181.9	185.6	164.2	171.0	169.1	166.8
Meat (kg. per annum)	9.9	8.9	7.35	8.1	9.3	8.7	8.1
Sugar and honey (kg. per annum)	13.6	11.3	15.8	14.2	14.6	16.0	16.8
Tea (kg. per annum)	0.48	0.71	0.82	0.80	0.80	0.76	0.92
Coffee (kg. per annum)	0.56	0.54	0.49	0.30	0.27	0.23	0.21
Cotton goods (kg. per annum)	2.4	2.8	2.7	2.4	2.2	2.4	2.6
Tobacco (kg. per annum)	0.35	0.63	-	0.65	0.65	0.57	0.50
Soap (kg. per annum)	3.32	-	-	-	3.49	3.22	2.55

Note: For most articles the data refers to the supply available per capita, ignoring carryover from year to year.

TABLE 3

CONSUMPTION OF FOODSTUFFS, PER CAPUT

Type of Food	1934-35 to 1938-39			1947-48			1949-50			1951-52			1952-53		
	Kg. per Year	Calories per Day	Protein per Day (grams)	Kg. per Year	Calories per Day	Protein per Day (grams)	Kg. per Year	Calories per Day	Protein per Day (grams)	Kg. per Year	Calories per Day	Protein per Day (grams)	Kg. per Year	Calories per Day	Protein per Day (grams)
Cereals	182.1	1,771	49.0	181.9	1,755	48.3	164.2	1,593	44.5	169.1	1,643	48.0	166.8	1,620	46.3
Starchy Crops	4.2	12	0.1	6.7	17	0.3	8.7	21	0.4	8.1	20	0.3	6.7	17	0.3
Sugar and Honey	13.6	130	-	11.3	116	-	14.2	147	-	16.0	165	-	16.8	174	-
Beans and Nuts	12.4	125	7.5	8.7	88	5.2	12.4	123	7.7	10.7	107	6.7	10.2	102	6.6
Fresh Vegetables	26.6	19	1.0	44.2	43	2.4	34.1	25	1.3	42.4	31	1.8	48.4	32	2.2
Fruit	39.9	80	1.1	21.3	60	0.7	29.5	69	0.9	45.9	103	1.4	45.4	101	1.7
Meat	9.9	60	4.9	8.9	35	3.3	8.1	51	4.0	8.7	53	4.8	8.1	49	4.3
Eggs	1.3	6	0.4	1.0	4	0.3	0.6	3	0.2	0.6	3	0.2	0.8	4	0.4
Fish	2.6	11	1.4	2.6	4	0.6	3.0	14	1.7	3.0	12	1.4	3.2	13	1.6
Milk	43.4	105	4.6	54.1	134	5.7	65.6	164	7.1	48.2	119	5.1	43.7	108	4.6
Oil	1.9	47	-	3.3	80	-	3.6	86	-	3.0	72	-	3.9	95	-
TOTAL	338.9	2,366	70.0	344.0	2,336	66.8	344.0	2,296	67.8	355.7	2,328	68.7	354.0	2,319	68.0
Animal Protein			11.3			9.8			13.1			11.5			10.9

TABLE 4

A. EGYPTIAN AGRICULTURAL PRODUCTION

Crop	Area ('000 feddans) 1935-39	1945-49	1950-51	1951-52	1952-53	1953-54	1954-55	Unit	Production ('000s) 1935-39	1945-49	1950-51	1951-52	1952-53	1953-54	1954-55
Cotton	1,754	1,316	1,974	1,979	1,967	1,324	1,580	Kantar = 45 kg a/	9,137	7,064	8,500	8,076	9,922	7,082	7,900
Cereals	4,010	4,708	4,044	4,192	4,050	4,831	4,891	Ardeb = 150 kg	8,319	8,516	6,785	8,060	7,260	10,311	11,530
Wheat	1,410	1,559	1,382	1,497	1,402	1,790	1,795								
Barley	266	246	117	118	137	116	122	Ardeb = 120 kg	1,940	1,523	758	830	981	860	963
Maize	1,540	1,636	1,451	1,655	1,704	2,016	1,904	Ardeb = 140 kg	11,372	10,257	9,329	10,151	10,757	13,237	12,330
Millet	358	561	393	434	433	486	460	Ardeb = 140 kg	3,260	4,232	4,050	3,694	3,732	4,155	3,920
Rice	445	706	701	488	374	423	610	Ardeb = 200 kg b/	2,272	3,705	4,140	2,068	1,723	2,174	3,717
Pulses															
Beans	393	395	356	320	355	299	315	Ardeb = 155 kg	1,908	1,906	1,287	1,495	1,610	1,348	1,540
Lentils	79	74	81	75	58	69	87	Ardeb = 120 kg	343	305	320	293	199	295	380
Chickpeas	6	16	16	13	15	7	9	Ardeb = 150 kg	27	73	72	60	64	33	-
Fenugreek	87	60	53	54	54	53	51	Ardeb = 155 kg	316	241	182	203	217	210	-
Lupine	16	14	13	11	11	12	13	Ardeb = 150 kg	60	54	49	45	43	46	-
Peanuts	22	24	25	25	26	31	32	Ardeb = 78 kg	208	228	242	250	268	324	-
Onions	33	27	32	32	26	29		Kantar = 45 kg.	5,407	5,188	5,665	6,852	5,938	6,702	
Berseem	1,643	1,967	2,185	2,122	2,212	2,142	2,270		-	-	-	-	-	-	-
Sugar Cane	67	92	81	86	92	104	110	Metric Ton	150	192	195	188	229	238	-
Vegetables	-	257	215	200	252	290	-		-	-	-	-	-	-	-
Fruit	64	78	87	91	94	96	-		-	-	-	-	-	-	-
Oranges	-							Metric Ton	118	-	-	204	241	232	-
Mandarins	-							Metric Ton	97	-	-	76	59	60	-
Total	8,281	9,134	9,225	9,270	9,299	9,366									

a/ Lint
b/ White rice

(Cont'd—2)

TABLE 4 (Cont'd--2)

B. GROSS VALUE OF AGRICULTURAL PRODUCTION

(LE thousands)

Crop	1935-39	1945-49	1950-51	1951-52	1952-53	1953-54
Cotton	24,900 a/	79,246 a/	196,429 a/	179,250 a/	126,605 a/	85,916 a/
Cereals						116,654
Wheat)						(56,387
Barley)						(2,373
Maize)	30,600	90,526	85,863	72,700	71,569	(36,398
Millet)						(10,476
Rice)						(11,020
Pulses						-
Beans)						(7,322
Lentils)						(2,558
Chickpeas)						(-
Fenugreek)	3,900	12,296	15,540	11,400	13,522	(1,146
Lupine)						(-
Peanuts)						(1,050
Onions	b/	b/	b/	b/	b/	4,136
Berseem	b/	b/	b/	b/	b/	41,912
Sugar Cane	b/	b/	b/	b/	b/	8,995
Vegetables	2,000	11,213	13,384	13,000	10,800	14,800
Fruit	1,900	8,159	9,908	10,400	10,500	18,097
Other	16,500	53,166	66,157	65,500	63,000	2,832
Total:	79,800	254,606	387,281	352,250	295,996	305,418
Meat products	11,800	30,540	50,401	51,500	48,121	32,039 c/
Dairy products	4,080	21,014	29,287	30,000	30,000	20,989 c/
Raw wool	190	512	825	800	600	538
Poultry products	4,000	11,419	11,041	11,000	10,500	10,929
Grand Total:	99,870	318,691	478,835	445,500	385,217	369,913

a/ Lint and seed
b/ Included in other
c/ Not comparable with previous estimates.

TABLE 5

PRODUCTION AND EXPORT OF COTTON BY STAPLE LENGTHS

('000 Kantars)

Season	Extra Long Staple (1-3/8" and over)		Long Staple (1-1/4" - 1-3/8")		Medium Staple (1-1/8"- 1¼")		Others
	Karnak	Total	Geza 30	Total	Ashmouni	Total	
1948-49							
Production	1,951	2,447	918	918	3,259	4,462	144
Exports	2,545	3,117	803	803	2,700	3,975	43
1949-50							
Production	2,965	3,717	779	779	3,879	4,016	187
Exports	3,952	4,585	633	633	3,330	3,542	88
1950-51							
Production	2,602	2,831	1,617	1,617	3,282	3,746	307
Exports	2,555	2,821	1,366	1,366	1,866	2,061	178
1951-52							
Production	2,562	3,036	1,200	1,200	3,129	3,439	398
Exports	2,041	2,411	1,061	1,061	2,092	2,202	148
1952-53							
Production	4,242	4,404	1,270	1,302	3,648	3,899	322
Exports	2,941	3,123	1,316	1,316	2,321	2,553	109
1953-54							
Production	2,313	2,418	1,862	1,887	2,313	2,510	268
Exports	3,524	3,709	1,509	1,509	1,803	1,931	73

TABLE 6

BUYING AND SELLING PRICES OF EGYPTIAN COTTON COMMISSION

(Tallaris[a] per Kantar)

Season	Buying (Grade Good)		Selling (Grade FG)	
	Karnak	Ashmouni	Karnak	Ashmouni
1952-53				
Dec.)	)	)	69.76	58.37
March)	67.50	) 60.0	69.53	55.01
June)		)	70.56	57.03
1953-54				
Sept.	58.0	50.0	69.57	60.23
Dec.	59.0	50.0	71.48	60.15
March	60.0	52.0	80.64	67.71
June	60.0	52.0	78.89	65.93
1954-55				
Sept.	65.0	55.0	84.34	68.77
Dec.	65.5	55.5	84.11	68.59
March	66.0	56.0		
June	66.0	56.0		

a/ 5 tallaris = IE 1

TABLE 7

COMPARISON OF SPOT PRICES OF US AND EGYPTIAN COTTON [a]

(in US ¢ per lb.)

Period	American Middling 15/16" [b]	Karnak Good	Ashmouni Good
1950-51	42.58	90.00	74.28
1951-52	39.42	89.08	59.60
1952-53	34.52	44.87	37.15
1953-54	33.52	46.57	37.44
1954-55			
August	34.05	49.05	38.77
November	33.70	51.26	41.29
February	34.06	51.72	41.66
April	33.39	50.29	40.51

a/ Including export taxes.
b/ Average of spot markets.

TABLE 8

A. PRODUCTION OF CRUDE OIL

Field	1910	1920	1930	1940	1950	1952	1953	1954
	(in thousand metric tons)							
Gemsa	1.6	2.8	-	-	-	-	-	-
Abu-Durba	-	-	.5	.6	-	-	-	-
Hurghada	-	144.5	287.6	109.0	38.5	39.9	39.0	37.9
Ras Gharib	-	-	-	824.2	1,149.0	1,200.0	1,217.6	1,266.7
Sudr	-	-	-	-	618.5	340.8	310.5	314.0
Asl	-	-	-	-	559.4	796.6	820.5	351.6
Ras Matarma	-	-	-	-	-	-	-	16.1
Total:	1.6	147.3	288.1	933.8	2,365.4	2,377.3	2,387.6	1,986.3

B. REFINERY OUTPUT OF MAIN PETROLEUM PRODUCTS

	1939	1945	1950	1952	1953	1954
	(in thousand metric tons)					
Motor Gasoline	109.6	181.5	200.1	177.3	180.1	222.1
Kerosine	54.8	79.4	150.0	199.6	197.7	218.1
Gas Oil & Diesel Fuel	82.0	94.2	127.9	113.8	98.6	212.0
Furnace Fuel	254.0	625.0	1,632.9	1,662.8	1,668.0	1,507.3
Bitumen	159.3	160.5	80.3	50.8	38.7	47.6
Total:	659.7	1,140.6	2,191.2	2,204.3	2,183.1	2,207.1

(Cont'd.)

TABLE 8 (Cont'd)

C. CONSUMPTION OF MAIN PETROLEUM PRODUCTS

	1910	1920	1930	1940	1950	1952	1953	1954
	(in thousand metric tons)							
Aviation Gasoline	-	-	-	3.0	37.7	30.3	33.6	45.8
Motor Gasoline	-	4.8	58.6	84.9	244.2	252.2	253.6	262.7
Kerosine	103.7	124.6	295.5	271.8	563.9	665.1	728.3	770.3
Gas Oil and Diesel Fuel	-	-	139.6	227.8	354.9	342.8	345.4	364.7
Furnace Fuel	-	-	49.8	197.1	1,626.9	1,754.1	1,803.3	1,901.0
Bitumen	-	-	17.0	48.1	40.4	28.8	33.7	45.0
Lubricants	-	-	19.4	24.0	39.5	41.7	33.8	41.1
Total:	103.7	129.4	580.7	856.7	2,907.5	3,115.0	3,231.7	3,430.6

D. IMPORTS OF MAIN PETROLEUM PRODUCTS

	1949	1950	1951	1952	1953	1954
	(in thousand metric tons)					
Aviation Gasoline	35.0	37.7	46.0	30.3	33.6	45.8
Motor Gasoline	1.2	44.1	62.8	74.9	73.5	40.6
Kerosine	401.5	413.9	434.4	465.5	530.6	552.2
Gas Oil/Diesel Fuel	212.7	227.0	268.7	229.0	246.8	152.7
Furnace Fuel	15.9	-	143.9	91.3	135.3	393.7
Lubricants	37.5	39.5	49.3	41.7	33.8	41.1
Total:	703.8	762.2	1,005.1	932.7	1,053.6	1,226.1

E. COST OF IMPORTS OF MAIN PETROLEUM PRODUCTS

	1949	1950	1951	1952	1953	1954
	(in IE thousand)					
Aviation Gasoline	54.0	125.0	118.0	140.0	154.0	109.0
Motor Gasoline	278.0	923.0	1,161.0	1,087.0	1,092.0	376.0
Kerosine	2,613.0	5,138.0	5,512.0	6,831.0	6,965.0	4,435.0
Gas Oil/Diesel Fuel	1,322.0	2,385.0	3,047.0	3,155.0	2,734.0	1,592.0
Furnace Fuel	270.0	237.0	1,320.0	859.0	466.0	2,672.0
Lubricants	982.0	1,017.0	1,391.0	1,558.0	1,520.0	1,300.0
Total:	5,519.0	9,825.0	13,107.0	14,274.0	13,137.0	10,484.0*

*The 1954 figures exclude the value of petroleum products imported from Russia and Roumania under barter trade agreements.

TABLE 9

MANUFACTURING EMPLOYMENT (000's) a/

Year	Number of Workers Engaged by Size of Establishment				Total Employment
	1-4	5-9	10 and over		
			Total	500 and over	
1927	90.8	32.0	110.8	-	233.6
1937	104.1	34.0	161.6	-	299.7
1944	110.0	34.3	232.2	87.7	376.5
1947	115.0	36.4	263.9	-	415.3
1950	115.0	31.5	226.7	92.6	373.2 b/
1953	115.0	35.0	238.4	114.4	388.4 b/
1954	114.4	47.6	243.1	110.0	405.1

a/ Derived from industrial and manufacturing censuses and industrial enumerations. Figures have been adjusted by the statistical adviser of the Ministry of Finance and Economy to ensure rough comparability.

b/ Probably underestimated. The true figures for 1950 and 1953 were probably about 400 and 405 thousand respectively.

TABLE 10

INDUSTRIAL PRODUCTION

Industry	Unit	1930	1939	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
Textile Industry													
Cotton yarn	Tons(000's)	2.9(1931)	24.0	38.8	41.0	43.4	50.2	54.3	49.0	53.4	55.7	59.4	64.3
Cotton fabrics	Meters (mil.)									210.9	220.8	234.0	252.3
Wool yarn	Tons(000's)						4.6	2.5	2.5	2.1	2.0	3.0	2.8
Wool fabrics	Meters (mil.)						3.2		4.0	3.2	4.2	6.4	
	Tons						878	1,406	1,079	1,037	1,227	1,823	2,056
Rayon yarn	Tons (000's)						-	0.9	1.9	2.3	2.3	2.5	3.5
Staple fiber yarn	Tons (000's)						-	-	1.3	2.2	1.7	2.6	2.7
Rayon fabrics	Tons							3,093	4,296	4,458	4,000	4,300*	4,900*
Jute cloth*	Tons			2,700			2,100	2,200	2,700	2,400	1,600	1,870	
Food Industry													
Syrups, jams & fruit conserves	Tons								248	363	417		
Tomato sauce	Tons									160	359	476	
Canned vegetables	Tons									154	193	212	
Macaroni, spaghetti, etc.	Tons										18,500	23,000	
Sugar	Tons (000's)		162		162	180	222	191	175	195	188	228	262
Glucose	Tons						2,941	2,805	3,800	5,193	5,232	7,690	
Starch	Tons				7,900	7,526	3,177	3,942	3,920	4,106	5,334	5,023	5,490
Wine	Liters (000's)							846	1,126	1,621	1,619	2,000	
Beer	Liters (mil.)		7.8	38	29	18	15	11	13	13	12	8	
Chemical Industry													
Cottonseed oil	Tons (000's)		49.2					93.0	101.8	88.9	92.2	110.5	85.1
Soap	Tons									69,113	67,332	55,599	59,500
Glycerine	Tons									350	550	884	
Fertilizers	Tons (000's)								70	168	206	216	268
Alcohol	Liters (mil.)		4.6				9.0	9.4	14.6	10.6	14.4	13.2	13.5
Caustic Soda	Tons						6,000	4,500	3,500	2,500	753	2,169	2,371
Matches - packs of 20	Gross (000's)	941(1938)		769				455	1,055	1,493	1,396	1,374	
boxes of 60	Gross (000's)	108(1938)		439				1,451	1,576	1,507	1,377	1,430	

*Estimate

(Cont'd—2)

TABLE 10 (Cont'd)

Industry	Unit	1930	1939	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
Other Industries													
Iron and Steel	Tons						1,000	5,000	25,000	32,000	50,000	58,000	90,000
Razor blades	Millions											30	
Paper and cardboard	Tons						1,500	17,961	19,883	20,835	20,245	20,354	24,203
Leather	Tons								5,900	6,400	7,120	6,962	7,469
Electric light bulbs	Millions										3	3	
Building Materials													
Cement	Tons (000's)						780	876	1,020	1,130	947	1,097	1,237
Bricks (Red)	Millions									800	145	120	200
Flat Glass	Tons										4,900	7,200	
Glassware	Tons										4,975	4,135	
Petroleum Refining													
Gasoline	Tons (000's)		104		188	198	197	215	194	192	176	187	224
Kerosene	Tons (000's)		52		67	72	94	111	150	210	218	205	220
Diesel & solar oil	Tons (000's)				77	77	80	103	128	115	121	25	
Furnace oil	Tons (000's)		282		608	695	1,266	1,534	1,628	1,490	1,606	1,689	1,506
Electric Power (Public Utilities)	KWH (mil.)									609	629	701	
Extractive Industries													
Petroleum	Tons (000's)	285	749				1,791	2,266	2,593	2,324	2,383	2,268	1,972
Phosphates	Tons (000's)	313.5	547.5	349.4	294.0	371.2	377.0	350.5	397.2	514.7	527.1	484.1	534.7
Manganese	Tons (000's)	121.2	119.9				59.9	138.6	152.2	155.4	195.4	284.1	177.8
Salt	Tons (000's)			9.1	7.2	46.4	126.4	363.9	567.4	607.0	498.4	387.6	450.5

TABLE 11

OUTSTANDING DEBTS OF THE EGYPTIAN GOVERNMENT

(LE millions)

		End 1950	End 1951	End 1952	End 1953	End 1954	Jan.31 1955	Feb.28 1955
Loans								
National Loan	3½% 1963/73	67.0	67.0	67.0	67.0	67.0	67.0	67.0
" "	2-3/4% 1955/58	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Palestine Loan	2½% 1959/61	15.0	15.0	15.0	15.0	15.0	15.0	15.0
" "	3% 1969/79	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Cotton Loan	3½% 1954/55	-	-	15.0	15.0	15.0	15.0	15.0
Agrarian Reform Bonds (Law No. 350/1952)		-	-	-	-	12.5	12.5	14.2
Development Loan	2½% 1959/60	-	-	-	-	-	5.0	5.0
" "	3% 1964/65	-	-	-	-	-	10.0	10.0
" "	3½% 1969/70	-	-	-	-	-	10.0	10.0
		108.0	108.0	123.0	123.0	135.5	160.5	162.2
Treasury Bills a/								
Law 41 of 1946 & 90 and 128 of 1951		12.0	35.0	40.0	27.5	24.0	9.0	7.0
Law 294 of 1952		-	-	10.0	20.0	-	-	-
" 296 of 1953		-	-	-	2.0	-	-	-
" 232 of 1954		-	-	-	-	14.0	27.0	29.0
		12.0	35.0	50.0	49.5	38.0	36.0	36.0
	Total	120.0	143.0	173.0	172.5	173.5	196.5	198.2

a/ Excluding bills serving as note issue in conformity with Law 57 of 1951.

TABLE 12

OWNERSHIP OF EGYPTIAN PUBLIC DEBT
AS AT JANUARY 31, 1955

	LE millions
Egyptian Government Securities held by:	
National Bank	22.6
Other Banks	12.6
Postal Savings Bank	19.7 a/
Government (including Sinking Funds)	16.7 a/
	71.6
Other holders	88.9
Total	160.5
Egyptian Government Treasury Bills	
National Bank	27.0
Other Banks	0.1
Postal Savings Bank	1.8
Debt: Sinking Funds & Other Govt. Funds	7.1
Total	36.0 b/

a/ Figures show distribution of December, 1953.

b/ Exclusive of bills serving as note issue in conformity with Law 57, 1951.

TABLE 13

MONEY SUPPLY AND PRICES

End	Money Supply (LE Millions)			Price Indices (June-August 1939 = 100)	
	Currency	Deposits a/	Total	Wholesale	Cost of Living
1949	170.3	177.4	347.9	322	282
1950	188.7	171.8	360.5	376	306
1951	204.1	168.8	372.9	386	328
1952	206.8	160.3	367.1	343	296
1953	191.3	158.9	350.2	354	294
1954	189.6	171.4	361.0	342	283

a/ Including only current private deposits. The National Bank of Egypt includes time deposits in its statistics on money supply on the ground that holders can in fact draw on these deposits at any time and that the increasing proportion of time deposits to sight deposits in recent years is due only to the competition among banks for depositors. While there is some merit to this contention, it should be noted that in any event currency is the most significant factor in money supply in any country like Egypt where the use of "cheque money" is still very limited.

TABLE 14

DEPOSITS OF POSTAL SAVINGS BANK

End	Total (IE thousands)
1949	30,035
1950	29,630
1951	28,446
1952	27,541
1953	26,797
1954	26,445

TABLE 15

BALANCE SHEET ITEMS OF CLEARING BANKS

(LE millions)

Period	Cash and Balances with National Bank	Investments	Discounts and Advances	Deposits
Middle 1949	48.1	18.2	55.4	125.6
1950	49.7	14.2	70.4	139.3
1951	63.4	12.8	74.0	147.7
1952	47.6	11.4	87.8	137.2
1953	63.7	14.5	74.2	142.5
1954	46.5	15.6	90.3	143.1
End 1953	37.6	15.3	102.7	141.7
1954	31.8	17.0	130.8	155.5

TABLE 16

BALANCE SHEETS OF CLEARING AND NON-CLEARING BANKS

(LE millions)

	Sept. 1952	End 1952	Sept. 1953	End 1953	Sept. 1954	End 1954
Assets						
1. Cash	8.1	7.2	7.7	5.9	8.1	5.9
2. Balances with National Bank	52.0	35.0	46.9	36.8	42.3	32.0
3. Other items of cash nature	1.0	0.5	1.4	0.7	1.3	1.4
4. Bills discounted, loans and advances	90.0	113.6	100.5	114.6	108.9	145.0
5. Investments	18.3	17.0	16.6	16.9	17.7	18.8
6. Correspondents	13.1	16.3	19.1	15.2	18.7	21.7
7. Other	4.8	5.5	5.7	5.7	6.1	5.8
Liabilities						
8. Capital and Reserves	17.3	17.0	17.6	17.4	18.5	18.4
9. Checks & drafts outstanding	1.3	1.4	1.4	1.3	1.4	1.5
10. Correspondents	4.7	5.8	9.7	8.1	10.8	12.1
11. Current deposits	111.4	112.2	112.8	109.9	110.7	121.2
12. Time and savings deposits	39.1	37.3	43.4	46.7	51.0	52.6
13. Borrowings	0.7	4.2	0.4	4.3	0.9	13.0
14. Other	14.8	13.3	12.6	11.3	9.7	11.7
Total assets and liabilities	189.2	191.3	198.0	196.5	203.1	230.7
Reserve Ratio a/	33.3	22.3	28.0	22.2	24.4	17.1

a/ $\frac{\text{Item (2) x 100}}{\text{Items 9, 10, 11 and 12}}$

TABLE 17

FOREIGN TRADE

(LE millions)

	1949	1950	1951	1952	1953	1954
Exports						
Cotton	106.1	149.8	164.1	126.4	116.3	113.1
Cotton yarn	1.9	2.4	6.9	3.5	2.0	4.4
Rice	14.4	7.6	14.5	0.8	-	2.8
Onions	1.2	2.0 a/	1.5	2.6	4.1	2.5
Other	12.3	11.2 a/	28.1	10.4	13.5	16.7
Total	135.9	173.0	200.6	142.9	135.9	136.7
Imports						
Consumers goods						
Foodstuffs and beverages	18.0	25.1	20.9	24.8	20.8	17.1
Kerosene	4.0	3.8	4.5	6.7	7.0	7.7
Other	27.3	41.5	38.2	25.5	21.5	19.6
Sub-total	49.3	70.4	63.6	57.0	49.3	44.4
Producers goods						
Raw materials	87.8	107.5	130.6	126.7	95.3	78.3
Capital goods	17.0	20.6	24.1	24.8	18.3	22.5
Fuel other than kerosene	7.0	5.4	9.2	8.7	6.1	7.2
Sub-total	111.9	133.5	163.9	160.2	119.7	108.0
Other	13.5	10.7	52.6	8.8	5.4	7.3
Total b/	174.8	214.6	280.1	226.0	174.4	159.8

a/ Estimate
b/ Including gold.

TABLE 13

PRINCIPAL IMPORTS

(£E millions)

	1951	1952	1953	1954
Wheat and wheat flour	37.6	39.7	25.4	2.4
Coffee and tea	9.5	8.2	9.6	10.1
Edible fruit	3.6	3.3	2.8	2.4
Tobacco, cigars & cigarettes	5.3	5.3	5.0	5.0
Liquid fuels and lubricants	13.0	15.0	13.8	15.1
Pharmaceutical products	4.7	4.3	5.0	5.2
Fertilizers	12.3	13.7	11.5	11.2
Timber, plywood and pulp	12.0	6.1	7.4	8.6
Paper, cardboard and newsprint	5.8	5.2	4.0	4.4
Rayon, including yarn and cloth	4.6	2.6	2.1	?
Woollens, raw and manufactured	7.0	7.0	4.6	4.8
Cotton yarn, cloth, etc.	9.1	5.3	5.2	2.9
Jute articles and sacking	3.2	2.8	0.9	2.1
Iron and steel	8.4	8.5	7.2	8.0
Boilers, pumps and machines	3.6	4.4	2.8	1.8
Textile machinery	1.5	2.1	1.7	2.6
Motor vehicles and accessories	10.0	7.9	4.0	4.9

TABIE 19

GOID AND FOREIGN EXCHANGE ASSETS OF BANKS

(£E millions)

End Year	Gold	Sterling			U.S. dollars	Other	Total
		No. 1	No. 2	Total			
1948	13.0	71.1	263.6	334.7	5.9	10.3	363.9
1949	18.8 a/	62.4	246.7	309.0	21.3 a/	7.6	356.7 a/
1950	34.1	52.3	224.4	276.7	25.6	18.2	354.6
1951	60.6	23.9	196.2	220.1	37.4	12.3	330.4
1952	60.6	6.3	173.7	180.0	20.3	11.4	272.3
1953	60.6	19.1	163.9	183.0	11.5	10.4	265.5
1955 (Jan.1)	60.6	34.7	146.2	180.9	13.3	14.8	269.6
1955 (Feb.26)	60.6	51.6	137.1	188.7	14.9	9.8	274.0

a/ Affected by devaluation.

TABLE 20

PREMIUMS ON IMPORT ENTITLEMENT ACCOUNTS

(as percent of official rates)

End of	Pounds Sterling	US dollars	Deutsche Marks
1953 - June	4.5	11.5	-
Sept.	5.4	10.4	13.0
Dec.	5.3	8.3	12.0
1954 - March	3.1	5.4	4.1
June	3.8	4.1	6.2
Sept.	6.6	6.3	11.0
Dec. (aver.)	6.9	10.0	8.6
1955 - March	9.4	11.2	11.5
May	10.0	13.5	12.0

TABLE 21

EGYPT'S TRADE WITH U.S. AND CANADA

($ millions)

Year	According to U.S. and Canadian Figures			According to Egyptian Figures		
	Exports[a]	Imports[a]	Balance	Exports[a]	Imports[b]	Balance
1948	31.4	46.5	-15.1	19.2	73.8	-54.6
1949	48.0	57.5	-9.5	13.2	79.3	-66.1
1950	55.1	35.4	+17.7	44.9	41.4	+3.5
1951	47.5	80.4	-32.9	57.0	192.8	-135.8
1952	76.3	96.1	-19.8	49.7	155.6	-105.9
1953	30.5	72.0	-41.5	21.9	104.7	-82.8
1954	20.9	41.2	-20.3	19.3	53.4	-34.1
Cumulative Total	309.7	429.1	-121.4	225.2	601.0	-375.8

NOTE: U.S. figures show much smaller exports to Egypt because a considerable proportion of goods ultimately arriving in Egypt were apparently shipped to other destinations and then re-shipped. Transhipment of Egyptian cotton via other countries may also account for the fact that U.S. figures indicate generally somewhat higher imports from Egypt than Egyptian figures.

a/ F.o.b.
b/ C.i.f.

TABLE 22

GEOGRAPHIC DISTRIBUTION OF EGYPT'S FOREIGN TRADE

($ millions)

	1948	1950	1951	1952	1953	1954
Total						
Import	714.4	610.3	802.9	628.3	501.7	458.9
Export	591.4	503.8	583.2	416.7	394.4	397.1
Balance	-123.0	-107.0	-219.7	-211.6	-107.3	-61.8
U.S. and Canada						
Import	73.8	41.4	192.8	155.6	104.7	53.4
Export	19.2	44.9	57.0	49.7	21.9	19.3
Balance	-54.6	+3.5	-135.8	-105.9	-82.3	-34.1
Latin American dollar						
Import	-	-	-	2.6	0.9	2.0
Export	0.5	-	-	-	-	-
Balance	+0.5	-	-	-2.6	-0.9	-2.0
Total dollar						
Import	73.8	41.4	192.8	158.2	105.6	55.4
Export	19.7	44.9	57.0	49.7	21.9	19.3
Balance	-54.1	+3.5	-135.8	-108.5	-83.7	-36.1
Other Latin American						
Import	32.8	22.2	17.1	21.1	12.7	7.7
Export	0.3	8.3	-	0.7	5.1	5.2
Balance	-32.5	-13.9	-17.1	-20.4	-7.6	-2.5
Sterling						
Import	253.8	218.1	245.0	140.0	85.7	98.3
Export	301.2	182.4	217.3	72.1	99.6	105.2
Balance	+47.4	-35.7	-27.7	-67.9	+13.9	+6.9
Non-sterling OEEC						
Import	206.1	213.8	232.1	214.8	214.4	222.1
Export	133.9	158.5	168.2	161.7	161.8	152.1
Balance	-72.2	-55.3	-63.9	-53.1	-52.6	-70.0
Soviet Area						
Import	63.1	31.6	42.3	45.6	37.9	26.1
Export	71.5	43.5	53.8	64.0	37.8	45.0
Balance	+8.4	+11.9	+11.5	+18.4	-0.1	+18.9
All other						
Import	85.4	83.3	73.4	48.2	45.1	49.1
Export	64.5	66.1	86.6	68.5	68.0	70.3
Balance	-20.9	-17.2	+13.2	-20.3	+23.9	+21.2

TABLE 23

EGYPT'S DOLLAR BALANCE OF PAYMENTS

(£E millions)

1951	American Monetary Area	Other Countries	Total
Receipts:			
Exports	19.5	8.9	28.4
Other transactions	5.3	1.0	6.3
Total	24.8	9.9	34.7
Disbursements:			
Imports	11.0	2.3	13.3
Other transactions	2.6	0.4	3.0
Total	13.6	2.7	16.3
Balance of current transactions	+ 11.2	+ 7.2	+ 18.4
Dollar Release by U.K.		+13.7	+ 13.7
Dollar Releases for Oil Payments		+ 3.4	+ 3.4
Overall Dollar Balance			+ 35.5 a/

a/ Accounted for by an increase in dollar assets of £ 8.8 million and in monetary gold holdings of £ 26.7 million.

1952	American Monetary Area	Other Countries	Total
Receipts:			
Exports	19.0	0.7	19.7
Other transactions	4.3	0.4	4.7
Total	23.3	1.1	24.4
Disbursements:			
Imports	21.8	3.3	25.1
Other transactions	3.0	1.2	4.2
Total	24.8	4.5	29.3
Balance of current transactions	- 1.5	- 3.4	- 4.9
Use of dollars primarily to replenish free sterling reserves		-11.9	-11.9
Dollar Releases for oil payments		+ 3.9	+ 3.9
Overall Dollar Balance			-12.9

(Cont'd--2)

TABLE 23 (Cont'd--2)

(£E millions)

1953	American Monetary Area	Other Countries	Total
Receipts:			
Exports	6.2	1.0	7.2
Others	5.3	1.3	6.6
Total	11.5	2.3	13.8
Disbursements:			
Imports	14.3	1.3	15.6
Others	3.2	0.2	3.4
Total	17.5	1.5	19.0
Balance of current transactions	- 6.0	/ 0.8	- 5.2
Other dollar losses a/		- 2.4	- 2.4
Dollar Releases for oil imports		/ 6.5	/ 6.5
Overall Dollar Balance			- 7.6

a/ Probably for replenishment of free sterling.

Jan.-Sept. 1954	American Monetary Area	Other Countries	Total
Receipts:			
Exports	5.7	3.0	8.7
Others	5.2	1.0	6.2
Total	10.9	4.0	14.9
Disbursements:			
Imports	9.2	3.1	12.3
Others	2.5	0.9	3.4
Total	11.7	4.0	15.7
Balance of current transactions	- 0.8	0.0	- 0.8
Other dollar losses		- 0.2	- 0.2
Dollar Releases for oil payments a/		/ 4.2	/ 4.2
Overall Dollar Balance			/ 3.2

a/ Three-quarters of figure for entire year.

ANNEX

Estimated Investment in Sadd el-Aali

The total investment cost of the entire project, including one-half the ultimate power installations (i.e. 720,000 KW out of 1,440,000 KW), the transmission lines, and the land reclamation and settlement program, is estimated as follows:

Table No. 1

Cost of Sadd el-Aali Project (in millions)

	Foreign Exchange (US$)	Foreign Exchange (£E)	Local Cost (£E)	Total Cost (£E)	Total Cost in equivalent US$
1. The dam and civil works	149.2	52	58	110	
2. Turbines and generators	40.2	14	2	16	
3. Transmission line to Cairo, 800 kms.	53.1	18.5	6	24.5	
4. Additional transmission lines and interconnections	33.0	11.5	5.5	17	
Sub-total, civil works and power	275.5	96.0	71.5	167.5	480.7
5. Indemnities	8.6	3	12	15	
6. Conversion of basin irrigation area	8.6	3	18	21	
7. Irrigation pumping stations	43.8	15.25	7.50	22.75	
8. Reclamation (1,300,000 feddans)	16.5	5.75	29.50	35.25	
9. Public utilities, roads, community facilities, etc.	n.a.	n.a.	19.50	19.50	
Sub-total	353.0	123	158	281	806.5
10. Interest during construction	54.8	19.1	33.0	52.1	149.5
Sub-total, public investment	407.8	142.1	191	333.1	956.0
11. Private (or public) Investments:					
Reclamation	n.a.	n.a.	904	104	
Housing	n.a.	n.a.	32.50	32.50	
Grand Total Investment	407.8	142.1	327.5	469.6	1,347.

(Exchange at £E one = $2.87)

The estimates of cost are reasonable and are the best obtainable considering the present stage of development of engineering planning for the project. With the exceptions noted below, the estimates of cost given above were as prepared by the engineers of the Egyptian Government in collaboration with Hochtief. They were based on local conditions and costs, including experience on the power scheme now under construction at Aswan.

The International Board of Consultants reviewed these estimates in considerable detail but did not accept full responsibility for them, although appraising them as reasonable. Representatives of the Bank spent several days with the staff of the Production Council checking the cost estimates and comparing unit cost values with the existing contract prices at Aswan Dam. As a result of these discussions the estimate for the contingency for the civil works and power items was increased from 5% to 10%. An overall contingency for the project has not been added, for the reason that a contingency allowance is included in the estimates for the several phases of the project.

It should be noted that the estimate in this report differs from that of the Egyptian government in a number of respects:

(1) An additional investment of £E 15 million in transmission lines and interconnections has been added on the ground that such facilities are necessary in order to ensure that all of the power to be generated at Sadd el-Aali will be effectively marketed. The Egyptian Government estimates make provision for the main Aswan-Cairo transmission line, but not for additional transmission and distribution links in the delta below Cairo. The addition to the estimate for transmission lines was based on the recommendations of Electricite de France to the Egyptian Government after the original estimate was compiled, and on unit costs applicable to Egypt.

(2) The allowance for compensation to the Sudan for the flooding of Sudanese land has been increased from £E 10 million to £E 15 million. The Sadd el-Aali reservoir will inundate the Sudanese town of Wadi Halfa and displace some 30,000 Sudanese for whom new homes and other means of livelihood will have to be found. It seems likely that the Sudanese will demand and obtain, as a price for their consent to the building of Sadd el-Aali, more compensation than the £E 10 million currently envisaged by the Egyptian Government.

(3) Provision has been made for major irrigation and drainage works covering the full 1.3 million feddans of new land to be irrigated, whereas the Egyptian Government estimate allowed for only 1 million feddans. The additional 300,000 feddans was originally left out of account because reclamation of certain lands comprising this total has already been begun. Egyptian authorities concede, however, that the necessary investment cost of reclaiming this land should be considered part of the total cost of the project. The total expenditure on this account, however, has not been altered because, as will be indicated later, it is suggested that much greater emphasis be given to the reclamation of new land in the Delta where the cost per feddan is likely to be much lower.

(4) The new estimate includes £E 19.5 million for investment in roads, public utilities, schools, hospitals, etc., on the 1.3 million feddans of reclaimed land, while the Egyptian Government had made no allowance for such investment. On the basis of conversations with Egyptian officials, it was considered reasonable to estimate this investment at approximately £E 15 per feddan.

(5) The cost of reclaiming the new land (other than that of major irrigation and drainage works) and of housing on the new land has been added to the over-all investment required by the project. This additional investment, totaling £E 136.5 million, could be either private or public, although, for reasons to be enumerated later, it would be preferable to have it undertaken for private enterprise. The reclamation expenditure would be for the construction of subsidiary irrigation and drainage canals, land levelling, de-salting where necessary, and appropriate cropping to bring the land up to normal standards of fertility. The cost has been calculated on the basis of recent experience. For housing an allowance of £E 25 per feddan has been made. This is substantially below the expenditures now being incurred in certain model settlement projects which have been undertaken by the government but on a standard which can hardly be envisaged for all new land.

(6) To take into account the need for financing interest payments on loans contracted for the project an amount of approximately £E 52 million has been added as "interest during construction" for the 10-year period required to build the dam. The interest calculation has been made on the assumption that (1) £E 70 million (about $200 million) would be borrowed from abroad at an interest rate of 4 3/4% and a commitment charge of 3/4%, (2) about £E 72 million would be borrowed from the National Bank at 3% and used to purchase the balance of the foreign exchange requirements from this Bank, and (3) the remainder, i.e. the domestic outlays, would be financed by domestic public loans at 3½%.

A tentative attempt to project these expenditures year by year has been made in table No. 8 below. The total investment would be made over a period of 18 years and all but a small fraction within 15 years. During the first 10 years total public and private investments to be financed would average almost £E 37 million annually, and necessary public investment almost £E 31 million per year. Around 90% of the total public investment would fall in the first 10 years. The total direct foreign exchange component of public investment would be approximately £E 142 million or an annual average of £E 13.7 million in the first 10 years.

Of the total public investment of £E 333 million (including interest during construction), £E 228 million would be necessary irrespective of whether or not power facilities were installed at Sadd el-Aali. In other words, £E 105 million is the additional investment necessitated by the installation of the power plant. The latter includes the cost of the civil works for the power features in the dam, such as power tunnels and caverns, and of the turbines, generators, transmission lines and such other mechanical and electrical facilities as would be directly required for power. All these total £E 88.5 million, to which a proportionate amount of the allowance for interest during construction, namely £E 16.5 million, has been added.

TABLE No. 8

SADD EL-AALI PROJECT - EGYPT

ESTIMATED INVESTMENT COST OF HIGH ASWAN DAM AND RELATED WORKS

INVESTMENT COST Years:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	TOTAL	
1. PUBLIC																				
Dam & Civil Works																				(Including £E 31 million attributed to civil works in connection with power)
Total	11	13	10	10	10	11	12	11	11	11									110.00	
Foreign	7	8	5	5	5	5	5	4	4	4									52.00	
Turbines & Generators																				
Total	1	2	2	3	3	2	2	1											16.00	
Foreign	1	2	2	2	2	2	2	1											14.00	
Transmission Line to Cairo																				
Total		1	2	3	5	5	4.5	4											24.50	
Foreign		1	2	3	3.5	3.5	3	2.5											18.50	
Additional Transmission Lines & Interconnections																				
Total				0.5	1	0.5	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.5				17.00	
Foreign				0.5	0.5	0.5	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3					11.50	
Indemnities to Sudan																				
Total	4	4	4	3															15.00	(Egyptian allowance increased 50%)
Foreign	2	1																	3.00	
Reclamation Cost (Major) Conversion of basin lands																				
Total			3	4	5	5	4												21.00	
Foreign					1	1	1												3.00	
Lower Delta (700,000)																				(Including £E 5.25 mil. for pumping stations of which 3.5 mil. foreign exchange)
Total			2	2.5	2.5	2.5	3	3	3	3.5									22.00	
Foreign			0.5	0.5	0.5	0.5	1	1	1.5	1									6.50	
Upper & Middle Egypt (400,000)																				(Including £E 145 mil. for pumping stations of which £E 9 mil. foreign exchange)
Total								5	7	5	6	3							26.00	
Foreign								2	3	2	3	1							11.00	
Desert land in Lower Egypt (200,000)																				
Total	1.25	1.25								2.5	2.5	2.5							10.00	(Including £E 3.5 mil. for pumping stations of which £E 2.75 mil. foreign exchange)
Foreign	0.50	0.50								1	1	0.5							3.50	
Other Public Works																				
Total		0.25	0.5	0.5	1.0					1.0	3.0	3.0	3.0	3.75	3.5				19.50	(Including roads, schools, hospitals, water supply, etc.- £E 15 mil. per feddan)
I. TOTAL PUBLIC INVESTMENT																				
(a) Excluding interest during construction																				
Total	17.25	21.50	23.5	26.5	27.5	26.0	27.1	25.7	22.7	24.7	13.2	10.2	4.7	5.45	5.0				281.00	
Foreign	10.50	12.50	9.5	11.0	12.5	12.5	13.1	11.6	9.8	9.3	5.3	2.8	1.3	1.3					123.0	
Domestic	6.75	9.00	14.0	15.5	15.0	13.5	14.0	14.1	12.9	15.4	7.9	7.4	3.4	4.15	5.0				158.0	
(b) Including interest during construction																				
Total	18.4	23.1	26.0	29.5	32.0	31.6	33.8	33.6	31.7	34.9	13.2	10.2	4.7	5.45	5.0				333.15	
Foreign	11.2	13.4	10.7	12.5	14.3	14.5	15.4	14.2	12.7	12.5	5.3	2.8	1.3	1.3					142.10	
Domestic	7.2	9.7	15.3	17.0	17.7	17.1	18.4	19.4	19.0	22.4	7.9	7.4	3.4	4.15	5.0				191.05	
(c) Cumulative (including interest during construction)																				
Total	18.4	41.5	67.5	97.0	129.0	160.6	194.4	228.0	259.7	294.6	307.8	318.0	322.7	328.15	333.15				333.15	
Foreign	11.2	24.6	35.3	47.8	62.1	76.6	92.0	106.2	118.9	131.4	136.7	139.5	140.8	142.1	142.1				142.10	
Domestic	7.2	16.9	32.2	49.2	66.9	84.0	102.4	121.8	140.8	163.2	171.1	178.5	181.9	186.05	191.05				191.05	
II. PRIVATE (OR PUBLIC) INVESTMENT																				
Reclamation	1.0	1.0	2.0	1.5	1.5	2.0	3.0	3.0	7.0	9.0	14.0	14.0	12.0	10.0	8.0	7.0	5.0	3.0	104.00	(Per feddan: £E 10 for 700,000 feddans of basin land: £E 70 mil. for 700,000 feddans of Delta land; £E 80 mil. for remainder)
Housing		0.5	0.75	1.0	1.0	0.5				3.5	8.0	6.0	5.0	4.0	2.25				32.50*	* (£E 25 mil. per feddan)
Total	1.0	1.5	2.75	2.5	2.5	2.5	3.0	3.0	7.0	12.5	22.0	20.0	17.0	14.0	10.25	7.0	5.0	3.0	136.50	
III. GRAND TOTAL INVESTMENT																				
(a) Excluding interest during construction	18.25	23.0	26.25	29.0	30.0	28.5	30.1	28.7	29.7	37.2	35.2	30.2	21.7	19.45	15.25	7.0	5.0	3.0	417.50	
(b) Including interest during construction on public investment	19.4	24.6	28.75	32.0	34.5	34.1	36.8	36.6	38.7	47.4	35.2	30.2	21.7	19.60	15.25	7.0	5.0	3.0		
(c) Cumulative (including interest during construction)	19.4	43.0	71.75	104.75	139.25	173.35	210.15	246.75	285.45	332.85	368.05	398.25	419.95	439.4	454.65	461.65	466.65	469.65	469.65	

Since considerable additions have been made to the original estimates of the Egyptian authorities, the total investment requirements indicated above will have to be carefully reviewed with the government and at the same time the scheduling of expenditures on the various components of the project must be more accurately determined.

RESTRICTED

Report No. T.O. 94-b

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PRELIMINARY REPORT

ON THE SADD EL-AALI PROJECT

EGYPT

February 28, 1956

Department of Technical Operations

N O T E

This preliminary report on the Sadd el-Aali project has been prepared on the basis of certain assumptions of which the most important are that (1) the design of the project will not be radically changed, (2) the cost currently estimated will not be substantially increased, and (3) the amount of water available to Egypt after completion of the project will be sufficient to irrigate 1.3 million feddans of additional land.

TABLE OF EQUIVALENTS

One Egyptian Pound (£E 1.0)	=	U. S. $2.87
One Piaster (1/100 £E)	=	U. S. $0.0287
One Millieme (1/1000 £E)	=	U. S. $0.0028
One Feddan	=	1.038 acres
One Ardeb	=	5.6 bushels
One cubic meter (M^3)	=	1.31 cubic yards
One Milliard (of M^3 of water)	=	0.801 million acre feet (of water) (MAF)
One cubic meter per second (M^3/sec.)	=	35.31 cu. ft/sec.
One Meter	=	3.281 feet
One Kilometer	=	0.621 miles
One Square Kilometer	=	0.386 square miles
One Metric Ton	=	1.102 short tons
One Kilogram (kg)	=	2.205 pounds (avdp.)
1,000 Watts	=	1 kilowatt (KW)
1,000 Kilowatts	=	1 Megawatt (MW)
One Kilowatt (KW)	=	1.341 horsepower (HP)
One Horsepower (HP)	=	0.746 kilowatts (KW)

PRELIMINARY REPORT
ON THE SADD EL-AALI PROJECT

EGYPT

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SUMMARY

1. This report is a preliminary appraisal of a project, proposed by the Government of Egypt, to build a high dam (Sadd el-Aali) on the Nile approximately 6½ kilometers upstream from the existing Aswan Dam. The reservoir will have a capacity of 130 milliards (billion) cubic meters. Its primary purpose is storage for irrigation use of essentially all of the annual run-off of Nile flood waters. In addition the project will include 720,000 kw of installed power. Flood protection for the downstream areas will be provided by the dam and navigation conditions improved.

2. The dam itself, which is estimated to require ten years to build, and the power generating facilities and transmission lines are estimated to cost £E 167 million ($481 million) exclusive of interest during construction. When the costs of irrigation and drainage works, land reclamation and settlement, public utilities and indemnities are added, the entire program is estimated to entail an investment of £E 418 million ($1,200 million). Interest during construction on the public investment will raise the total further to £E 460 million ($1,320 million). Of this amount at least £E 323 million ($927 million) will be public investment of which in turn £E 136 million ($390 million) will require foreign exchange.

3. The project is technically sound. Its reservoir capacity is the optimum to enable the maximum volume of Nile water to be made useable. It would be an integral and essential part of any over-all scheme for the full development of the Nile water resources. It does not conflict with, but rather supplements, the so-called Century Storage scheme which, by providing over-year storage in the equatorial lakes, would smooth out the long wet and dry cycles, whereas Sadd el-Aali would provide basically for the storage of annual flood water and smooth out the shorter-run annual fluctuations in the river flow. Sadd el-Aali can perform this function more effectively than other proposed reservoirs on the Nile which because of inadequate storage capacity would not in the aggregate ensure a controlled supply of water for irrigation comparable to that provided by Sadd el-Aali.

4. The project would be the dominating feature of Egyptian economic development over the next decade and would no doubt strain Egypt's financial resources.[1]

5. Before the project can be carried out there must be agreement with the Sudan on two points:

(a) Indemnities: The reservoir created by Sadd el-Aali would extend some 550 kilometers upstream, about 200 kilometers of which are within the Sudan. An agreement with the Sudan regarding the indemnity to be paid for flooding Sudanese territory will accordingly be necessary; and

1/ See report "The Economic Development of Egypt" No. A.S. 40-a

(b) Division of Water: Due to fluctuations in the present run-off and to the limited capacity of existing storage reservoirs, the useable irrigation supplies vary widely from year to year, but on the average Egypt's annual use is 49.2 milliards and Sudan's is 3.6 milliards, both measured at Aswan.[1] The Sadd el-Aali reservoir would not only stabilize the amount of water available for irrigation in Egypt, but also make available additional annual supplies amounting (after allowing for evaporation lost) to about 19 milliards, measured at Aswan. It has been assumed in this report, for the purpose of appraising the project, that the eventual division of the additional supply between Egypt and the Sudan would permit the irrigation of 1.3 million feddans of new lands in Egypt.

6. The most important benefits of the project would be in the field of agriculture. Water rather than land is the limiting factor for agricultural production and essentially all the presently developed supplies are now utilized. The cropped land available for the large and rapidly expanding agrarian population has diminished from 0.90 feddans[2] per head in 1927 to 0.70 in 1953. The increase in population in Egypt, now at a rate of about 2½% per year, makes it essential that additional irrigation supplies be developed. In Egypt, agriculture cannot be carried on without irrigation. Moreover, a substantial increase in agricultural production and income is required to give a much needed impulse to the development of other sectors of the economy -- industry, trade and finance -- which otherwise are likely to stagnate. The Egyptian Government expects that the project would enable Egypt to (1) increase the irrigated area by 1.3 million feddans, i.e. from 6.15 to 7.45 million feddans, (2) convert about 670,000 feddans of basin irrigated land to perennial irrigation, and (3) increase yields by improving drainage and assuring a more regular water supply. As a result, agricultural income is expected to rise ultimately by 45%.

7. The second most important benefit would be derived from the electric power which would be generated at the dam. In the first stage, the power plants would have a capacity of 720,000 kw, one-half that ultimately to be developed at the dam. Present capacity for electric generation in Egypt totals about 500,000 kw and this is being increased by the construction of new thermal capacity and by the Aswan power scheme to almost 1,200,000 kw. The addition of the Sadd el-Aali station would thus increase the total supply of power in Egypt to approximately 1,900,000 kw or about four times the present supply. Developing demand will probably require this capacity some time between 1971 and 1973. The additional investment cost (LE 101 million) caused by the incorporation of power features in the project is warranted because it would make possible the delivery of power at load centers in Cairo and the Delta at a cost substantially below that of thermal power.

8. The navigation and flood control benefits, though ancillary, are not unimportant. By stabilizing the flow of the Nile in Egypt throughout the year, Sadd el-Aali would make possible year-around navigation of the Nile and its

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1/ Losses of 20% occur between the point of measurement in the Sudan (Sennar Dam) and Aswan, the point of measurement in Egypt.

2/ One feddan equals 1.038 acres.

and downstream canals, thus lowering the cost of bulk transport. By effectively controlling floods, the project would save the Government certain recurring expenditures for flood control and eliminate damage to land resulting from seepage and infiltration during the flood season.

9. Major benefits from the project cannot be expected until after the completion of the dam in 10 years' time and the full benefits are not likely to be realized until some ten years after that. When the upstream coffer dam is finished after the fifth construction year, there would be some improvement in the control of the Nile, resulting in a modest increase in the supply of irrigation water and raising the amount of firm power which can be generated at the power station now under construction at the existing Aswan dam.

10. The investment in the project although large, would not be unreasonable in relation to the aggregate economic and financial benefits which will flow from it. The total annual economic benefits, in terms of additional national income, would ultimately amount to more than a third of the investment. In financial terms, the net potential income from power would be more than enough to pay off the entire power investment -- £E 101 million -- within 15 years' operation. Meanwhile, the government's general tax revenues, including those derived directly and indirectly from the project, would be large enough to allow for service of the debt not retired from power revenues.

PRELIMINARY REPORT

SADD EL-AALI PROJECT

E G Y P T

I. BACKGROUND

A. Introduction

The Government of Egypt proposes to build a large dam on the Nile River primarily in order to store flood waters for irrigation use, but also to generate large quantitiesof electric power, provide flood protection and improve navigation. Pursuant to a request by the Egyptian Government, this report appraises the merits of this project, known as Sadd el-Aali (High Dam). The project study is based on information obtained by Bank representatives (Messrs. Hathaway, Joosten, and Coolhaas, consultants, and Messrs. de Wilde and Bass), preliminary engineering studies and reports prepared by Hochtief (a German firm), data submitted by the National Production Council (an Egyptian Government agency established in January 1953), and by the Sadd el-Aali Authority and the report and advice of the International Board of Consultants.[1] The data obtained are sufficient for an adequate appraisal.

It is a large and ambitious project by any standards of comparison. According to the preliminary designs, which have been appraised as being sound by an experienced group of international consultants, the reservoir will have a capacity of 130 milliards [2], enough to store the seasonal floods, smooth out the flow of the river for irrigation use, navigation and power production, and contain a dead storage volume for deposition of silt sufficient for at least 500 years.

Construction of the dam and initial power facilities is estimated to require approximately ten years and to cost £E 167 million (exclusive of interest during construction).[3] The entire program, except for a later doubling of the power capacity, is estimated to require a total investment of approximately £E 460 million over a period of sixteen years. Of this, at least £E 281 million (£E 323 million including interest) will be public investment including foreign exchange outlays of £E 123 million. The project provides for generating facilities of 720,000 kw, one-half the ultimate capacity, an Aswan-Cairo transmission line and interconnections, and irrigation developments to increase the area of perennially irrigated lands by 1,970,000 feddans including conversion to perennial irrigation of 670,000 feddans of land now irrigated by the basin method and capable of producing only one crop per year.

For irrigation purposes, the project would increase the present annual supplies of water, now about 53 milliards in normal years in Egypt and

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1/ See pages 16 and 17, describing the International Board of Consultants.
2/ A milliard, as used throughout this report, represents a thousand million cubic meters.
3/ Equivalent to US $481 million, at exchange of £E one - $2.87.

the Sudan, by another 19 milliards. Egypt hopes it will be able to use about ten milliards of this for increasing the area under irrigation from 6.15 to 7.45 million feddans.[1]

Egypt, substantially without rainfall, is wholly dependent on Nile waters for its livelihood. Outside the irrigated areas which comprise less than 3% of the total, the country is desert. About 22 million people live on the productive six million feddans. Population pressure on the land is severe and the situation is becoming more acute each year because of the exceedingly rapid population growth in the country. By far the largest portion of the population, about 60%, are engaged in agriculture and live in villages and hamlets. Farms are small. Of the holdings of agricultural land more than half are less than one feddan and the average for all holdings is about 2-1/4 feddans.

Water is the limiting factor for the area of land that can be cultivated and of the quantity and kinds of crops that can be produced. Under the present development of the Nile, relatively little additional land could be served with dependable irrigation water and additional output can, in the main, be achieved only by raising yields which are already very high. The population is increasing annually by approximately 2½% or at present by about one-half million, and at its current rate will double in less than 30 years. An immediate and broad scale approach to the development of the Nile water resources for their most efficient use is thus called for.

B. Existing Utilization and Storage of Nile Waters

A map of the Nile Basin is included in the appendix. A reference to it, together with a very brief description of the Nile system gives an idea of the river's potentialities but at the same time emphasizes that the problems for its development and use are both extensive and intricate. The Nile is the dominating feature of the northeast quarter of Africa. Its basin embraces Egypt, the Sudan, Uganda, one-third of Ethiopia and parts of Kenya, Tanganyika, Ruanda-Urandi and the Belgian Congo. All along its more than 4,000 mile course people are affected by the river or by the water which helps form it.

The river is characterized by a regular flood cycle with the rise taking place in Egypt during July and August. Usually the peak of the flood is reached in early September, at which time the river begins to fall and reaches a minimum flow the following May. The annual recorded run-off at Aswan has varied from about 45 to 137 milliards, the annual mean for the last 54 years being about 83.7 milliards. Of this amount in an average year about 29 milliards, or 35%, wastes to the sea.

Hydrology

The known history of the hydrology of the Nile dates back further than that of any other river of the world. Measurements have been continually made at a river gauge erected near Cairo about 641 A. D. and records are available for most of the time since then. The three principal streams making up the "Main Nile," - the designation given the reach from Khartoum to the sea -

1/ One feddan equals 1.038 acres.

are the Blue Nile, the White Nile, and the Atbara. The maximum discharge of the Nile considered at Aswan occurs on about September 8 each year. At this time the water components contributed by these three rivers in an average year are as follows:

	Millions M^3/day	Percent Total discharge
White Nile	70	10
Blue Nile	485	68
Atbara	157	22
Total	712	100

The minimum discharge is about 45 million m^3 per day, less than one-fifteenth the maximum and it occurs on about May 10. The flow from the above rivers is relatively very different in low flow:

	Millions M^3/day	Percent Total discharge
White Nile	37.5	83
Blue Nile	7.5	17
Atbara	0	0
Total	45	100

The Blue Nile originates in Lake Tana, a large equatorial lake in northern Ethiopia which itself contributes about 7% of the total discharge of the river. The Blue Nile is fed by many tributaries in Ethiopia and also by a number in the Sudan of which the Rahad and the Dinder, contributing about 10% of the annual discharge, are the most important.

The White Nile flows from a series of equatorial lakes which drain a large area having heavy tropical rainfall - Lake Victoria, the largest with a surface of 67,000 square km. located on the border of Uganda, Tanganyika and Kenya and draining into Lake Kioga, a relatively much smaller lake immediately to the north in Uganda and which in turn drains by the Victoria Nile into Lake Albert; and Lake George and Lake Edward, companion lakes on the Congo-Uganda border, both of which also feed into Lake Albert. The annual contribution of these lakes to the White Nile, which has its source at the outlet of Lake Albert, is set forth in Table No. 1.

Table No. 1

Inflow and Outflow, Equatorial Lakes

	(Milliards)			
	Lake Victoria	Lake Kioga	Lakes George and Edward	Lake Albert
Inflow from tributaries	16.0	24.1	2.2	25.0
From rainfall on Lake	98.0	8.0	3.4	4.6
Total	114.0	32.1	5.6	29.6
Evaporation	93.0	12.4	3.6	4.9
Outflow	21.0	19.7	2.0	24.7
Flows into:	L. Kioga	L. Albert	L.Albert	White Nile

It will be noted that the loss from evaporation on these lakes roughly equals the rainfall on them during the year. The White Nile, carrying the outflow from Lake Albert, receives the contribution of waters from other torrents and attains an annual volume of 27.3 milliards by the time it reaches Mongalla where it becomes known as the Bahr el Jebel in the reach through the Sudd marshes in southern Sudan between Mongalla and Malakal. In the Sudd marshes it loses about half its volume of water and joins the Sobat just above Malakal to form the main reach of the White Nile. The Sobat river is formed by two main branches, the Baro and the Pibor, of which the Baro produces the greater quantity of water. All of the Baro and a good part of the Pibor water comes from Ethiopia. Both rivers are large streams in the wet season, June to December, but have an insignificant flow during the dry season. The Bahr el Jebel and the Sobat contribute an annual flow of 14.3 and 13.3 milliards respectively making the headwater flow in this reach of the White Nile 27.6 milliards in an average year.

The White and the Blue Niles join at Khartoum in the Sudan to form the Main Nile. Some distance downstream the Atbara River, which has its headwaters in Ethiopia, empties into the Nile. During the period from January to June it is dry, but during the peak flood it contributes as much as 22% to the discharge of the Nile measured at Aswan.

Historical Development

1. Use of Nile Waters

Irrigation has been practiced in the Nile Valley since the beginnings of agriculture in predynastic times. Tradition has it that the building of dykes to contain floodwaters for the first basin irrigation practices began about 3400 BC. Under this ancient system, the land is divided into basins of from one thousand to 40 thousand feddans by the construction of dykes, and flood waters are let into the compartments to a depth of one or two meters. After from 40 to 60 days, when the river has fallen, the areas are drained and a crop is produced by use of the residual moisture. In addition, the deposition of silt, under this system of irrigation, adds to the soil fertility. There still remain in Egypt today about 670,000 feddans watered by a very effective system of basin irrigation, although only one crop annually is produced. Modern perennial irrigation development, as we know it, achieved

by means of large scale control structures for diversion and storage of water for supplying irrigation canals throughout the year, dates in Egypt from the completion of the first barrage in 1861. By 1890 the area under perennial irrigation in Egypt was 2.9 million feddans, and this used up the whole of the natural flow of the river during the low period before any storage dams were built. At that time there remained in Egypt about 2 million feddans under basin irrigation. The first storage dam, Aswan, was completed in 1902 and, at the height first constructed, stored one milliard.

A decade later plans began to mature for further conservancy works. In the Sudan a barrage was planned which would supply irrigation for 100,000 feddans in the Gezira triangle where the Blue and White Niles meet. But the exceptionally low water in 1913 (one of the four lowest in recorded history) showed that a storage dam at Sennar would be necessary and that with a reservoir of the capacity originally proposed, 300,000 feddans could be irrigated. At the same time the Egyptian Government was considering construction of a dam at Gebel Aulia on the White Nile not far from Khartoum. Progress on this scheme was interrupted by World War I.

In 1920 the Egyptian Government outlined a series of projects under the title of "Nile Control."[1/] These consisted of the Gebel Aulia dam, the Sennar dam, an additional barrage (Nag Hamadi) on the Main Nile in Egypt, an Upper Blue Nile dam and developments in the Sudd Region and for Lake Albert storage, but the accuracy of the data on which the proposals were based was widely attacked and the "Nile Control Commission," an international body composed of three engineers, was appointed by the Egyptian Government. The British Government and Cambridge University each nominated one member. The American Government nominated Mr. H. T. Cory. This Nile Control Commission was asked:

a. to report on the physical data on which certain of the Nile control projects had been based;

b. to report on the best allocation of the increased available water at each stage of development; and

c. to advise on the apportionment of costs of the proposed works.

In its report dated August 25, 1920 the Commission unanimously supported the underlying data and a majority recommended a "workable solution" of the problem of apportioning costs. On the division of additional Nile waters, however, the Commission found it impossible at that time to reach

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1/ Based on a report, "Nile Control," by Sir Murdock MacDonald, then adviser to the Egyptian Ministry of Public Works.

agreement.[1]

Although the Egyptian Government delayed action on both Gebel Aulia and Nag Hamadi, the Sudan proceeded with the construction of the Sennar dam which was completed in 1925. This proved to be a more expensive undertaking than originally estimated and to justify the costs the method of operation was changed so as to irrigate a much larger area (now actually 890,000 feddans) than the 300,000 feddans originally planned for.

Because of these activities and as a result of agreement between Great Britain and Egypt, another group, designated as "The Nile Commission,"[2] was established in 1925 "for the purpose of examining and proposing the basis

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1/ Mr. Cory proposed that the following general formula be applied:

1. Each country should have "a vested right in perpetuity to the supply of water when and as beneficially used by it during the past few years; 2. the unappropriated water possible of use...should be divided...so as... in each case to permit irrigation of like percentages of the superficial area of arable land unwatered but irrigable and lying within the watershed of the stream; 3. the cost of all works ... as well as all maintenance and operation charges ... should be shared on the basis of the quantity of conserved water each shall be entitled to receive measured at the point of conservation." However, if either country does not wish to or cannot "advance its share of the first cost of any conservation work, its failure to do so in no sense stops it from eventually participating in the full use of the works aforesaid upon due payment of its proper share of the cost." Mr. Cory added: "... it may be well to notice the suggestion sometimes made that the allocation of water should be based upon, or at least take into account, the population of the moment. Such an idea is untenable ... the very essence of water rights is that lands acquiring them should be assured of continual irrigation in future."

The two British commissioners "were unable to decide precisely what proportion of the increased supply of available water ... should be allocated to Egypt and the Sudan respectively, because it has been impossible to obtain sufficient data on which to base any reliable forecast of the probable rate of increase of irrigation in the Sudan." As to Mr. Cory's views they stated: "We feel that, while his findings may be theoretically correct, it is impossible, on financial and other points, to apply them in present circumstances."

The majority view prevailed and no action was taken under Mr. Cory's formula. The formula which he proposed has served, however, as the base for certain of the proposals in the current Egyptian-Sudanese discussions concerning a division of the additional Nile waters which the Sadd el-Aali will make available.

2/ Appointed January 1925, with Mr. Canter Cremers, a Dutch engineer, as Chairman and with Mr. R. M. MacGregor and Mr. Abdel Hamid Suleiman Pasha as members.

on which irrigation can be carried out with full consideration of the interests of Egypt and without detriment to her natural and historic rights." The report of this Commission, dated March 21, 1926, was incorporated in an exchange of notes in May 1929 between Great Britain and Egypt which is known as the "Nile Waters Agreement" of 1929.

2. The "Nile Waters Agreement" of 1929

The March 1926 report provides for "working arrangements," drawn up by the authorities of Egypt and the Sudan, to control the operation of storage and the use of water in the Sudan. It goes further and specifies that, except with the previous agreement of Egypt, no works should be constructed or measures taken on the Nile or on its tributaries, in the Sudan or in the territories under British administration, which would affect the flow of the river in such a way as to cause prejudice to the interests of Egypt.

This "Nile Waters Agreement" is the basis of the present allocation of water to the Sudan. It was intended to provide "a practical working arrangement which would respect the needs of established irrigation, while permitting such program of extension as might be feasible under present conditions and those of the near future, without at the same time compromising in any way the possibilities of the more distant future." The "working arrangements" were based upon recognition of the fact that for many years past the whole of the natural flow of the river during the low period had been used for irrigation in Egypt, and by pumps already established in the Sudan. This established irrigation had to be respected, and to permit this, it was provided that the Sudan's further requirements at this time of year should be met entirely from stored water.

The period when the whole flow was already so used was found to begin on 19th January at Sennar, but for convenience the "restricted period" was defined as beginning on 1st January, there being added to the Sudan's entitlements agreed quantities of water to be taken from the river from 1st to 18th January. The water used on all additional areas under pump irrigation in the "restricted period" is replaced in the river by the release of corresponding quantities of water from Sennar reservoir in compensation. The whole use of water by the Sudan during the restricted period is recorded in the annual "Water Account," in which the Sudan receives credit for the contents of Sennar reservoir and her other entitlements, and is debited with all the amounts of water used under the various heads. The Nile Commission found that the "restricted period" ends, and the "period of surplus" begins, on 15th July at Sennar (provided by that date the rising flood has reached a certain minimum discharge). During the "period of surplus," the Sudan is entitled to take water into the Gezira Canal up to certain maximum daily rates, to fill the Sennar reservoir, and to flood the areas under basin irrigation in the Northern Province so far as the natural rise of the flood permits. Irrigation by pumps is unrestricted from July 15 to December 31.

3. Other Developments

A further raising of Aswan reservoir was not included among the projects considered by the Nile Commission. However, in 1929 the Egyptian

Government approved a large program of irrigation works which included both this project and the previously deferred project for the Gebel Aulia reservoir. The second raising of the Aswan dam was completed in 1933, increasing the capacity of the reservoir to 5.4 milliards. The construction of Gebel Aulia reservoir was completed in 1937; its capacity was 3.6 milliards, but owing to heavy losses of water by evaporation in the reservoir and during transmission down the river, it increased the water available at Aswan only by about 2.5 milliards.

C. Operation of Existing Irrigation Reservoirs

Use of Nile water is presently limited to the amount that can be obtained from the limited capabilities of the storage dams which are located at Aswan in Egypt and at Gebel Aulia and Sennar in the Sudan. The combined capacities of the Aswan, Gebel Aulia and Sennar dams is about 8.1 milliards.

Aswan Reservoir

The present Aswan Dam can be filled to R.L. 121[1/] and has a capacity of 5.411 milliards at this level. During normal years, storage in the reservoir begins when the river has fallen to 91.0 on the Aswan gage which occurs generally in the early part of October. Filling is completed by the end of January and storage is released as soon as the natural river begins to fall below irrigation requirements.

Sennar Reservoir

The Sennar Dam, situated on the Blue Nile in the Sudan about 200 miles south of Khartoum, was first filled in December 1925. The reservoir is used to irrigate the Gezira plain in the Sudan and originally had a storage capacity of 781 million m^3, which was sufficient to supply about one million feddans. During the period of 1950-52 the dam was raised to provide additional storage and the reservoir now has a capacity of 929 million m^3, or about one milliard.

The irrigation season in the Gezira begins in the middle of July, after the reservoir level has been raised sufficiently to divert water through the main canal. In October and November, after the crest of the flood has passed, the reservoir is raised to full level. This stored water remains until January when the natural supply falls short of the combined requirements of Sudan and Egypt and after which the Sudanese must draw only on the supply stored in the reservoir. Irrigation of cotton in the Gezira ends in March.

Gebel Aulia Reservoir

The Gebel Aulia dam in the Sudan 40 kilometers south of Khartoum on the White Nile was completed and partially filled in 1937. The water surface

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1/ Reservoir level, or elevation in meters above sea level.

thereafter was raised 50 centimeters higher each year until the design level was reached in 1942. The maximum head on the dam is around 6.5 meters and the capacity at full reservoir is about 3.6 milliards.

The stored water is used entirely by Egypt for irrigation. Filling begins in July and is completed in October, the rate of filling depending a great deal upon the stage of the Blue Nile as the reservoir is operated to provide a measure of flood protection for Egypt during the filling period. Storage is released beginning in February and the reservoir is emptied usually by the first of May.

D. Schemes for Overall Development of the Nile

The further development of the Nile and the apportionment of the benefits therefrom among the inhabitants of the Nile Basin has been the preoccupation of river planners for a long time; and in view of the wide political and economic implications of this subject, it has naturally also created much controversy.

Any future planning regarding the use of the Nile water resources must obviously take into account the Nile as a whole and proceed from the assumption that no development project can be undertaken without consideration of its effect on the entire river and the inhabitants of the Nile Basin. Water conservation and utilization, to the extent that it alters the regime of the river or the availability of water in any part of the Basin, is inextricably bound up with the life and habits of the people affected.

Probably the best known and most comprehensive scheme was proposed, after years of investigations and planning, by Messrs. Hurst, Black and Simaika, experts on the staff of the Egyptian Ministry of Public Works. It was brought out under the title "The Future Conservation of the Nile" as Vol. VII of the series "The Nile Basin" published by the Ministry in 1946.

The authors of the report discussed in detail the principles of overyear storage which had been advanced in the Nile Control plan of 1920, and set out the various projects which in their opinion represented a comprehensive scheme of development for the Nile as a unit to meet the expected future needs of Egypt and the Sudan. They made their projections on the basis of records of natural flow over a period of 100 years and hence characterized the scheme as "Century Storage." The basic need for the Century Storage scheme develops from the fact that due to the variations in the river flow from year to year there would be many years when the annual storage reservoirs at Aswan and Sennar particularly could not be filled with silt-free or storable water, with the result that in a low year there would be a double shortage resulting from the combination of low flow and inadequate storage. Since this shortage could only be met with hold-over storage from a previous period, a plan for overyear storage was considered necessary.

The "Century Storage" scheme when presented was described as "a comprehensive plan for the development of the Nile," the component parts of

which were to work in conjunction with the existing reservoirs to supplement the natural flow of the river. The accompanying schematic diagram of the projects included in the Century Storage illustrates how the scheme works as a unit.[1] The main projects in the scheme are:

a) A large reservoir in Lake Victoria, controlled by a dam at the Owen Falls, to form the main reservoir for Century Storage, and to also provide hydroelectric power for use in Uganda. By means of this reservoir water will be stored in good water years to supplement the supply of bad ones.

b) A regulating barrage downstream of Lake Kioga to create an auxiliary for the Lake Victoria reservoir. By maintaining storage in Lake Kioga, an increase of the discharge from Lake Victoria can be passed on without having first to raise the level of Lake Kioga, thus avoiding a delay of two or three months.

c) A reservoir in Lake Albert to control water from the Semlike River and also the large quantity which in time of unusually heavy rain comes from the tributaries of Lake Kioga. The Lake Albert dam will be the regulator which controls the amount of water sent down from the lake plateau to the Sudan and Egypt.

d) The Jonglei Diversion Canal between Jonglei and Malakal to carry a large quantity of water which would otherwise flow in the Bahr-el-Jebel and spill into the swamps of the Sudd region, where it would disappear by evaporation and transpiration. Thus the regulated water from Lake Albert would be able to pass the swamps with only a relatively small loss as compared with the 50 per cent lost at present.

e) A dam at the outlet of Lake Tana, if the lake is used to its full capacity, to provide water for increase of cultivation in the Sudan, a measure of Century Storage and a reserve in case of an emergency in Egypt, such as was caused by the record low flood of 1913.

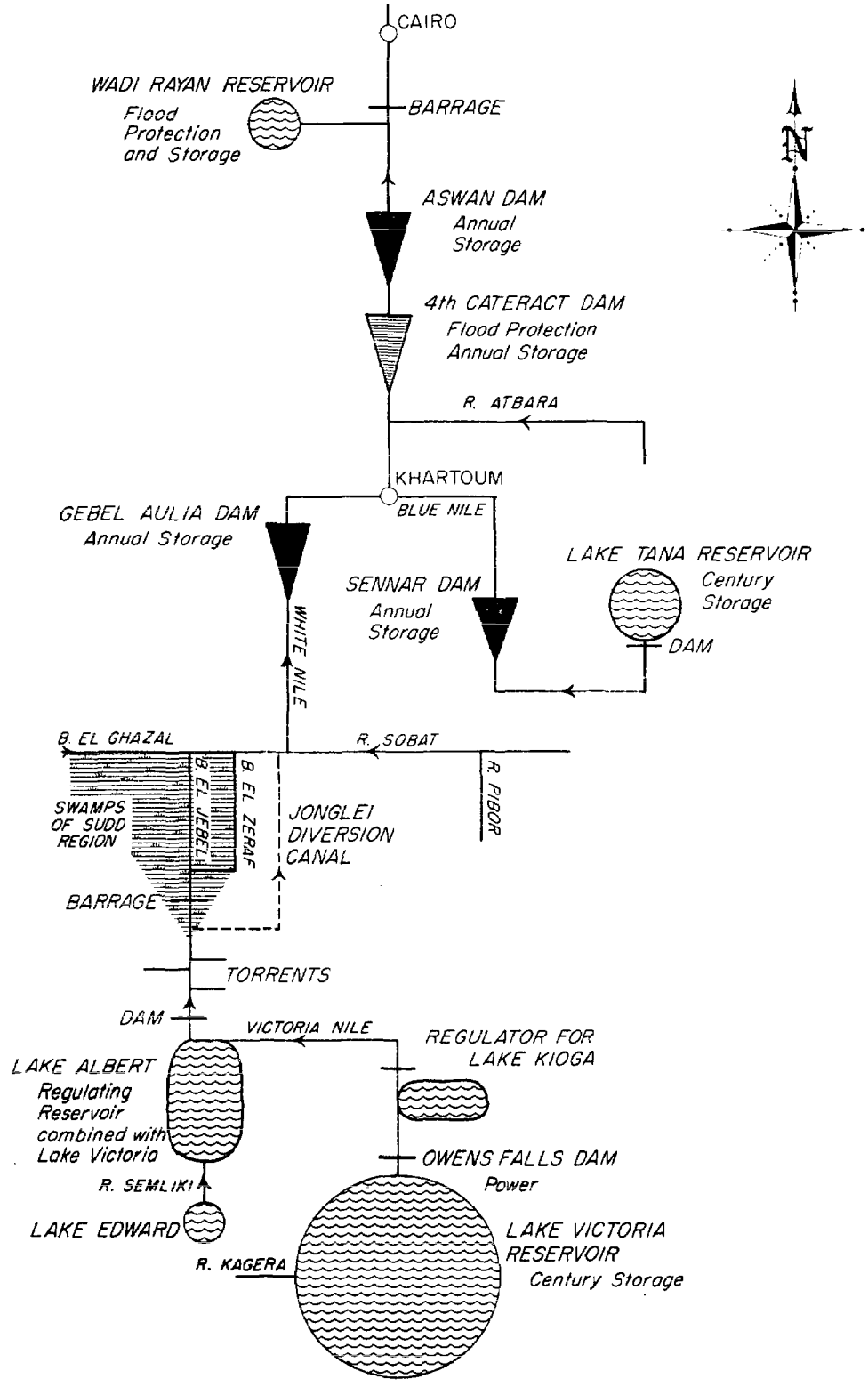
In addition to the overyear storage reservoirs the plan contemplated that two additional annual storage reservoirs would be constructed, as follows:

f) A Main Nile reservoir which could store in the average year about three milliards and, in addition, up to five milliards of flood waters during the unusual flood. One of the sites for a dam for such a reservoir was near Merowe at the Fourth Cataract, and the alternate site was near the Dal cataract between Merowe and Wadi Halfa.[2]

g) As a supplementary project a barrage across the Nile to divert water into the Wadi Rayan depression which is located near Beni Suef, about 100 kms.

1/ From "The Nile," by H. E. Hurst.

2/ The Merowe and Wadi Rayan projects were under study by Sir M. MacDonald and Partners. It was reported that later studies indicated that the capacities of both reservoirs could be increased somewhat. Under the revised scheme Merowe could provide 3 milliards and Wadi Rayan 3.5 milliards during the timely period.



SCHEMATIC DIAGRAM OF PROJECTS IN THE CENTURY STORAGE SCHEME

AUGUST, 1955

IBRD-214

south of Cairo. It has a maximum depth below sea level of 50 meters and storage would be limited to the evaporation from the lake, probably around 1.2 milliards annually.[1/] The main value of the project would be for flood protection, although some beneficial use could be made of the stored water for irrigation.

The need for these two annual storage reservoirs would be eliminated by construction of the Sadd el-Aali project.

Owen Falls Dam - Lake Victoria

In 1949, agreement was reached between Britain and Egypt for the construction by Uganda of the dam at Owen Falls, to provide overyear storage in Lake Victoria, and a large hydroelectric power station. The regulation of Lake Victoria is the very simple one of maintaining an outflow from the lake equivalent to the long time mean. The dam is now complete and the power station is in operation, but use of the lake for storage will not begin until compensation due to flooding that Egypt should pay is settled and sufficient time has elapsed to enable harbor and other works round the shores of the lake to be altered to suit the future increased range of water levels.

Lake Kioga

The records of the losses of the Victoria Nile in passing through Lake Kioga do not cover an adequate period of time to give an accurate index of the flow regime but indications are that Lake Kioga is probably a source of a net loss ranging from $1\frac{1}{2}$ to $4\frac{1}{2}$ milliards a year. There is a possibility of constructing an embanked channel to shut off the Victoria Nile from the lake and save most of the indicated loss. The possibility of constructing an embanked channel or utilizing Lake Kioga for storage has been deferred, pending future investigations.

Lake Albert

The question of the volume of water to be stored under the Century Storage scheme in Lake Albert is still unresolved. Uganda has proposed a storage limitation of 14.5 ms. on the Butiaba gage (the official recording station for the lake) under normal operating conditions and 18.5 ms. under maximum flood conditions, but oppose a higher lake level because it would flood a rather large area of agricultural land. The Egyptian Government would like to raise the level of Lake Albert for Century Storage to around 35 ms. on the Butiaba gage which would provide storage under normal conditions of about 139 milliards and which would take care of the natural rise of the lake level in a high runoff year such as 1917-18. The Sudan is expected to support the conclusions of the Jonglei Investigating Team which recently recommended that the permissible level on the Butiaba gage should be 25 ms. since storage at this level would equalize the long-time mean annual discharge from the lake.

1/ See footnote 2, page 10.

Jonglei Scheme

Water flowing from the equatorial lakes to join those of the Sobat near Malakal to form the main White Nile must pass through the wide marshy flood plains where, as mentioned above, water spills through the swamps for miles on either side of the winding main channel. Only about half the water entering the region, known as the Sudd, emerges notwithstanding the addition of nearly a meter of rainfall during the year. A recognized necessary adjunct to the Century Storage scheme is, therefore, a canal to bypass the marshes. Such a canal would be cut from Jonglei on a direct line about 280 kms. in distance to the present White Nile channel near Malakal. Under the Jonglei scheme three canals would be cut in six stages and when completed would have a combined capacity of 80 million m^3 per day (80 M/d). According to the original schedules, the canal capacity would be completed to the 55 M/d stage by 25 years after work is initiated. If the Sadd el-Aali project is constructed, the 55 M/d (or as presently proposed, the 60 M/d) stage, which would allow the timely flow[1/] to be increased by 7 milliards, would be sufficient for the optimum advantage from the scheme. Some advantage would be obtained after about 13 years of the construction period when the first cut is scheduled for completion with a capacity of 10 M/d which would increase the timely flow by one milliard. Reasons given for undertaking the project by steps is that it would permit present navigation to be maintained and would provide a minimum of interference with the living habits of the natives in the Sudd Marsh region. About a million people will be affected by the contemplated alteration of the river regime and river-rain pasture [2/] for approximately a quarter of a million animal units [3/] will be lost.

Because of the very great importance of this project the Governor General of the Sudan in 1946 appointed the Jonglei Investigating Team to study in detail the proposals submitted by the Egyptian Government, and after a full investigation of all facts and alternatives, to make a report and recommendations. The Team, whose work covered the period from 1948 to 1954, has just completed its report which has been published. The Team recommended modifications in the proposed engineering works and in the methods of operation of the project so as to lessen the impact on the people affected. The Team also recommended that compensatory measures, mainly for irrigation, drainage and for agricultural development, be undertaken in the region entailing a capital cost of about £E 12 million and involving the use of about 0.6 milliard of water annually. It suggested that the period of construction be extended longer than the 25 years now contemplated so as to make more gradual the changes in the hydrological regime and facilitate the readjustments within the zones affected.

1/ "Timely flow" or "timely period" refers to the portion of the year (February 1 to July 31, in Egypt) during which natural flow in the river is insufficient to meet irrigation requirements.

2/ The intermediate flood plain, adjacent to rivers, lying between the swamps and the highlands.

3/ One animal unit is one head of cattle or 8 sheep or goats.

Lake Tana Storage

In 1935 an agreement was reached between the technical representatives of the governments of Egypt and the Sudan for development of a reservoir in Lake Tana in Ethiopia. The project is expected to provide a net benefit of 2.7 milliards of storage which, after deducting losses in transit, should provide about one milliard of additional irrigation water for both Egypt and the Sudan if the net additional supplies were divided equally. If and when the Century Storage scheme is executed, Egypt and the Sudan agree that the overall benefits may be increased by operation of the Lake Tana storage in conjunction with that in the equatorial lakes. However, their proposed negotiations with the Government of Ethiopia are at a stand-still.

Supplies estimated to be developed by Century Storage

Century Storage as planned can only be considered in combination with the natural flow of the river. Hence Century Storage projects are designed to function in low water years to supplement the natural Nile flow in the timely period from February through June. The authors of the Century Storage scheme estimate that the quota it would dependably deliver during the timely period of low water years would, on the average, amount to 7.3 milliards measured at Aswan.

Table No. 2

Supplies Estimated from Century Storage

		Milliards
Natural river, February-July mean		15.4
Storage in Aswan, Gebel Aulia and Sennar		8.1
Total of present mean supply		23.5
Additional average annual supply dependably delivered by Century Storage:		
From equatorial lakes	5.2	
From Lake Tana	2.1	
Sub-total, guaranteed from over-year storage		7.3
Total, without additional annual storage		30.8

According to Egyptian estimates, the supplemental annual storage reservoirs of Merowe and Wadi Rayan included in the Century Storage proposals would provide respectively 3.0 and 1.2 milliards in the February to July period thus raising the total annual supplies to 35 milliards.1/

1/ Under later planning the Merowe and Wadi Rayan reservoirs would be enlarged somewhat which, in turn, would increase the February to July supplies by an estimated 2.3 milliards. See footnote on page 10.

It must be pointed out, however, that the additional supply provided in dry years through greater overyear storage facilities in the lakes could, as far as the equatorial lakes are concerned, be made available only if the Jonglei scheme were carried out and the losses in the Sudd marshes were greatly reduced. The supplemental waterflow would also vary from year to year and would be largest in years of abnormally low supply. The range in withdrawals would be between about five and eleven milliards annually with a careful account being kept to avoid depletion of the reserves.

Estimated cost of Century Storage

Accurate cost estimates for the projects included in the Century Storage scheme cannot be made at this stage of the planning. The Egyptian Government has made global cost estimates however, and has estimated benefits in water as follows:

Table No. 3

Estimated Costs and Water Benefits from Projects in the Century Storage Scheme

Project	Approx. Cost LE Millions	Net Feb. through July benefit in Milliards (measured at Aswan)	
Lake Tana reservoir	8.0	2.10 1/	
Equatorial lakes			
Lake Victoria reservoir	4.5 2/	(included in Sudd canalization)	
Lake Kioga reservoir	4.0		
Lake Albert reservoir	13.0		
Sudd Canals			
First cut, 10 M/d	5.5	0.75)	
First canal 27½ M/d	8.0	1.45)	5.20 total
Second canal 55 M/d	8.0	3.00)	
Third canal 80 M/d 4/	6.0	3.00 3/	
Fourth Cataract (Merowe) dam 4/	35.0	3.00	
Wadi Rayan reservoir 4/	30.0	1.20	
Totals	122.0	14.50	

1/ To be shared equally between Egypt and the Sudan.
2/ Egypt's share of cost only.
3/ This canal would be used only in exceptionally low water years.
4/ Not needed if Sadd el-Aali is constructed.

II. THE SADD EL-AALI PROJECT

Against this background the Sadd el-Aali project, which has been conceived only in recent years, must be examined not only in order to assess its technical feasibility and soundness but also to determine whether it is consistent with a proper scheme for the development of the Nile River water resources as a whole along the lines set forth in the preceding pages.

A. Technical and Engineering Aspects

The proposition that it is feasible to construct a high dam on the Main Nile in Egypt with a reservoir large enough to store the annual flood flow, considering the deposition of silt, was tested by a thorough discussion among experienced engineers and hydrologists, notably in the New Delhi conference on High Dams in 1951, with the consensus that it would be practical to build such a project. With this point favorably decided the Egyptian government engaged the German engineering firm of Hochtief and Dortmunder Union to make an investigation of possible sites and preliminary designs of such a project. Following this the Government retained the services of a group of international experts, having experience with the particular conditions to be encountered on the project, to appraise the soundness of the proposed site and design.

This group, called the International Board of Consultants, was composed of the following:

Dr. Karl Terzaghi of Winchester, Massachusetts, an internationally known expert on dam design, probably known best as the originator of modern techniques in soil mechanics and foundation engineering.

Mr. I.C. Steele of Piedmont, California, a consulting engineer and formerly Vice President and Chief Engineer of the Pacific Gas and Electric Company, San Francisco, California.

Dr. Lorenz G. Straub of Minneapolis, Minnesota, head of the Department of Civil Engineering and Director of St. Anthony Falls Hydraulic Laboratory, University of Minnesota.

Mr. Andre Coyne of Paris,France, a prominent internationally known consulting engineer who has been responsible for the design and construction of more than 50 large dams.

Dr. Max Preuss of Essen, Germany, who has designed and supervised construction of numerous dams utilized in supplementing the water supply for the Ruhr district of Germany.

In addition to the Board of Consultants, the Egyptian Government, upon the recommendation of Dr. Terzaghi, retained the services of Mr. E. Ischy, Director of Soletauche, Paris, France, who has broad experience with the current methods of grouting foundations for dams including those constructed on cohesionless sediments.

According to their contracts with the Egyptian Government, the consultants were given the following assignments:

a. To study the designs proposed and give their opinion thereon; to propose any modifications to the design that they might consider necessary to insure safety from the hydraulic and military point of view; or to improve it technically or to reduce its cost without impairing its technical suitability for all conditions.

b. To study problems of sedimentation and scour that might result from construction of the dam.

c. To propose any other alternative construction and/or design which would, in their opinion, be better or more suitable for the high dam.

d. To study and check the program and methods of execution and materials for construction, bearing in mind the flood conditions and water requirements for irrigation.

e. To study and check the estimates for all items.

f. To recommend the important basic points to be included in the specifications for materials and method of construction.

Conclusion of the International Board of Consultants

The consultants considered two different sites, No. 1, located 6.5 kilometers (kms) upstream from the existing Aswan Dam, and No. 2 known as Kalabsha site, located about 45 kms upstream from Site No. 1. Although the stream channel at the Kalabsha site is much narrower than Site No. 1, the terrain on both sides of the valley is so low that the crest of the dam would have a length of about 20 kms. Foundation conditions at Site No. 2, were inferior and impervious materials were not to be found in the general area. Also the topography at Site No. 2 would make it difficult to construct a dam equipped with an upstream clay blanket. The consultants, therefore, decided that the dam should be built at Site No. 1.

The important conclusions of the consultants 1/ for Site No. 1 are:

a. A rockfill dam equipped with a clay core, an upstream blanket and grout cutoff, with the dimensions proposed by the consultants, is as safe as the safest among the existing earth and rockfill dams resting on sediments because it is protected against failure by two independent lines of defense; an upstream blanket and a grout cutoff.

b. Because of the vital importance of a satisfactory solution of the diversion problem in the construction of the project, the problem of the design and construction of the cofferdam received special consideration. The consultants concluded that a cofferdam can be built across the Nile Valley upstream of the dam site without any risk whatsoever of a failure during or after the construction of the cofferdam. Hence, it is established beyond any doubt that the dam can be built in accordance with the design.

1/ "Report by the Board of Consultants on the State of the Project for the High Aswan Dam," November 28, 1954.

c. The time required for constructing the dam depends entirely on the time at which the excavation of the diversion tunnels will be completed. Every year of delay in the completion of the diversion tunnels delays not only the completion of the dam by at least one year, but it also increases the cost of construction of the dam on account of the restrictions which will be imposed on the regime in the existing Aswan Dam. Therefore, the consultants considered it essential that the excavation of the diversion tunnels should be started without delay.

General Features of the Dam

In the layout of the dam, the diversion tunnels are to be located on the right (East) bank and the power tunnels, powerhouse, and emergency spillway on the left (West) bank. The riverbed at the centerline of the dam is at elevation 85 ms above sea level and the crest would be at elevation of 196 ms, giving a maximum height of 111 meters or about 365 feet. Available data indicate that the backwater from the dam would extend some 550 kms upstream to the third cataract which is about 200 kms within the Sudan. The final topographic maps now under preparation by the Army Map Service, Corps of Engineers, Department of the Army, (U.S.A.), may change this distance somewhat as the backwater may extend only to Dal cataract, a distance of 500 kms. The town of Wadi Halfa in the Sudan will be flooded. The population displaced by the reservoir, both in Egypt and the Sudan, estimated at 60,000 to 70,000 will have to be relocated. 1/

The following is a summary of pertinent information on the dam and reservoir: Length of the dam between abutments, 5,000 ms; length of river channel section, 550 ms; base of dam along stream channel, 1,300 ms; top of flood control pool, 182 ms; top of irrigation pool, 175 ms; top of sediment storage, 147 ms; base of sediment storage 85 ms. Placement of all materials in the dam, 44,000,000 m^3; placement of rockfill, 27,060,000 m^3; placement of dune sand, 4,600,000 m^3; placement of clay core, 2,885,000 m^3; placement of coarse and fine filter, 2,710,000 m^3; placement of silt, 1,500,000 m^3. Storage volume of reservoir, 130 milliards, of which 30 milliards is dead storage for deposition of silt, 70 milliards is for irrigation and 30 milliards for flood control.

Diversion Tunnels

The river diversion plan provides for seven unlined diversion tunnels, 16.5 meters in diameter. After completion of the dam, the diversion tunnels are to be used for flood control purposes. The diversion tunnels average about 2,160 ms in length and the seven tunnels will have a discharge

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1/ An accurate estimate of the population requiring relocation will depend on surveys of the reservoir area.

capacity under a head of 20 meters of 11,000 m^3 per second. The excavation of the diversion tunnels totals 7,957,000 m^3, all of which will be placed in the cofferdam and the main dam.

The Power Station

The power station will be located in underground caverns in the left or West bank approximately on the axis of the dam and will ultimately comprise four stations each equipped with four sets of Francis type turbines with generator each of a capacity of 90,000 kw (120,000 hp). Of the 16 units ultimately provided for, eight will be installed initially. A restudy is now under way to assess the desirability of installing a fewer number of larger turbo-generators than originally planned, perhaps 120 to 135 MW, while maintaining the total capacity of the first stage, to be built during the initial ten years, at about 720,000 kw as originally planned.

The inlets to the four primary power tunnels are in the immediate vicinity of the upstream tow of the dam. The 4 power station caverns are placed deep into the granite in the left Nile bank with their longitudinal axis in a straight line and approximately under the axis of the dam. The site of the intake tunnels is at elevation 130 meters above sea level, and is fixed in relation to the minimum upstream reservoir level of 147 meters. The power tunnels, excavated in solid granite, are to be concrete lined (in contrast to the unlined diversion tunnels in the right bank.)

The power water tunnel of each of the four caverns is circular with a diameter of 12.7 meters and bifurcates first into two tunnels of 9 meter diameters leading to the gate chambers. From here the tunnels are again bifurcated into 6 meter tunnels each equipped with a butterfly valve to control the inlet of water to the separate turbines. Each power station will be equipped with two surge tanks connecting with the upstream side of the draft tubes. Outlet water from each two turbines will be collected on the downstream side into tailwater tunnels of 11.5 meters diameter.

Each cavern will be equipped with two overhead 150 ton cranes. Air conditioning equipment is included in the design. Each of the four transformer caverns will be equipped with 8 single phase transformers of about 85,000 kw each. The installation includes a stand-by for each three transformers in service. Transformation will be from 15 to 400 kv, with provision made for transmission at the latter voltage to Cairo, a distance of approximately 770 kms.

The 9,115,000 m^3 of rock excavation from the power intake tunnels, power caverns, surge chambers, inlet and outlet basins will be used in making the fill for the main dam. In order to minimize storage and rehandling of materials, these excavations will be scheduled in the 5th, 6th and 7th years of the construction period. The construction equipment and organization from the diversion tunnel excavations work will thus be available for the power tunnel work. In order to benefit from the economic handling of materials, excavations will be completed for the contemplated ultimate power installations while the main dam is under construction.

Design of the Dam

Hochtief submitted to the consultants two alternative designs for the dam. One design involved protection of the dam against seepage by means of a clay blanket on the upstream side of the core combined with a broad inverted filter on the downstream side ("horizontal sealing"), and the other for construction of the dam with a short upstream blanket and a concrete cut-off wall extending from the base of the clay core to the surface of the bedrock, some 250 ms below the base of the clay core ("combined solution").

The Board of Consultants adopted the design for a "dam with horizontal sealing", recognizing that as a defense against possible damage in wartime the design should be supplemented by plugging the voids of the coarsest layers of the subsoil in the river channel under the dam by injecting into the sediments a clay slurry with a slight admixture of portland cement and some chemicals. The dam would thus be protected against failure by two lines of defense, (a) the blanket, and (b) the grout curtain.

Design and Construction of Upstream Cofferdam

The primary function of the upstream cofferdam during construction is to divert the water of the Nile into the diversion tunnels. The lowest portion of its base is at elevation 85 and the top elevation 135. The principal difficulties associated with the construction of the upstream cofferdam are due to the fact that the major portion of the construction materials must be deposited on the bottom of a body of water with a depth of at least 20 meters and that a body of water which will flow over the crest of the cofferdam during the period of construction may reach discharges of as much as 10,000 m^3 per second. The consultants concluded that the lower part of the cofferdam could be safely built during the three years required for the excavation of the first four diversion tunnels by depositing and compacting the construction materials in horizontal layers up to elevation 105. However, the existing Aswan Dam which controls water levels up to elevation 121 greatly facilitates the construction of the upstream cofferdam and permits the control of possible scour of materials from the cofferdam.

Of particular interest in connection with the proposed water regulation during construction is the fact that during the fifth construction year the reservoir created by the cofferdam could be held at elevation 125 meters thereby providing an additional storage of 1.5 milliards over and above that normally stored at Aswan Dam at elevation 121. During the sixth year this additional storage would be raised to 3 milliards. More recently certain Egyptian experts have indicated that as much as 6 milliards could be temporarily stored behind the cofferdam. However, until it is definitely established that storage of such volume would be compatible with the safety of the cofferdam, it would be inadvisable to rely on this higher estimate.

Program of Construction

The consultants agreed that the dam could be built within the time limit of 10 years, however, they also stressed the importance of first establishing an adequate organization for preparing the customary plans and specifications and correlating the results of experimental examination with the design of various portions of the structure, such as the design of the outlet works for the diversion tunnels and of digesting the results of field investigations and observations.

Problems of Sedimentation and Scouring

Because of the volume of sediment transported by the Nile during certain seasons of the year, construction of the Sadd el-Aali Dam will create problems that may be divided as follows:

1. Deposition of sediments in the reservoir;

2. Deposition and erosion of sediments immediately upstream and downstream of the dam itself;

3. Problems of sedimentation and scouring in the Nile River from Aswan to the Mediterranean Sea.

The torrential rainfall on the Abyssinian plateau helps to bring down large quantities of silt in the Blue Nile during the flood period. Studies of the annual sediment deposits of the Nile at Luxor, made in connection with excavations of ancient temples extending as far back as 3,000 B.C., show that for the past fifty centuries, at least, the Nile between Aswan and Cairo has been depositing part of its silt load with a resultant aggrading of the streambed. Captain H. G. Lyons (Physiography of the Nile) states that the average rise of the streambed due to these deposits is about 0.10 meters per century, so that some 5 meters of alluvial sediment has been laid down in historical times. Upon the basis of available sediment records, it has been assumed that 90 million tons of suspended and bed load would be deposited in the reservoir each year and that after consolidation, these deposits would amount to about 60 million m^3 annually. The reservation of 30 milliards for the deposition of silts would thus provide storage for that purpose for a period of 500 years.

The existing dam at Aswan is operated to permit high river flows to pass without significant retardation and the reservoir is filled from the receding flood waters each season. Consequently, there is now little deposition of Nile River sediments in the existing Aswan reservoir.

Lowering of the streambed through controlled scouring (degradation), within limits, would be beneficial to the valley, notwithstanding the special remedial measures that would be necessary at the main canal diversion structures and navigation locks. The Egyptian Government has retained Dr. L. G. Straub especially for the purpose of mapping out a program of aggradation and degradation studies, principally concerned with degradation that might occur in the Nile River channel downstream from the Aswan Dam following completion of the Sadd el-Aali project.

B. Storage Capacity in Relation to Water Supply

Although records of river stage have been obtained since 1870 on the Nile below Aswan, an accurate calibration of the stage-discharge relation for this gage was not available until construction of the Aswan Dam was completed in 1903. Shortly thereafter, the discharge sluices for the dam were accurately calibrated and reliable records are available thereafter as all flows have been passed through the sluices of the dam. Discharge records of the Nile for the period 1870-1902 have been computed using the stage-discharge curve obtained by means of the records subsequent to 1902. The high flood discharge for the period 1870-1902 may be somewhat questionable, but the summer supply over the entire period is considered to be less than 5% in error. The stream-flow records at Aswan for the period 1870-1902 are considered satisfactory and for the period that is so critical in the determination of the storage requirements for Sadd el-Aali, namely 1899-1953, the flow records are very reliable.

Available Water Supply at Aswan

All of the Egyptian publications pertaining to water supply place a great deal of emphasis on the flow of the Nile during the "timely" (1 February-31 July) and "untimely" (1 August-31 January) seasons at Aswan. However, the construction of the Sadd el-Aali dam would, for all practical purposes, entirely control the runoff of the Nile River at the site. Therefore, in considering the Sadd el-Aali project, the division of the water year into two separate periods ceases to be of any significant importance to Egypt although remaining of importance to the Sudan.

The annual runoff of the Nile River at Aswan has varied from about 63 to 137 milliards annually, with the exception of the one year 1913-14, when the annual runoff was only 45.5 milliards. Obviously, no sound policy of irrigation expansion can be based on such a variable supply.

The average runoff of the Nile River at Aswan for the period 1870-1953 (83 years) is 92.9 milliards. Examination of the records for the period 1870-1898 discloses that the runoff was well above the 83 year mean, averaging 110.3 milliards whereas for the most recent 54 years of record, 1899-1953, the average runoff was only 83.7 milliards.

Storage of Flood Waters in Sadd-el-Aali Reservoir

The quantity of surplus water made available for use through construction of Sadd el-Aali and the share on which Egypt could depend for use is appreciably affected by up-stream consumptive uses. Except in the Sudan these uses for irrigation developments have been inconsequential and as far as can be foreseen will, as a practical matter, remain so. Egypt has been utilizing the low flow of the Nile for centuries and, as new storage has been created as in the cases of the Aswan, Gebel Aulia and Sennar dams agreements have been made between Egypt and Sudan, the countries most concerned, for a division of the additional supplies. The proposal for the construction of such a reservoir as Sadd el-Aali brings the problem into sharp focus as Egypt would be enabled to use the total run-off of the Nile and, in the absence of an agreement with other countries affected, particularly the Sudan, might establish preferential rights to the entire supply under the Doctrine of Appropriation. In order to justify the expense of the project Egypt must have assurance of the uninterrupted use of at least the minimum quantity of water required to make the project viable.

Supplies developed by Sadd el-Aali

The Sadd el-Aali reservoir, with usable or live storage of 79 milliards for irrigation and an additional 30 milliards for dual use of flood control and irrigation, (the remaining 30 milliards being reserved as dead storage for deposition of silt) has been determined to be of the optimum capacity to enable the maximum volume of Nile water to be made usable. Such a storage would, on the average, provide a minimum of 82 to 83 milliards per annum, from which losses in the reservoir would have to be deducted.1/

The losses in the new reservoir, based on studies of the existing Aswan reservoir, were estimated by the Government of Egypt to amount to approximately 10 milliards annually. This estimate is based on the average annual daily loss by evaporation from the Aswan reservoir of 7.4 millimeters, or 2.66 meters per year. This loss when applied to the net surface of the full reservoir of 3,810 square kilometers (after deducting the area of the natural river included) between levels 175 and 182 indicates an annual loss of 10.1 milliards or about 7.8% of the gross storage.

In the Aswan reservoir the actual experience of loss is computed to be 7% of the gross storage and if this percentage is applied the resulting estimate of losses in Sadd el-Aali, when full, would be 9.1 milliards annually As the reservoir falls the losses are continually reduced, due to the reduction of the surface area. When the flood storage is withdrawn, for example, losses from the volume remaining (100 milliards) would occur at an annual rate of between 7 and 8 milliards. No attempt was made to reflect seepage losses in the figures. Net seepage or absorption loss in the Aswan reservoir, considering return flow, has been variously estimated between 0 to 0.9 milliards annually. In view of these calculations, the Egyptian estimate of

1/ Report: "Hydrological Investigations on How the Maximum Volume of the Nile Water May be Made Available for Development in Egypt and the Sudan" by Hurst and Black, January 23, 1955.

losses appears rather high and it seems justifiable to assume that the losses in Sadd el-Aali will not exceed 9 milliards annually. Furthermore, after completion of Sadd el-Aali, the operation of the Gebel Aulia reservoir for the benefit of Egypt may be discontinued because of its relatively high losses (nearly 2 milliards out of a total reservoir capacity of 3.6 milliards). This would reduce overall losses and thus provide an additional factor of safety in the amount of supplies to be developed by Sadd el-Aali.

If from the average controlled annual flow of 82.5 milliards estimated to be obtainable by the Sadd el-Aali reservoir, 9 milliards would be lost by evaporation, a net supply of 73.5 milliards would remain. Egypt's present requirements of 49.2 milliards and Sudan's of 3.5 milliards, together with the 2 milliards lost at Gebel Aulia gives a total measured at Aswan of 54.8 milliards which when deducted from the net supply indicates a surplus of 18.7 milliards to be apportioned between Egypt and Sudan, as indicated in table 4.

Table No. 4

Nile Supplies Developed by Sadd el-Aali

Nile Supplies		Milliards, measured at Aswan
Average Annual controlled supply available after construction of Sadd el-Aali		82.5
Deduct:		
Egypt's use	49.2	
Losses at Gebel Aulia	2.0	
Sudan's use	3.6	
Total to be deducted	54.8	54.8
New mean annual supplies to be stored in Sadd el-Aali		27.7
Estimated annual loss in Sadd el-Aali		9.0
Net of new usable supplies developed by Sadd el-Aali		18.7

Egyptian engineers have contended however that a certain volume of water should be set aside for riparian uses such as navigation, domestic uses, sanitary uses and salinity control, and that this volume should not be charged against Egypt's irrigation allotment. During certain years moreover it is necessary to discharge some excess water from the reservoir. It is Egypt's contention that 4 milliards should be allocated for these purposes.

The contention that a substantial allowance should be made for navigation use particularly does not appear to be valid. On the Nile, outflow to the sea is blocked at the end of the flood season making, in effect, inland lakes back of the barrages and in the irrigation canals. Additional flow would not be required to maintain navigation depths in these waterways in the sense ordinarily necessary in flowing streams.

Capacity and Operation of the Sadd el-Aali Reservoir

The water level in the Sadd el-Aali reservoir would be lowered at least to elevation 175 each year prior to the annual Nile flood so that 30 milliards of storage capacity would be available for flood protection. Actually the top 30 milliards of capacity would perform a dual function for irrigation and flood protection. During years of high flow the reservoir would always be filled at the end of the flood season, but during years of subnormal flow it would be necessary to draw on hold over storage to make up for the deficit in flood runoff.

Reservoir regulation studies based on runoffs for the period 1870-98 show that the reservoir would be completely filled each year. However, under conditions like those prevailing during the period 1899 to 1953, which includes many years of subnormal runoff, the reservoir would be almost entirely depleted of reserve storage during such a period. The degree of depletion will depend on the level of irrigation water use and somewhat upon the division of the supplies between Sudan and Egypt. Reservoir operation calculations were made by Egyptian engineers for the period 1899 to 1953 on two assumptions. In the first case, it was assumed for the purpose of calculations only that an additional 19.2 milliards (measured at Aswan) were divided 10.8 milliards to Egypt and 8.4 milliards to Sudan so as to bring total uses in the two countries to 60 and 12 milliards respectively. Under the premise that the reservoir was full at the beginning of the period, this hypothetical operation indicated that all withdrawals would have been met and that a small but adequate reserve above dead storage of 6.2 milliards would have remained at the end of the low cycle in 1916. However, if circumstances were such that the reservoir started to fill at the beginning of this period of subnormal runoff, the active or live storage in the reservoir would have been depleted at the end of the 1914 irrigation season. In fact, it would have been necessary to draw on the 30 milliards of storage reserved for sediment to the extent of 5.2 milliards.

In the second case, it was assumed for the purpose of calculations that only an additional 16.2 milliards (measured at Aswan) were divided 10.8 milliards to Egypt and 5.4 milliards to the Sudan so as to bring total uses in the two countries to 60 and 9 milliards respectively. Under this assumption, the proposed capacity of 100 milliards is sufficient to take care of Egypt's requirements even though storage would begin at the beginning of a series of years of subnormal runoff such as those prevailing from 1899 to 1953.

If a reasonable compromise can be reached on the division of the surplus water between Egypt and Sudan, the proposed irrigation and flood control capacity in the Sadd el-Aali reservoir of 100 milliards is fully

justified on the basis of preliminary regulation studies. The well defined flood season of the Nile permits the dual use of the top 30 milliards of storage in the reservoir for both flood control and irrigation, thus providing an added factor of safety for irrigation storage.

C. Relation of Sadd el-Aali to Comprehensive Nile Development

Long-term or Century Storage

The Century Storage scheme outlined previously would not, except for the two annual storage projects included in it, conflict in any way with, or be a substitute for Sadd el-Aali. Greater storage capacity in the equatorial lakes would smooth out the long dry and wet cycles of runoff on the Nile and would make worthwhile the construction of the Jonglei canals to reduce flood losses in the Sudd, thereby increasing the quantity of water arriving in the Sudan and Egypt. Supplementing this there must be adequate annual storage capacity to provide a stable flow of the Nile throughout the year. Sadd el-Aali would perform this function and thereby make unnecessary the Merowe and Wadi Rayan projects. It would stabilize the annual flow of the Nile between Aswan and the sea, prevent in most years the wastage to sea of flood waters, provide complete flood protection for all downstream territory and provide a potential for an enormous quantity of electric power in Egypt. It would provide some hold-over storage from years of abnormally high run-off for use in dry years, but this hold-over storage would, of course, be limited to the actual flow arriving at the reservoir and the capacity of the reservoir is not sufficient to store the excess from a long period of wet years.

Thus after Sadd el-Aali is finished it will not only be possible but also desirable to proceed with the equatorial lakes storage and Jonglei schemes. These would on the average increase the annual flow obtainable from the White Nile by 5.2 milliards and thus yield important benefits supplementing those of Sadd el-Aali. Moreover, they would ensure that no spilling would occur at Sadd el-Aali during unusually high flood years. Altogether they would make it possible to conserve completely the entire runoff of the Nile under all conditions.

The timing for the execution of the two schemes is widely different. Sadd el-Aali should be built in ten years, with at least some benefits accruing after the fifth construction year from the storage by the up-stream cofferdam. The utilization of surplus from the Century Storage scheme will be limited until realization of the Jonglei scheme which will take 25 years or longer. Some benefits, however, can be realized after about thirteen years, by completion of the Jonglei canal to partial capacity.

Sadd el-Aali as substitute for other annual storage schemes

Sadd el-Aali is, however, a substitute for other annual storage schemes including the Merowe and Wadi Rayan projects added to the Century Storage scheme by the Hurst-Black-Simaika study. The most comprehensive of such proposals was made in January, 1954 by Mr. H. A. Morrice, 1/

1/ "The Development of the Main Nile for the benefit of Egypt and the Sudan", issued January 23, 1954.

adviser to the Sudan Irrigation Department, who recommended a series of dams, listed below, to be located on the main Nile and to serve the multi-purpose objectives of irrigation, flood control, navigation and power for the benefit of both Egypt and Sudan. The global estimate of the cost of the projects in the Morrice proposal was in the order of £E 200 million.

Table No. 5

Projects in the Morrice Proposal

Project	Probable Storage (milliards)	Probable Power (kw thousands)
Sabaloka gorge, near 6th cataract	-	35
Fifth cataract	2	75
Hamdab island, at tail of 4th cataract	10	150
Dal cataract, between 2nd and 3rd cataracts	25	-
Semna gorge, between 2nd and Dal cataracts	5	190
Second cataract	3	110
	45	560

Not included in the list is the Wadi Rayan reservoir about 100 km. south of Cairo (already mentioned and which would have a maximum flood storage capacity of from 1.2 to 3.5 milliards, a very small portion of which would be usable for irrigation), or the Roseires project on the Blue Nile for which planning is already in an advanced stage and which would have a capacity of 3 milliards.

All these reservoirs combined would have a storage capacity of less than 50 milliards as compared with 100 milliards for Sadd el-Aali. They could hardly be regarded as a substitute for Sadd el-Aali. According to water management studies their combined capacity would be inadequate to regulate the Nile for irrigation. The relatively small size of the reservoirs make insufficient provision for silting, would provide inadequate holdover capacity from year to year and permit very little flood control.

Some storage will have to be created in Sudan to enable utilization of Nile water in the Sudan. One project, the Roseires dam, has already been worked out for this purpose. It is to be built on the Blue Nile at the Damazin rapids about 100 kilometers downstream from the Ethiopian border. While originally planned for a storage of about one milliard, Sudan's consulting engineers now advise that its capacity be increased to impound 3 milliards at an estimated cost of £E 21.2 million.

D. International Aspects of the Project

The Nile is preeminently an international river, the river basin embracing the whole or parts of eight countries, and there have been a number of international negotiations and agreements affecting various existing and proposed uses and controls of the Nile. The Sadd el-Aali project is complementary to the various proposals and arrangements which have been made for over-year storage in the great Central African Lakes, to the Jonglei Scheme

for passing waters by the Sudd marshes, and to the Lake Tana storage project. No proposal has ever been seriously considered, nor for practical reasons is there any likelihood of a project in the future, which would divert a significant quantity of water from the Nile or its tributaries upstream of the Sudan or Egypt to the prejudice of either of those countries.1/ Although Ethiopia and one other of the equatorial lake countries have expressed concern over the proposal to construct the Sadd el-Aali project, information available to the Bank does not indicate that its construction will have an adverse effect on any of them.

But an international agreement between Egypt and the Sudan, including the assent of the Sudanese to the Sadd el-Aali project is essential. The reservoir created by the project would flood Sudanese territory and if the Sudan assents thereto, compensation will have to be paid by Egypt. The two countries have taken steps to reach an agreement as to the division of the new supplies of water, estimated at about 18.7 milliards, which the project will make available for use. Negotiations between Egypt and the Sudan were begun late in 1954 and a number of proposals and counterproposals have been discussed by the two governments, but thus far no agreement has been reached on these matters.

1/ Furthermore, Article III of the treaty between Great Britain and Ethiopia establishing the frontier between the Sudan and Ethiopia, signed at Addis Ababa on May 15, 1902, binds Ethiopia "not to construct, or allow to be constructed, any work across the Blue Nile, Lake Tana, or the Sobat which would arrest the flow of their waters into the Nile except in agreement with His Britannic Majesty's Government and the Government of the Sudan".

E. ORGANIZATION AND MANAGEMENT

The Government of Egypt will administer and direct all aspects of the Sadd el-Aali project. The project was sponsored as being of vital importance to the country by the Permanent Council for the Development of National Production, a new agency of the Government created by the Revolutionary Junta for the purpose of studying, promoting and executing, where necessary, projects to develop and exploit the natural resources of Egypt, including both the products of the soil and of industry, as well as projects for the development and expansion of internal and external trade.

The Sadd el-Aali Authority

Subsequently, the Government has created an autonomous organization called the "Sadd el-Aali Authority" to which has been delegated the responsibility for organizing, planning and supervising the Sadd el-Aali project. This is a high level body not only to carry out the project by making the basic policy decisions regarding contract arrangements and supervision of the project, but also with authority to call on all other departments of the Government to perform duties necessary to its completion. The membership of this body as presently constituted is as follows:

Wing Commander Hassan Ibrahim, Minister of State for Production Affairs
Mr. Ahmad Abdou El-Sharabassy, Minister of Public Works
Dr. Abdel Monem El-Kayssouny, Minister of Finance and Economics
Dr. Mohamad Abo-Nosseir, Minister of Commerce and Industry
Dr. Abdel-Galil El-Emary, Managing Director of the Nile Ginning Co.
Mr. Hussein Fahmy, President of the Permanent Council for the Development of National Production
Colonel Samir Helmy, Member of the Permanent Council for the Development of National Production - Secretary General of the Sadd el-Aali Authority
Dr. Mohamad Ahmad Selim, Member of the Permanent Council for the Development of National Production
General Fathy Rezk, Head of the Supplies and Provisions
Mr. Ahmad Fouad, Member of the Permanent Council for the Development of National Production
Dr. Mustafa Fathy, Permanent Under-Secretary of State for Ministry of Public Works
Dr. Hassan Zaky, Head of the Sadd el-Aali Administration

Extensive use of consultants has been availed of in developing preliminary plans for the Sadd el-Aali project. Among the more important services has been that rendered by Hochtief and Dortmunder Union in making surveys, borings, and preliminary plans and estimates. This phase of the engineering work was completed in late 1954. The role and composition of the International Board of Consultants and the assignments thus far completed have been described earlier in this report. The Authority has made arrangements

with these consultants to continue periodic reviews of the designs, specifications and construction methods for the project, and to advise the Authority on technical management and on the solution of technical problems as they arise during execution of the project.

The Bank, in its letter of April 8, 1955 from President Black to the Egyptian Ambassador, advised the Egyptian Government that in its considered opinion the Authority should retain a firm or group of firms of consulting engineers specializing in the various aspects of the project and should delegate to them the organization, planning and technical supervision of the project. The Bank in giving its advice suggested that the consulting engineers would draw into one effective organization the competent Egyptian technologists as well as the supplementary foreign experts required.

The Authority, after considering the alternatives of employing a consulting engineering firm or of building an independent organization around a corps of experienced key personnel under direct employment by the Government, decided to adopt the former course of action and on October 30, 1955 signed a contract with the firm of Sir Alexander Gibb and Partners to act as consulting engineers to the Authority on the civil works sector of the dam and, furthermore, to have overall responsibility for review and coordination, and for advising the Authority with respect to the engineering work on all the other phases of the project. Prior to the consummation of the contract with Sir Alexander Gibb and Partners, representatives of the Bank, at the invitation of the Authority, met with the parties concerned to comment on the qualifications of the consulting engineers for a job of this character and on the proposed terms of the contract.

As a result of its study the Bank concluded that the Gibb firm could render satisfactory engineering services on the project, especially so under the contemplated arrangements whereby the firm will supplement its staff by the addition of specialists where necessary. Although under the terms of the contract the function of the Gibb firm is to "advise and assist" the Authority on all important matters of engineering, the contract provides the framework within which the Gibb staff can properly perform satisfactory engineering services on the project. The Authority's officers have assured the Bank that it is the intention to seek Gibb's recommendations on all important engineering questions, and outlined to Bank representatives the scope of a future statement of working relationships between Gibb, the Authority, the International Board of Consultants and the Contractors as evidence of this intention. The Bank was assured, furthermore, that all such proposed working relationships will be discussed and agreed upon with the Bank in the event of Bank participation.

The Authority has awarded four separate consulting contracts (for hydraulic tests, grouting tests, sand compaction tests and a study of the lay-out of the underground works) to very competent specialized firms. The results of these tests will be reviewed by Gibb, and where appropriate also by the International Board of Consultants.

Construction Work

Contracting procedures were extensively discussed at conferences held in Washington late in 1955 and in Cairo at the beginning of 1956 between representatives of the Bank and the Government. It was agreed that previous plans to let all the works in a single negotiated contract to an international consortium would be abandoned and contracts for the component parts of the project would be subject to selective international competition. Over-all scheduling and coordination of construction contracts will be managed by the Consulting Engineers.

Management after Completion

After completion of Sadd el-Aali, the project will require careful management and expert operation. Besides ordinary maintenance, the operating problems will naturally fall into two quite different categories, those relating to water management for the benefit of irrigation and the business of generating and distributing power. Coordination between the two, while it should be close, need not be difficult once priorities for water use are established as an operating policy. Egypt possesses an outstanding irrigation service with a well-trained and experienced organization. The management of this dominant phase of the project presents no problem. A complete reorganization of the Government's power administration will, however, be necessary.

An Autonomous Power Authority

Completion of the project will create a problem of coordinated operation of all the power generation and transmission facilities in Egypt, most of which will be Government-owned. The problem is made more urgent by the fact that the initial availability of the large power resource created by Sadd el-Aali will make necessary the drastic reorganization of transmission and distribution systems, tariffs, and previous methods of conducting the power business. Steps taken at the outset for the handling of the Sadd el-Aali power supply will have a crystalizing effect on the country's system and power policies for decades to come.

The Government has general plans for the establishment of an autonomous Government-owned corporation to bring about the unified operation of its power facilities and for their coordination with private utilities and industry. While the precise form for the agency has not been determined, the Government recognizes that an organization to plan and manage a business such as the power business must be flexible and able to make day-to-day decisions promptly. In addition to the organizational autonomy necessary to enable it to function efficiently and successfully, it should have a large degree of financial autonomy to enable it, for example, to make extensions and alterations to the power system to best meet the requirements of the business operations served.

The Production Council has taken a forward step in this matter by the employment of the Electricite de France (EDF) to assist it in its studies and power planning. Under the terms of a contract entered into in March 1954 between the Council and EDF, the company was engaged to conduct the necessary studies and recommend a desirable organization and power policy for the Government, together with drafts of needed legislation. The surveys and studies being carried out by EDF encompass the full range of physical and technical factors which should influence the establishment of a sound power program for Egypt, including a study of the country's resources for the production of power, transmission and distribution problems, forecasts of demands for electric energy, costs of production, rate structure, etc. The company's report, which will be used as the basis for further discussions and planning of the power program, was completed in September 1955. The information contained in it has been used in appraising the power aspects of the Sadd el-Aali project.

F. COST OF THE PROJECT

The total investment cost of the entire project, including one-half the ultimate power installations (i.e. 720,000 KW out of 1,440,000 KW), the transmission lines, and the land reclamation and settlement program, and extending over a period of sixteen years, is estimated as follows:

Table No. 7

Cost of Sadd el-Aali Project (in millions)*

	Foreign Exchange (US$)	Foreign Exchange (£E)	Local Cost (£E)	Total Cost (£E)	Total Cost in Equivalent US$
1. The dam and civil works	149	52	58	110	316
2. Power equipment and transmission facilities	126	44	14	57	165
3. Irrigation and related facilities	72	25	78	104	297
4. Indemnities and resettlement	6	2	8	10	29
Sub-Total	353	123	158	281	807
5. Interest during construction	37	13	29	42	120
Sub-Total, public investment	390	136	187	323	927
6. Private (or public) investments in reclamation and housing	n.a.	n.a.	137	137	393
Grand Total Investment	390	136	324	460	1,320

Exchange at £E one = $2.87

* Figures rounded.

The estimates of cost are reasonable and are the best obtainable considering the present stage of development of engineering planning for the project. With the exceptions noted below, the estimates of cost given above were as prepared by the engineers of the Egyptian Government in collaboration with Hochtief. They were based on local conditions and costs, including experience on the power scheme now under construction at Aswan.

The International Board of Consultants reviewed these estimates in considerable detail but did not accept full responsibility for them, although appraising them as reasonable. Representatives of the Bank spent several days with the staff of the Production Council checking the cost estimates and comparing unit cost values with the existing contract prices at Aswan Dam. As a result of these dicussions the estimate for the contingency for the civil works and power items was increased from 5% to 10%. An over-all contingency for the project has not been added, for the reason that a contingency allowance is included in the estimates for the several phases of the project.

It should be noted that the estimate in this report differs from that of the Egyptian Government in a number of respects:

(1) An additional investment of £E 15 million in transmission lines and interconnections has been added on the ground that such facilities are necessary in order to ensure that all of the power to be generated at Sadd el-Aali will be effectively marketed. The Egyptian Government estimates make provision for the main Aswan-Cairo transmission line, but not for additional transmission and distribution links in the delta below Cairo. The addition to the estimate for transmission lines was based on the recommendations of Electricite de France to the Egyptian Government after the original estimate was compiled, and on unit costs applicable to Egypt. Considerable additional public investment for distribution facilities will be necessary for expansions of existing systems and for service to new areas. In the normal operation of distribution services, contemplated to be a function of the municipalities, the receipts from sale of power are usually adequate to develop the systems without, as a rule, any call on the Government Budget. The total public expenditure for the project would need to be correspondingly increased, however, if this policy, now contemplated, is not followed.

(2) The cost of the major irrigation, drainage and pumping works has been increased slightly (by £E 2 million) in line with more recent figures submitted by Egyptian experts. It should be noted that these cost estimates cover only one million feddans (aside from the conversion of basin-irrigated land) because it is expected that irrigation and drainage facilities for 300,000 feddans costing £E 11,650,000 will have been completed by the middle of 1956. Although not included in the estimate of projected expenditures, the latter sum should be considered part of the total cost of the project even though it has already been spent.

(3) The new estimate includes £E 19.5 million for investment in roads, public utilities, schools, hospitals, etc., on the 1.3 million feddans of reclaimed land, while the Egyptian Government had made no allowance for

such investment. On the basis of conversations with Egyptian officials, it was considered reasonable to estimate this investment at approximately LE 15 per feddan.

(4) The cost of reclaiming the new land (other than that of major irrigation and drainage works) and of housing on the new land has been added to the over-all investment required by the project. This additional investment totaling LE 136.5 million, could be either private or public, although, for reasons to be enumerated later, it would be preferable to have it undertaken by private enterprise. The reclamation expenditure would be for the construction of subsidiary irrigation and drainage canals, land levelling, de-salting where necessary, and appropriate cropping to bring the land up to normal standards of fertility. The cost has been calculated on the basis of recent experience. For housing an allowance of LE 25 per feddan has been made. This is substantially below the expenditures now being incurred in certain model settlement projects which have been undertaken by the government but on a standard which can hardly be envisaged for all new land.

(5) To take into account the need for financing interest payments on loans contracted for the project an amount of LE 42 million has been added as "interest during construction" for the 10-year period required to build the dam.

A tentative attempt to project these expenditures year by year has been made in table No. 8 below. The total investment would be made over a period of about 16 years. During the first 10 years total public and private investments to be financed would average almost LE 35 million annually, and necessary public investment almost LE 30 million per year. Around 90% of the total public investment would fall in the first 10 years. The total direct foreign exchange component of public investment would be approximately LE 136 million or an annual average of LE 13 million in the first 10 years.

Of the total public investment of LE 323 million (including interest during construction), LE 222 million would be necessary irrespective of whether or not power facilities were installed at Sadd el-Aali. In other words, LE 101 million is the additional investment necessitated by the installation of the power plant. The latter includes the cost of the civil works for the power features in the dam, such as power tunnels and caverns, and of the turbines, generators, transmission lines and such other mechanical and electrical facilities as would be directly required for power. All these total LE 88.5 million, to which a proportionate amount of the allowance for interest during construction, namely LE 12.5 million, has been added.

It is expected that these estimates will require further revision when more detailed planning will make it possible to determine more accurately the total expenditures on the various components of the projects and the probable scheduling of these expenditures.

TABLE NO. 8

SADD EL-AALI PROJECT - EGYPT

ESTIMATED INVESTMENT COST OF HIGH ASWAN DAM AND RELATED WORKS
(LE Millions)

INVESTMENT COST	YEARS: 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
I. PUBLIC																	
Dam and Civil Works (Stage One)																	
Total	11	11	8	8	8												46.0
Foreign	10	6	3	3	2												24.0
Dam and Civil Works (Stage Two)																	
Total					12	13	11	10	9	9							64.0
Foreign					10	6	3	3	3	3							28.0
Turbines and Generators																	
Total					2	2	4.5	3.5	2.5	1.5							16.0
Foreign					2	2	4	3	2	1							14.0
Transmission Line to Cairo																	
Total				2	4	4	5	5	4.5								24.5
Foreign				2	3.5	3.5	3.5	3.5	2.5								18.5
Additional Transmission Lines and Interconnections																	
Total				0.5	1	0.5	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.5		17.0
Foreign				0.5	0.5	0.5	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3			11.5
Sub-Total, Construction																	
Total	11.0	11.0	8.0	10.5	27.0	19.5	22.1	20.2	17.7	12.2	1.7	1.7	1.7	1.7	1.5		167.5
Foreign	10.0	6.0	3.0	5.5	18.0	12.0	11.6	10.6	8.8	5.3	1.3	1.3	1.3	1.3			96.0
Conversion of Basin Lands to Perennial Irrigation																	
Total		1	3	5	6	6											21.0
Foreign				1	1	1											3.0
Reclamation Costs: Includes Irrigation Pumping Stations, Main Canals, Drainage for one million feddans																	
Total			7	9	8	7	7	5	5	5	5	2					60.0
Foreign			2	6	3	2	2	2	2	1	1						21.0
Other Public Works: Includes Public Utilities, Roads, Community Facilities																	
Total					1	1	1	2	2	2	2	3	3	3	2.5		22.5
Foreign							0.5	0.5									1.0
Indemnities and Resettlement																	
Total		3	3	3	1												10.0
Foreign		1	1														2.0
I. TOTAL PUBLIC INVESTMENT																	
(a) Excluding interest during construction																	
Total	11.0	15.0	21.0	27.5	43.0	33.5	30.1	27.2	24.7	19.2	8.7	6.7	4.7	4.7	4.0		281
Foreign	10.0	7.0	6.0	12.5	22.0	15.0	14.1	13.1	10.8	6.3	2.3	1.3	1.3	1.3			123
Interest during construction																	
Total																	42
Foreign																	13
Total																	323
Foreign																	136
Domestic																	187
II. PRIVATE (OR PUBLIC) INVESTMENT																	
Reclamation	3.0	6.0	6.0	3.0	3.0	6.0	6.0	6.0	2.0	1.0	8.0	14.0	12.0	10.0	10.0	8.0	104
Housing		2.0	3.0	2.0	1.0	1.0	2.0	3.0	0.5	0.5	0.5	1.0	3.0	5.0	5.0	3.0	33
Total	3.0	8.0	9.0	5.0	4.0	7.0	8.0	9.0	2.5	1.5	8.5	15.0	15.0	15.0	15.0	11.0	137
III. GRAND TOTAL INVESTMENT																	
(a) Excluding interest during construction																	418
(b) Including interest during construction on public investment																	460

III. ESTIMATED RESULTS FROM THE PROJECT

The benefits from the project will be derived from increased agricultural production, from the production of electric power, from savings in water transportation costs due to improved conditions for navigation, and from savings in flood prevention measures and from avoidance of flood damage. Income to the Government will be derived from increased land and export taxes, sales of public lands, and sale of electric power.

There follows an analysis of these various aspects - agriculture, power, and navigation and flood control - followed by an overall summary of economic benefit from the project as a whole.

A. Agricultural Aspects of the Project

The principal justification of the Sadd el-Aali project is that it will make possible a substantial and absolutely necessary increase in agricultural output. According to the calculations of the Egyptian Government, the project will (1) raise the irrigated area by 1.3 million feddans, or from the present total of 6.15 million to 7.45 million, (2) permit the conversion of about 670,000 feddans of basin-irrigated land to perennial irrigation, and (3) increase yields by improving drainage and assuring a more regular supply of water.

Agricultural Output and Population

For Egypt a considerable extension of the cultivated area is imperative. Recent decades have witnessed a growing pressure of population in relation to the cropped area. The table below shows clearly that both the total population and the agrarian population have increased much more rapidly than the total cultivated or cropped area. In 1953, for instance, the cropped area per head in the total population was only 0.42 feddans as compared with 0.61 feddans in 1927.

Table No. 9

Population and Cultivated Areas

	1927	1937	1947	1953
Index: Total population	100	112	134	154
Index: Agrarian population	100	120	122	134
Index: Cultivated area	100	95	104	110
Index: Cropped area	100	97	106	108
Number of crops per unit	1.56	1.60	1.59	1.53
Cultivated area:				
(a) in feddans per capita, total population	0.39	0.33	0.33	0.28
(b) in feddans per capita, agrarian population	0.90	0.77	0.76	0.70
Cropped area in feddans per capita total population	0.61	0.52	0.48	0.42

That there was no corresponding decline in the standard of living was due to the increase in income in other sectors of the economy, primarily in industry. During the last few decades Egypt witnessed considerable industrial development. Thus employment in manufacturing establishments with 10 or more workers increased from 110,800 in 1927 to 243,100 in 1954. The cotton and rayon textile industry has developed so rapidly that Egypt no longer has any net import requirements. The production of other consumer necessities such as beverages, canned foodstuffs, vegetable oils and soap, matches, paper and cardboard has also expanded rather rapidly, as has the output of fertilizers, cement and glass. All these developments have made it possible to maintain though not to raise the existing low-standard of consumption per capita despite the growing population.

Now that industries have expanded enough to cover all or a large part of the country's requirements and the possibility of further substitution of domestic manufactures for imports has at least been drastically limited, industrial growth in the future is likely to be largely conditioned by the development of additional purchasing power in the domestic market. Egyptian industry which still requires substantial protection against foreign competition will certainly be unable to capture a large foreign market for some time to come. The principal determinant in its growth will be agricultural output, for the agricultural sector not only contributed directly about a third of the estimated national income in 1953, but made possible much of the income from trade and services and supplied a large part of the raw materials processed in industry. Agricultural products, moreover, account for 95% of Egypt's exports.

Egypt therefore faces the prospect of a considerable decline in the standard of living unless agricultural production can be rapidly expanded. This requirement is all the more urgent because the population is already growing at an annual rate of 2.5% and all signs point to a further increase rather than a decline in this rate.

The Project and Agricultural Yields

While the primary effect of the Sadd el-Aali project will be to expand the cropped area, it will also raise yields. The existing dams on the Nile can to some extent smooth out the seasonal fluctuations by storing some of the flood waters in the three-month period August-October, during which about two-thirds of the annual discharge of the Nile takes place, and releasing this water during the months of low flow. It will thus make possible (1) a controlled and even discharge of water for use in Egypt throughout the year, and (2) a stabilization of the water supply from year to year.

As the result of the controlled discharge of the Nile, yields will be improved by preventing shortages in irrigation water during some years and, above all, by facilitating better drainage. An incidental effect will also be the stabilization of the area planted to rice. At present the rice area reflects sharply the fluctuation in the availability of water from year to year. Each year the Government determines the rice acreage in the light of water expected to be available. Thus in the last 15 years the area planted to rice has varied from a low of 373,609 feddans in 1952 to a high of 785,724

feddans in 1947; the total paddy harvested has ranged from about 515,000 to 1,318,000 tons, and the highest yield has exceeded the lowest yield by as much as 41%.

Improved drainage will greatly influence yields. In the last two decades yields of most crops have shown a tendency to decline (see Table No. 10). A combination of factors - deterioration in the quality of seeds and varieties as well as poor drainage - has probably been responsible for this trend. Poor drainage is certainly an important factor in depressing yields, particularly in the northern part of the delta where the water table is very high. Both the fluctuations in the water table and the rather high level of the water table affect yields adversely. During the flood season the water table rises rapidly, only to recede again. For a crop such as cotton which develops its root structure during the period of a falling water table, the subsequent rise in the water level during the season when the crop is maturing has a definitely harmful effect. Continuous irrigation over many years has generally raised the water table, thus leading to water-logging and the accumulation of salts in the surface soil by the evaporation of water drawn up from the high water table.

Table No. 10

Index of Yields per Feddan

Period	Wheat	Maize	Millet	Rice	Cotton Lint	Beans	Sugar Cane	Lentils	Chick-peas
1935-39	100	100	100	100	100	100	100	100	100
1940-44	83	77	87	83	104	102	83	105	91
1945-49	82	84	83	102	102	99	94	95	91
1950-54	93	86	94	104	95a/	91	98	91a/	92a/
1953	98	88	94	100	103	91	102	98	92
1954	109	88	83	119	n.a.	101	104	n.a.	n.a.

a/ 1950-53

Open drainage canals have provided only a partial solution and are impracticable in areas of established intensive cultivation where open drains would cut too much into the available land. In the northern delta tile drains have been installed in an attempt to cope with this problem, but this requires an investment of LE 25 per feddan. Up to 1954, 45,000 feddans had been provided with such drains. Further installations have now been deferred, until an experimental program now under way determines more exactly their effect and the optimum depths and spacing of the drains. In the same area experiments have also been launched with well drainage in the hope that such wells will not only help to lower the water table but will supply supplemental water for irrigation.

The virtually complete control over the flow of the Nile which will be effected by the building of Sadd el-Aali will improve drainage conditions by keeping the water supply in the canals at a level which will be

both uniform and substantially below those now obtaining in flood conditions. This will tend both to stabilize and lower the underground water table.

Yields will in general increase as a result of the lower and more stable water table and the more even distribution of irrigation water throughout the year. However, the extent of increase cannot be accurately assessed in the absence of adequate research data. It is a question of the adequacy of the average water supply not only in relation to the needs of the plants but also of requirements for leaching the soil. Less water should be necessary for leaching because the lower water table will reduce the upward movement of salts. However, water in excess of actual plant needs may still be necessary to leach the surface soil. Consequently yields, particularly over the longer term, will depend on the adequacy of water supply in relation to requirements which are not definitely known. This reinforces the need for a vigorous program of field research into water requirements, drainage and other agronomic factors likely to affect crop yields. Such experiments should be carried out under conditions which would approximate as closely as possible those respecting water use, canal water levels and drainage as would obtain after completion of Sadd el-Aali. Apart from the major soil types of the existing irrigation areas, they should also be undertaken on any new major soil types likely to be brought under irrigation, even if special provision of water to the experimental areas is necessary before completion of major works. The existing program of research should be considerably expanded to meet these needs.

In projecting, elsewhere in this report, the agricultural output which is likely to be attained after the completion of Sadd el-Aali, we have assumed a general improvement of yields in the future. We have not found it possible, however, to distinguish between the effects of the project as discussed above and other factors which should improve yields in the future. Admittedly, the yields achieved in Egypt are already among the highest in the world thanks to intensive cultivation, substantial use of fertilizer 1/ and crop rotations which contribute effectively to the maintenance of high levels of fertility. Nevertheless, further improvement can reasonably be expected. The present Government already has under way a 3-year program, begun in 1953-54, for the propagation and distribution of greatly improved wheat, hybrid corn, rice and cotton seeds. The results of this program are promising. A considerable increase in the use of fertilizer, which should become profitable with lower fertilizer prices in the future, should also help to raise yields substantially. For example, it is likely that a second dressing of 20 kg. nitrogen per feddan on wheat would increase output by about 20%. Similarly, rice yields may well improve with larger applications of phosphate. Finally, the establishment of a well-staffed extension service would help to disseminate knowledge of the best agricultural techniques. Since 1953 the Ministry of Agriculture has been seeking to establish an extension service quite independent of the existing

1/ In the 4-year period 1950-53 the average use of fertilizer on all crops except berseem or Egyptian clover was 109 kg. per feddan (260 kg. per hectare). In 1953 Egypt used 654,680 tons of nitrogen fertilizer (117,822 tons N content) and 77,756 tons of single superphosphate.

field services which are primarily engaged in the encorcement of cropping regulations and the dissemination of certified seeds.

Considering all these possibilities, we believe it is reasonable to expect the following increases in yields over the next two decades (in kg. per feddan):

Table No. 11

	Recent Average a/	Projected for 1975
Wheat	914	1,100
Barley	971	1,050
Rice (white)	1,125	1,450
Maize	920	1,200
Millet	1,078	1,250
Cotton	233	250
Beans	701	800
Peanuts	776	800
Sesame	332	365
Sugar Cane	2,380	2,600
Onions	6,350	6,750
Fresh vegetables	6,750	7,400
Tomatoes	6,320	7,000
Potatoes	6,700	7,000
Oranges	7,070	8,500
Grapes	4,900	5,000
Other orchard fruit	6,200	7,000

a/ In some cases 1952 and 1953; in others, 1953 and 1954.

Extension of the Cropped Area

The extension of the cropped area, however, will be the principal result of Sadd el-Aali. A small part of this increase will come from the conversion to perennial irrigation of the 670,000 feddans of basin-irrigated land, still remaining in Upper and Middle Egypt. This land, which is divided into empoldered "basins", is flooded for three months during the period of high water. After the water recedes crops are planted and mature on the water accumulated in the soil. The principal crops are wheat, lentils, fenugreek, chickpeas, beans and sesame. Only one crop is grown annually, although here and there a second crop may be cultivated with the help of water from shallow wells. The cropping intensity - i.e. the proportion of cropped to cultivated area - is therefore only 105 as compared with 153 (in 1953) for Egypt as a whole. Under present conditions it is impossible to install a system of continuous or perennial irrigation on this land because the basin lands provide a measure of necessary flood control and there is simply not enough water for irrigation during three-quarters of the

year. By permitting the controlled discharge of the annual flow of the Nile throughout the year, Sadd el-Aali will make possible perennial irrigation of these basin lands. The amount of water required annually by these lands will not increase, but it will simply be distributed evenly over the whole year. Cropping throughout the year will thus become possible raising the cropping intensity to the level elsewhere in Egypt and permitting more diversification.

The greater part of the increase in the cropped area will, of course, come from the irrigation of new land; and it is therefore necessary to examine how large an expansion of the irrigated area can be brought about by Sadd el-Aali.

1. Selection of Areas for Irrigation

The Egyptian authorities believe that the additional water that will be available to Egypt after the construction of Sadd el-Aali will irrigate 1.3 million feddans of new land. Up to the present the Government has only very roughly blocked out the areas that might be newly irrigated. These, together with the amount of water estimated to be required annually to irrigate them, are set forth in the following table:

Table No. 12

Areas Proposed by the Egyptian Government for Irrigation and their Water Requirements

Location	Area in Feddans	Annual Water Requirements: M^3 per Feddan	Annual Water Requirements: Total (billion M^3)
Upper Egypt (1)	175,000 (general crop rotation)	9,000	1.6
(2)	75,000 (sugar cane rotation)	12,000	0.9
Middle Egypt	150,000	8,000	1.2
Lower Egypt Delta (1)	150,000 (cotton rotation)	7,500	1.1
(2)	150,000 (rice rotation)	8,000	1.2
Western Desert	400,000	12,000	4.8
Eastern Desert	200,000	12,000	2.4
Total	1,300,000	10,000	13.1

Half of these areas would be irrigated by free flow (gravity) and the other half by lift (pumping). It should be noted that these areas would require about 13.1 milliard m^3 of water and that the Egyptians hope to use another 0.6 milliard to expand vegetable and citrus cultivation on about 200,000 feddans.

The Egyptian authorities recognize that a final determination of the size and location of the areas to be irrigated can only be made after

considerably more data are collected on the soils of the potentially irrigable areas. Over the next few years the Egyptian Government will have to carry out a study leading to the final selection of areas to be irrigated in the light of (1) the comparative fertility of soils in various areas, (2) the comparative quantity of water required by different soils, (3) the types of crops that could be grown in various areas, and their comparative marketability, and (4) relative costs of development and provision of water. A program of this kind, which would seek to achieve irrigation and cropping schemes that would ensure an optimum economic yield for the water made available by Sadd el-Aali, entails soil classification, research into cropping patterns and marketing studies.

The broad phase soil survey, based on aerial photography and soil sampling, is well under way and should be completed rapidly once the aerial photographic laboratory, now under construction, is available. This survey will provide the broad soil classification which will enable certain areas to be eliminated and selection of the more promising areas for detailed soil survey. The detailed survey will give a preliminary indication of the relative fertility and water requirements of the various soil types. Once the most promising soil types have been determined research centers should be, as previously discussed, established on each. Only field research can give reliable answers to the many agronomic questions which are essential before final selection of the new areas. The market studies should concentrate particularly on potential export crops which could be developed on new lands. The Egyptian authorities, in cooperation with ICA technicians, propose to work out a full program of soil survey and research early in 1956. The program would presumably be submitted to the Bank for consideration.

2. Water Requirements

The most important consideration governing the selection of areas for irrigation will be the amount of water required. Irrespective of the amount of additional water assured to Egypt by an eventual agreement with the Sudan, it will be vital to use this water for as large an extension of the irrigated area as possible.

The areas tentatively selected by the Egyptian authorities seem by comparison with the present average use of water per feddan to require an excessive amount of water. They appear to include far too much desert land. The tentative program, as given above, would reclaim, for example, 400,000 feddans of desert land in the newly created Liberation Province and 200,000 feddans of eastern desert along the Ismailia canal and in the Sinai peninsula. If this much desert land is irrigated in Lower Egypt, together with the land in Middle and Upper Egypt, it is likely to require far more water than will be available. Moreover, much of the desert land is poor and is likely to attain the yields now achieved on cultivated land only after many years of carefully planned cropping. In the Liberation Province, where a reclamation project has been carried on during the last two years, the present use of water averages about 20,000 m^3 per feddan annually and is not expected to be below 15,000 m^3 in the future. On the other hand, in the Lake Mariut region of the Delta, where the so-called Abis reclamation project is being carried out, the annual use of water during the first three years when salt must be

leached from the soil amounts to about 16,000-18,000 m^3 per feddan, but is expected to be reduced progressively to 9,000 m^3 and, upon completion of reclamation, to probably no more than 7,000 m^3.

Data from various sources indicate that at the moment about 8,000 m^3 of water (measured at Aswan) is used on the average for irrigation of one feddan of land. There is an element of doubt in all calculations. Furthermore, the amount of water used during the flood season (August-October inclusive), when much water runs to the sea, can only be estimated. According to the National Production Council, actual average releases of water at Aswan during the periods February-July and November-December of 1950-53 amounted to 5,100 m^3 per feddan and the estimated use of flood water was 2,700 m^3 or a total of 7,800 m^3 per year. Hurst has calculated the irrigation duty, measured at Aswan, at 7,370 m^3 per feddan in Lower Egypt and 8,390 m^3 in Upper Egypt, or at an average of 7,750 m^3 for Egypt as a whole. Information gathered by the Bank Mission on water use in various parts of Egypt indicates that the amount of water used on the present cultivated area of 6.15 million feddans is in the neighborhood of 49.2 milliard m^3 or an average of 8,080 m^3 per feddan as measured at Aswan. Since, however, this estimate is based on uncontrolled use of water during the flood period, it probably overestimates the use which would take place under fully controlled use. It is therefore reasonable to accept the amount of water required for the existing area at 6.15 million x 7,750 m^3 or 47.6 milliards.

How much land could be irrigated with an additional supply of water depends both on the location and type of land and on the types of crops to be grown. According to the experience on state agricultural farms in the Middle Delta, a three-year crop rotation incorporating one crop of rice requires an annual amount of water, measured at Aswan, of about 8,760 m^3 per feddan, while the same crop rotation substituting maize for rice requires only about 7,560 m^3. In Middle Egypt a three-year crop rotation system, with maize, calls for about 8,000 m^3 per feddan annually. Sugar cane and orchards take far more water than the normal rotations including summer and winter crops. In Upper Egypt experience indicates that a four-year sugar cane rotation (3 years cane and 1 year other crops) requires between 12,000 and 15,000 m^3 per feddan annually. Citrus grown in the Delta apparently needs only 5,600-6,400 m^3 of water per feddan, but when cultivated in Middle and Upper Egypt, where the climate is hotter and the soil different, takes respectively 9,000 m^3 and 12,000 m^3. These requirements, when measured at Aswan, total respectively about 6,600-7,700, 10,350 and 12,600 m^3.

In the light of these considerations it should be possible to select for irrigation areas which would require on the average not much more water than those already being cultivated in Egypt. For instance, it appears feasible to increase substantially the amount of land to be reclaimed and irrigated in the delta at the expense of desert land slated for reclamation. In the northern delta considerable land is still available for reclamation, and the cost of reclaiming it does not appear higher than that for desert land. The advantage of reclaiming such areas as compared with retaining them for fishing will, of course, have to be considered. While a final selection of areas must await the careful investigation outlined above, we can assume, for the purpose of calculating the benefits of the project, that a much

heavier emphasis will be given to reclamation and irrigation in the delta and that the distribution of the areas ultimately chosen will not be far different from those given in Table 13.

Table No. 13

	Areas to be Irrigated (feddans)	Water Requirements (milliard m^3)
Lower Delta	700,000	5.6
Upper Egypt	250,000	2.5
Middle Egypt	150,000	1.2
Desert Land in Lower Egypt	200,000	2.1
Total	1,300,000	11.4
Allowance for extension of citrus and vegetable cultivation		0.6
Total Water Requirements		12.0

It should be noted that a program of this general distribution would involve the use of an annual average of only 8,770 m^3 of water per feddan, as compared with the 10,000 m^3 assumed in the program tentatively blocked out by the Egyptian authorities. The total amount of water required would be about 12 milliard m^3 which would theoretically leave for the Sudan only 6.7 milliard m^3 out of the total additional annual supply of 18.7 milliards as measured at Aswan. However, this 6.7 milliards would amount to about 8 milliards when measured at the probable withdrawal point in the Sudan. Moreover, not all of the 12 milliard m^3 required for the above program would need to come out of the additional 18.7 milliards made available by Sadd el-Aali. After the High Dam is finished Egypt will presumably be able to dispense with the use of the Gebel Aulia reservoir where 2 milliard m^3 of water is lost annually at present. Economies in existing use would probably make an additional supply of 1.6 milliards available (see page 41). In addition it is possible that further economies can be effected in the use of irrigation water. It is often contended that too much water is generally used for irrigation in Egypt and that accordingly a larger area could be irrigated if more efficient water usage could be introduced. It is highly desirable to determine the possibility of effecting such economies by undertaking experiments in various areas for the determination of the optimum irrigation duty taking into account not only the water required by the plant itself but also that needed to keep the soil free from accumulated salt by leaching.

Projected Increase in Agricultural Production and Income

For the purpose of calculating the economic benefits of Sadd el-Aali we have therefore assumed that it will be possible to irrigate an additional 1.3 million feddans as the direct and indirect consequence of the construction of the High Dam. In addition it is quite probable that in the

next two decades 150,000 feddans can be irrigated with underground water. Thus the total cultivated area would probably increase from 6,150,000 feddans in 1953 to 7,600,000 feddans after Sadd el-Aali and all the attendant land reclamation are finished. Owing to the conversion of basin-irrigated lands to perennial irrigation, the total cropped area would increase more than proportionately - from 9,366,000 feddans in 1953 to about 12,750,000 feddans. The overall cropping intensity would rise from 153 to 168.

The Egyptian Government has made no attempt to project in detail the additional agricultural output which would result from Sadd el-Aali. The Bank Mission therefore had to make its own estimates on the basis of the most reasonable assumption regarding the areas likely to be irrigated and of the cropping patterns which, judging from past experience, will be feasible in these areas. Additional detailed studies may well result in a still better selection of land and cropping patterns than these assumed here, but any final calculation is unlikely to show a less favorable impact on agricultural output and income than is set forth in Table 14.

This table projects the cropping pattern that may emerge after Sadd el-Aali is completed, which for the purpose of estimating is assumed as 1975, and estimates what the total agricultural income might be as compared with 1953. The projection is based on the assumption that the irrigation and reclamation program tentatively outlined by the Egyptian authorities will be revised as indicated above. The cropping pattern suggested for the future is not radically different from that now prevailing. In fact, there cannot be drastic shifts from one crop to another. A choice cannot for the most part be made between individual crops, but rather between crop rotation schemes. Certain crop rotations have become well established in Egypt, and long experience has shown them to be well adapted for the maintenance of soil fertility. Except in the basin lands and in areas devoted more or less continuously to vegetables, sugar cane and orchard crops, a three-year crop rotation is the common practice. In the lower and middle Delta, for instance, the principal rotation schemes are: (1) cotton (February-September), wheat, or barley, or beans (October-May), maize (July-December), berseem (December-April), and rice (May-November); or (2) cotton (February-September), berseem (October-April), maize (June-October), wheat or other winter crop (November-May) and berseem (October-January). In the same area a two-year cropping system including cotton, beans or barley, rice and berseem, is often used on salty lands. In the Upper Delta generally similar rotation schemes are practised, though often with more emphasis in the inclusion of winter and summer vegetables. In Middle and Upper Egypt millet often takes the place of maize in the rotation and more barley is grown in relation to wheat. In the Aswan province of Upper Egypt little cotton is cultivated. In the cane growing areas, primarily in Upper Egypt, sugar cane occupies the land for three-year periods alternating with a year of other crops combined sometimes with fallow.

Within the limits set by the need to maintain these generally desirable cropping systems, the projection of agricultural output set forth in Table No. 14 gives a somewhat greater emphasis to certain crops. In the field of cereals, for example, provision has been made for a more than proportionate increase in the rice area on the ground that water will be

TABLE NO. 14

PROJECTION OF CROPPED AREA . AGRICULTURAL INCOME IN EGYPT

	1953			1975			Prices Used for Valuation of Output (LE per ton) a/	
	Area (Feddan 000's)	Production (Tons 000's)	Gross Farm Value (LE 000's)	Area (Feddan 000's)	Production (Tons 000's)	Gross Farm Value (LE 000's)	1953	1975
Wheat	1,790	1,547	42,216	1,945	2,139	59,892	28.00 b/	28.00
Barley	116	103	2,373	100	105	2,415	23.00	23.00
Maize	2,015	1,853	36,398	2,385	2,862	56,209	19.64	19.64
Millet	486	582	10,476	550	688	12,384	18.00	18.00
Rice	423	435 c/	13,920	900	1,295 c/	33,670	32.00 d/	26.00 d/
Beans	299	209	7,322	490	392	13,740	35.05	35.05
Lentils & chickpeas	76	40	2,800	145	84	5,880	70.00	70.00
Fenugreek	53	33	1,146	70	45	1,563	34.75	34.75
Peanuts	31	24	1,050	100	80	3,200	43.75	40.00
Sesame	39	13.5	820	68	25	1,520	60.79	60.79
Sugar-Cane	104	238	7,140	175	455	13,650	(30.80 e/	(30.00 e/
-Beet				30	66		(	(
Onions	37	220	4,136	66	450	8,460	18.80	18.80
Fresh vegetables	179	1,282	11,793	249	1,845	16,789	9.10	9.10
Tomatoes	84	439	4,734	128	896	8,691	10.78	9.70
Potatoes	27	187	2,570	79	553	6,598	13.74	13.74
Oranges	26	184	2,722	75	638	9,493	14.88	14.88
Grapes	19	94	2,291	40	200	4,874	24.37	24.37
Other fruit	49	304	6,911	70	490	11,138	22.73	22.73
Cotton	1,324	919 f/	85,916	2,035	1,492 f/	119,360	93.49	80.00
Berseem	2,132	-	41,912	3,000		62,030		
Meat & dairy products			52,428			84,760		
Poultry			10,929			15,300		
Fish			7,000			5,000		
Other crops	47		1,019			500		
TOTAL	9,366		360,032	12,750		552,116		
Cost of Production			104,440			162,000 g/		
			255,592			390,116		

a/ Prices per ton include valuations for by-products such as chaff, bran, straw, stalks, seeds, etc.
b/ Corrected for overvaluation due to high domestic price support of wheat. The price used in the Egyptian official estimate of national income for 1953 was LE 36.45 per ton.
c/ Milled rice.
d/ Price of LE 25.33 used in Egyptian 1953 national income calculation increased to LE 32 - to allow for undervaluation.
e/ Corrected for overvaluation due to high domestic price support of cane sugar. The price used in the Egyptian official estimate of national income for 1953 was LE 37.80.
f/ Seed cotton equivalent to 318,000 and 508,750 of lint cotton in 1953 and 1975 respectively.
g/ Increase more than proportionate to the rise in cropped area owing to disproportionately large expansion of crops with high cost of production and allowance for greater use of fertilizers (latter offset, however, by anticipated decline in price).

available to raise and stabilize rice output and that this crop can make an important contribution to Egypt's exports. In sugar there is the possibility of making Egypt virtually self-sufficient both by expanding the area in cane and by growing sugar beets which experiments carried on during the last few years have shown to be surprisingly well adapted to conditions in certain parts of Lower Egypt. The cultivation of considerably more potatoes and tomatoes has been stressed in the expectation that Egypt should be able in the long run to establish a market for these products in southern and western Europe, particularly because the potato crop matures very early and tomatoes can be grown the year-around. Considerable expansion has also been envisaged for oranges and grapes which are already being grown with conspicuous success and which might well be marketable abroad in the long run, particularly if they are processed in some form. Finally, it is anticipated that the area in peanuts can increase substantially because this crop is well suited to certain desert areas likely to be irrigated and should find a market abroad.

The changes envisaged in the pattern of production are slight and would not be difficult to bring about, particularly since they are a continuation of trends already discernible in the past. The cultivation of tomatoes and potatoes, for example, has been rising markedly. Even with the contemplated further use in output, it is not expected that by about 1975 they will occupy more than 1.62% of the total cropped area as compared with 1.08% in 1953. The area in fruit has expanded from an average of 63,588 feddans in 1935-39 to 96,000 in 1953, or by a little over 50%. An additional increase by about 90% over the next two decades is not an unreasonable expectation, and even at the end of this period orchards would only account for 1.45% of the cropped area. The production of peanuts has also been rising, and peanuts should prove to be a particularly suitable and remunerative crop on newly irrigated desert land. The area in rice has been restricted only because of the water supply. Once more water is available, there will be ample incentive to raise the production of rice; and the Government is well equipped to provide the necessary seed.

Table 14 also shows the total gross and net value of the agricultural output that may eventually be attained as compared with those in 1953. The prices used in calculating the value of future output are generally the same as those in 1953. If these prices decline or rise, farm income will, of course, be affected, but to the extent that products are consumed in the domestic market there will be offsetting effects on the real income of consumers. For products like rice and cotton which are to a considerable extent sold abroad, possible price changes in the world market have been taken into account. For cotton, it has also been assumed that the expansion in area would be almost wholly confined to the relatively short-staple, lower-priced Ashmouni variety rather than the long-staple, high-priced Karnak. For Karnak, there is a limited and rather inelastic demand, while Ashmouni can be readily sold in competition with the still shorter staple American cotton provided the premium now prevailing is reduced.

According to the projection, the gross value of agricultural output would rise from £E 360 million to £E 552 million or by about 53%, whereas the net value would increase from £E 256 to £E 390 million or by 52%. The increase in the net value is slightly smaller because of the assumed shift

to certain crops such as orchard crops which cost relatively more to produce. The total rise in the net value - LE 134 million - cannot be fully attributable to the effect of Sadd el-Aali alone. Perhaps up to 15% might be due to other measures to raise yields and to well irrigation, leaving a net of about LE 114 million attributable to Sadd el-Aali.

This net amount has been calculated by deducting all production costs such as fertilizers, seeds, etc., other than labor. For the purpose of determining the cost to the economy of producing the agricultural products it was not considered appropriate to include labor costs, both the imputed value of the farmers' own labor or actual wages of hired labor. With the rapid growth in the population, Egypt will continue to have a large supply of redundant labor. It should therefore be possible to till the new lands without any adverse effect on the production of goods and services in the non-agricultural sectors of the economy.

A further small contribution to agricultural income might come from the gently sloping land around the borders of the Sadd el-Aali reservoir which would become available for one-crop cultivation when the water is drawn down every year. Perhaps 200,000-300,000 feddans might be so cultivated to a catch crop like vegetables or berseem. If one takes the lower limit of this area and estimates the net value of the crops conservatively at LE 10 per feddan, the additional benefit would be LE 2 million per year, raising the total to LE 116 million.

From this amount it is necessary still to deduct the cost to the Government of operating and maintaining the new irrigation and drainage network. If the annual cost of maintenance and depreciation is put at 0.5% of of the total investment in irrigation and drainage works (ca. LE 60 million) and 5% of the pumping stations, the total would be LE 1.46 million. To this should be added the cost of operating the pumps, which might raise the total to around LE 4 million a year. The total net benefit would then be somewhere about LE 112 million annually.

The full effect of the project on agricultural output and income will not be felt before five or ten years after completion of the dam. The dam itself, together with major irrigation and drainage works, will take a minimum of ten years to build. The reclamation of land involves, among other things, a special cropping regime over a period of up to five years to bring the new land up to the average standard of yield now prevailing in Egypt. In addition, roads will have to be built, utilities installed and housing and public buildings constructed. Altogether, therefore, even if construction work is begun promptly, 15 to 20 years will pass before the full fruits of the project are realized. This does not mean that there will be no benefits in the meantime. Cropping can begin as part of the land reclamation process as soon as the dam is completed and water is stored after the first flood season, although yields on the new land will be low in the initial years. Moreover, after the completion of the cofferdam which will take only five years, an additional controlled supply of water of 3 milliard m^3 annually will become available. This additional water will be used for the conversion of the 670,000 feddans of basin-irrigated land to perennial irrigation.

While the total annual water requirements of this land will not be greater after its conversion to perennial irrigation, it will impose new demands on the supply during the low water season of January to July. The supply in this season will remain critical until the whole of the annual flow of the Nile is effectively controlled upon the completion of the High Dam, thereby eliminating differences of supply that now obtain as between the flood period and the low-water period. It is expected that the additional water during the critical period required after the conversion of the basin-irrigated land will be almost 5,000 m^3 per feddan. The increase in the supply available during this period by the cofferdam will therefore be entirely absorbed by the conversion of the basin-irrigated land.

It has already been mentioned that, according to some Egyptian authorities, it may be possible to raise the storage level behind the cofferdam sufficiently to make another 3 milliards m^3 available one year after the cofferdam is completed. If further investigation substantiates this claim, the more immediate benefits of the project will be greatly increased. This will be especially advantageous because the Egyptian Government expects to complete by the middle of 1956 major irrigation and drainage facilities for 300,000 feddans. At present the water for this area (shown in Table 15) can be found only if wells are installed or if other irrigated areas are deprived of some water.

Table No. 15

Areas for which Irrigation Works are Scheduled for Completion by Mid-1956

Lower Egypt		
North Delta Area	105,000	feddans
Nubarieh Canal	80,000	"
Tahrir (Liberation) Province	24,000	"
Abis Area (Egyptian-American Rural Improvement Service)	25,000	"
Sub-Total	234,000	"
Upper Egypt		
Abnub Basin Conversion	31,000	feddans
Fayum-Kom Oshim	13,000	"
Sub-Total	44,000	"
Desert Land	21,000	"
Total	299,000	feddans

If a further 3 milliard m^3 becomes available, it would be possible to irrigate this entire new area without decreasing the supply to existing irrigated areas and still leave some water for the stabilization of the fluctuating area now devoted to rice cultivation in the delta.

Indirect Benefits

The increase in agricultural income will entail important ancillary benefits for the economy as a whole. As already indicated, agricultural income is likely in the future to be the most important determinant in the development of total national income and particularly of income in the commercial, industrial and financial sectors of the economy. The economic report points out that for various reasons non-agricultural income may rise somewhat more rapidly than agricultural income. By the time the benefits of Sadd el-Aali are fully realized total national income may have risen by around 55% to 60%. This increase will probably approximate the growth in the population which will meanwhile have taken place. However, the benefits flowing from Sadd el-Aali will undoubtedly provide a further fillip to the development of Egyptian industry which in the intervening period will have increased its efficiency and broadened its activities. Moreover, there is some prospect that the decline in the mortality rate which has been and is taking place will in the long run be followed by a decline in the birth rate, thus diminishing the current high rate of population growth.

Projected Balance of Trade in Agricultural Products

It is interesting to examine also how the expected development of agricultural output and national income is likely to affect Egypt's balance of trade in agricultural products. The exact impact is difficult to forecast, if only because the effect of possible changes in per capita income on the consumption of various products cannot be accurately predicted. If per capita incomes will still be below present levels, for instance, the per capita consumption of such food staples as cereals and beans is less likely to drop than, say, the consumption of livestock products. The table below indicates the possible balance of trade in the year 1975 if per capita consumption ranges between 90% and 100% of that in recent years. It shows that Egypt would have a substantially larger deficit in wheat, but a considerably bigger export surplus in rice than in the period 1948-52. Cotton exports could be about 50% greater and there would also be a larger surplus of onions which is Egypt's second or third ranking export. Egypt would be enabled to export substantial quantities of tomatoes, potatoes, citrus and grapes, although if prices decline with the considerable expansion in output, which might well happen, domestic consumption might rise and the surpluses indicated by the table might prove to be much smaller.

Table No. 16

Foreign Trade Balance in Agricultural Products

(Net import -; Net export +; in '000 tons)

	Average 1948-52	1975
Cereals other than rice		
Wheat	- 728.9)	- 1,378 to - 2,222
Barley	- 3.6)	
Maize and millet	- 89.5)	
Rice (white)	+ 178.5	+ 460 to + 527
Cotton	+ 244	+ 383 to + 396
Beans	- 10.0	- 35 to - 94
Lentils and chickpeas	- 2.0	0 to + 8
Fenugreek	-	- 10 to - 16
Peanuts (in shell)	-	+ 46 to + 49
Sesame	- 1.5	0 to + 2
Onions	+ 106	+ 131 to + 162
Tomatoes	-	+ 66 to + 139
Potatoes	- 16	+ 182 to + 219
Oranges	- 2.4	+ 188 to + 232
Grapes	- 1.0	+ 40 to + 56

Incentives for Private Land Reclamation

The realization of the agricultural production envisaged ultimately following the completion of Sadd el-Aali will depend not only on government initiative and investment but also on private enterprise and investment. The government will have to provide for the construction of the dam and power facilities, the major irrigation and irrigation canals together with necessary pumping stations, and such roads, public utilities and public buildings as are required for settlements on newly irrigated land. However, the actual reclamation of the land and building of housing for settlers can and should be left predominantly to private enterprise and capital. To be sure, the government is now carrying out certain reclamation projects, involving also the construction of model villages, in the Lower Delta and the Liberation Province. Some elements in the present government undoubtedly like to see the government carry on this work on a larger scale on the ground that this is the only way to ensure a significant improvement in the standard of life in the rural areas. Others, who appear more influential, recognize that as large a role as possible should be given to private capital and enterprise and accordingly want the new land to be turned over to private companies for reclamation and subsequent resale. For a number of reasons this course appears much sounder. First of all, the government is likely to find it difficult enough to raise by taxation and borrowing the funds for necessary works which cannot by their very nature be financed or undertaken by private enterprise. On the other hand, experience

in Egypt indicates that private capital is rather readily forthcoming whenever adequate profit opportunities are offered. Land reclamation is one of these tasks which has in the past been successfully undertaken by private companies. Secondly, the reclamation and settlement of 1.3 million feddans may well be too large an undertaking for the government. Finally - and this is perhaps most important - reclamation and settlement undertaken by the government is likely to be much more costly. The experience with the Abis project in the lower Delta and with the Liberation Province project indicates that the government would probably build villages on a standard considerably higher than that which Egypt can afford on a large scale. The investment in housing, for example, would probably be double the amount - £E 32.5 million - included in the cost estimate given earlier in this report.

The terms on which companies would be permitted to acquire land for reclamation and to resell it will be of vital importance. Unless the terms provide an adequate profit incentive, private companies will be unwilling to undertake the work essential to bring the land into cultivation. The Government has decided that the land holdings of such companies will not be subject to the limitations of the agrarian reform law; and, as a special encouragement, land development companies have been included, under existing legislation, among those entitled to certain tax concessions. It has also stipulated that such companies will have to sell the reclaimed land within 25 years from acquisition (or the date on which water becomes available) and subject to conditions ensuring that not too many large holdings will be created and that the limitations of the agrarian reform law are respected. Beyond this, however, the terms of purchase and resale have apparently not been determined; and particularly the question whether or not there shall be restrictions on the resale price of the land after reclamation is still under discussion. These questions will have to be settled in a manner which will ensure that the private investment necessary to realize the full economic benefits of the project will be forthcoming.

The creation of conditions which would provide adequate incentives for investment in land reclamation by private companies is hardly likely to raise the price of reclaimed land so much that small cultivators would not be interested in acquiring it. Because of the continued population pressure on the land the peasants will undoubtedly be willing to pay extraordinarily high prices in order to appease their "land hunger". If companies seek to exploit this land hunger by setting unjustifiably high prices, the government may have to intervene by establishing, through legislation, equitable policies governing land sales.

B. Electric Power Aspects of the Project

At present, electric power is generated in Egypt by about 50 public and private agencies, with individual stations ranging from 100 kw in the smaller diesel plants to a maximum of 100,000 kw in the new Cairo North thermal power station owned by the Cairo Electricity and Gas Administration. The total installed capacity in 1954 was approximately 500,000 kw, and in that year the peak load was about 272,000 kw and the total energy generated was 1,300 million kwh.

The Republic of Egypt owns nearly all the public utility power stations and transmission systems with the exception of the Cairo Choubrah power station (which supplies about 40% of the power in the Cairo area) and the Alexandria Karmouz power station (which supplies about 70% of the power in the Alexandria area). These two stations are owned and operated by the Societe Egyptienne d'Electricite and the Lebon Co., respectively. Taken together these non-government-owned utilities contribute about 57% of the energy generation in Egypt. The remaining 43% of power generation is produced by the Ministry of Public Works, the Egyptian Republic Railways, and by miscellaneous private industrial companies for utilization in their own factories.

Available power after completion of the project

For the purpose of assessing the power requirements to be met from the project, it was necessary to relate the new power potentialities to growth in demand in Egypt and to the adequacy and economy of service from existing facilities. Since neither of these elements is static a date of completion of the power facilities had to be assumed. Consequently, for the purpose of calculations in this report, power from Sadd el-Aali was assumed to become available January 1, 1965.

Prior to 1965, new thermal capacity is scheduled to be completed at the Cairo North, El Tabbin and Cairo South stations totalling 285,000 kw. By about 1960 the Aswan power station with capacity of 360,000 kw should be completed also. Completion of the first stage of the Sadd el-Aali power station will add another 720,000 kw. Assuming that no private industrial generating plants are built in the meantime, the addition of all these plants will bring the total installed capacity in Egypt to approximately 1,900,000 kw.

In assessing the portion of this capacity which could be considered to be effective it has been assumed that 10% of the present plants will be out of service or in reserve. The Aswan station will be affected by the reservoir levels both before and after completion of the cofferdam and the high dam and its effective capacity will vary according to water availability. Also it is prudent to consider that one of the Sadd el-Aali units could be out of service at any time. The effective capacity, in relation to the above installed capacity, after completion of Sadd el-Aali, will, therefore, be as follows:

Table No. 17

Total Electrical Generating Capacity in Egypt at Completion of Project

	Installed Capacity KW	Effective Capacity KW
The total of all existing plants prior to 1955	500,000	450,000
The new Cairo North, El Tappin and Cairo South units	285,000	210,000
Aswan Power Station	360,000	200,000
Sadd el-Aali	720,000	630,000
Totals	1,865,000	1,490,000

Effect of Sadd el-Aali on Aswan Power

The hydraulic conditions now existing at the Aswan dam are such as to cause the output of power to vary widely from low water to flood seasons. When the reservoir is full in January, the upstream level may reach 122 meters, the corresponding downstream level being about 88.5 so that the maximum head for power production is 33.5 meters. In July, the reservoir level is dropped to 100, or even 97 with a corresponding drop in the head. Again during the flood rise from late July to mid-October the head at the dam with sluice-ways open to prevent deposition of silt, is only 8 or 9 meters. The result of this is that the power from the station now under construction at Aswan will not exceed 50,000 kw for four months of each year. Although the total generation from the Aswan station would amount to about 1,800 million kwh annually, only about one-fourth would be firm power.

The Sadd el-Aali reservoir will stabilize the flow of the river at Aswan, thus converting practically all the Aswan power to a firm basis. Because the two dams must be operated as a unit for the regulation of flow, and because the level of the reservoir downstream from Sadd el-Aali must not exceed 108 meters, the quantity of power to be produced annually at Aswan will be approximately the same, about 1,800 million kwh, but more of it will be firm power and consequently have a higher value. A considerable additional potential economic value, therefore, will be realized at the Aswan power station attributable to the Sadd el-Aali project.

With the Aswan basin held at the required operating level of 108 meters, the approximate average annual energy available from the two generating stations will be:

At Aswan station	1,800 million kwh
At Sadd el-Aali station	4,200 million kwh
From both stations	6,000 million kwh

Power potential from second and third stages of Sadd el-Aali

Although still under study as to the number and size of units to be installed, the power scheme at Sadd el-Aali at present contemplates the installation in three construction stages of a total of 16 turbo-generator sets, only eight of which are included in the project. The Government plans to add the additional generators when power use in Egypt justifies. Calculations indicate that the potential generation in an average year of the Sadd el-Aali station, when fully completed and considering simultaneous operation of 15 of the 16 units, would be approximately 8,000 million kwh. Thus with the full complement of units at Sadd el-Aali the potential power generation from it in combination with Aswan will be almost 10,000 million kwh annually.

The sustained flow from the Sadd el-Aali reservoir based on irrigation withdrawals for Egypt, will be approximately 1,890 m^3 per second. With an average of 15 units in operation under full capacity load at Sadd el-Aali, a flow of 1,740 m^3 per second would be utilized. Since a 50% load factor is estimated for the foreseeable future, a large surplus of flow would be available for additions of generating equipment in the future if a need for additional capacity develops.

Electricity use forecasts

The questions of the extent to which and the rate at which power from the Sadd el-Aali project will be profitably utilized in the economy of Egypt are not subject to precise determination. There are serious difficulties in the way of any reasonably reliable forecasts of load growth in underdeveloped countries. The present use of electricity in Egypt, particularly, does not furnish the point of departure for consumption forecasts usual for countries which have been electrified for some time. Besides the total peak load of about 272,000 kw generated by all electrical generating plants in Egypt there is an additional peak load of the equivalent of approximately 300,000 kw produced in mechanical energy. The total consumption of power is thus not the electrical consumption alone but the total of this consumption and the mechanical power produced by thermal motors, or somewhat more than double that which appears in electric power consumption statistics.

The Bank has been supplied with two separately made projections of load growth in Egypt, one prepared by the Egyptian Electricity Commission and the other by Electricite de France, consultants to the Government of Egypt in studying and planning a comprehensive power development.

Forecast by EEC

The forecasts by the Egyptian Electricity Commission (EEC) separately considered existing and potential power use in several separate categories. Use for public utility purposes, which includes the principal cities of Cairo and Alexandria and the commercial and industrial use supplied by the utilities in these areas, was estimated to increase at a fixed rate which would cause it to double every eight years.

Electric consumption of private industries was predicted to double each ten years. The power supply to industry would come from the Sadd el-Aali system with a gradual retirement of small existing industrial plants beginning when the new supply becomes available. A similar replacement of dispersed mechanical power units in industrial plants was anticipated with about one-fourth of this load taken over initially in 1965 and about 80% by 1975.

Power for Government irrigation and drainage was estimated to develop according to reclamation plans of the Ministry of Public Works. Drainage pumping was estimated to remain unchanged but pumping for irrigation, which is planned to be double in 1965 over use in 1954, is expected to increase about tenfold by 1975 due to development of new lands and conversion of basin irrigation areas, both requiring pumping.

A rather rapid electrification of railroads was predicted by EEC, with the use for this purpose increasing about sevenfold (over 1954) by 1965, and another fourfold by 1975, reaching a consumption of 600 million kwh by that year. EEC included use for fertilizer production as presently planned.

In summary EEC reached the conclusion that power use in Egypt would increase from the present approximately 1,300 million kwh to 5,000 million by 1965 and to 12,000 million by 1975. The corresponding increase in peak load would be from the present 272 Mw to 1,050 Mw by 1965 to 1,610 Mw by 1970 and to 2,364 Mw by 1975. (See Appendix 1, showing the forecast graphically.)

Forecast by EDF

The forecast of Electricite de France (EDF) is the average of two forecasts, one of which is characterized as optimistic and the other pessimistic. The forecast assumes that electrical load growth will take place at a rate which would approach the growth of total energy use (i.e. electrical plus mechanical) and that such total energy use will increase at an annual rate of 6-1/2%, or doubling in approximately 11 years. As electrical energy is to replace little by little mechanical motors, it would increase initially at a considerably accelerated rate. EDF, therefore, established its graphic projection of growth in electric power use as beginning with the present electrical peak and approaching asymptotically the total increase curve starting from the combined total of electrical and mechanical energy use. The resulting projection of electricity use begins at a rate of growth of approximately 11% per annum and by 1975 essentially reaches the selected overall rate of growth of 6-1/2% per annum. Irrigation and drainage uses were included in the composite use. The power for the Government's fertilizer plant was included in the total forecast. No attempt was made in the EDF forecast to differentiate between the rates of growth for various classes of use such as for general public utility purposes, industrial, irrigation and drainage and the like.

The EDF forecast shown graphically on Appendix I reaches the conclusion that the peak demand will increase from the present 272 Mw to 950 by 1965 to 1,400 Mw by 1970 and to 1,900 Mw by 1975, or somewhat lower values than projected by EEC.

The Power Market in Egypt

In making forecasts of electricity use it is obviously necessary to take into account the general economic background against which power growth is to be projected. As is elsewhere indicated in this report, there is reason to suppose that the national income by 1975 may be about 60% higher than at present, but that the per capita income by that date may be no greater than, and possibly even lower than, it is today. Thus we cannot expect any increase in the average standard of living which is already quite low and does not permit of the widespread household use of electricity. It is probable, too, that the rate of industrial growth in Egypt will not be as rapid in the future as in the past. It is necessary then to examine how power consumption will develop under these conditions.

Power use in the metropolitan areas, municipalities and agglomerations

An analysis of the growth in the peak load and energy generated in the Cairo area for the past ten years shows an average yearly peak load increase of 11.5%, indicating a redoubling period of use in about 6.5 years. In 1953 the values of watts per capita and kilowatt-hours per capita was 30.6 and 131.8 respectively. In the Alexandria area the rate of growth for the number of consumers, the peak load and for power consumption indicates a current doubling period of approximately 7 years. For the whole of Egypt power use has increased in the last 20 years at a rate to cause doubling each 8 years, and during the last 8 years the average annual rate of increase has been 11%, or doubling each 6-1/2 years.

The rural electrification potential in Egypt is not comparable to that in more developed countries. Outside the larger metropolitan areas there are now already electrified 56 agglomerations with a total population of 1,464,100 (by the 1947 census) in which the mean of the average annual electricity use per person is 40 kwh, with a mean of utilization hours of approximately 3,400. There are 439 additional agglomerations of over 5,000 inhabitants with a combined population of over 3 million (1947 census) where no electric service is available. Six of these have 20,000 inhabitants or over, and 50 others are 10,000 or over.

Use by private industries

Of the total power consumed in Egypt in 1954 of 1,300 million kwh, slightly more than one-third was produced in power plants owned and operated by private industries. The increase in the numbers of private industrial power plants and in power generation by them in the period from 1950 to 1954 inclusive has been rather phenomenal and indicates that industries have not been able to obtain adequate or dependable power supplies from the public utilities at reasonable cost. The extent to which Sadd el-Aali power can capture the existing industrial market and supply industrial expansion will depend, to a large measure, on the Government's ability to transmit power to the locations desired and on its rate policies. As an additional indication of the power potential for private industries, it is estimated that installed mechanical power in dispersed private stationary engines comprises a total of about 514,000 kw equivalent, about 30% of which was installed prior to 1940.

Governmental uses for irrigation, drainage and railway electrification

Irrigation by pumping is widespread in upper Egypt where the yearly variation of water levels is great between the flood period and the rest of the year. Drainage by pumps is predominant in lower Egypt where the variation of water levels is reduced and where lands are at low levels with consequent poor drainage.

The execution of the Sadd el-Aali project will control the downstream discharge of the river, preventing flooding of low lands and gradually bringing about a stabilization of the water table. The effect of this will be that the demands of energy will be increased on existing pump irrigation stations and reduced on existing drainage stations. Much of the basin areas to be converted to perennial irrigation will require pumping. The irrigation of large areas of new lands at higher contour levels is contemplated and this will also require pumping.

According to tabulations supplied by the Ministry of Public Works, it is now operating electrical generating stations for irrigation and drainage with total installed capacity of 87,000 kw which generate about 82 million kwh annually. Most of this power is produced in thermal stations although two hydroelectric stations, one at Fayoum and one at Naga-Hamadi, produce small amounts. In addition, the Ministry operates mechanical power pumping stations with a capacity totaling about 250,000 kw almost half of which was installed prior to 1940. In predicting future power use for irrigation and drainage purposes, it is planned to convert these loads to the more economical source of power from the Government's transmission system.

The Egyptian Republic Railways (ERR) now own two main power stations, one in Abou Zaabal of 3,550 kw and one in Alexandria of 5,000 kw. Both supply workshops and other Governmental departments. ERR has under way the electrification of its Cairo-Helwan line and plans to carry out studies to determine the feasibility, in terms of capital and operating costs, of converting more of the national railroads to electricity when Sadd el-Aali power becomes available. The obstacles to a broad scale electrification of the Egyptian railroads, such as the magnitude of the investment required and the operational problems involved, are such as to indicate that provision for the power required need not be included in the forecasts at this time.

Forecast adopted in this report

Against this background the forecasts of EEC and EDF are considered somewhat sanguine. For the purpose of appraisal by this report, two projections have been made for the purpose of establishing a range of values of expected benefits from electric power from the project. The first of these projections, designated forecast A, (see Appendix II) adopts the 6-1/2% rate of overall growth for all uses other than for Government irrigation and pumping and for new industrial demand. For irrigation and pumping the Government's schedule was adopted. Development of new industrial uses was assumed at a rate of annual increase of approximately 3% based on the present use of mechanical power for industrial purposes. In addition it was assumed that 240,000 kw (about 80%) of the present mechanical energy produced and used in existing industries will be converted to electrical energy by 1975 and supplied from public utility sources.

The second of these projections, designated as forecast B (see Appendix III), is based on as complete as possible breakdown of present consumption of power, including mechanical power, by various types of uses, and on a separate projection of growth for each of these uses. Under forecast B it is assumed that general public utility uses of electricity, excluding industry and the requirements for drainage and irrigation, will increase at an annual rate of 7.6%, causing it to increase fivefold by 1975; that industrial power consumption, including that now supplied by mechanical means, will only double by 1975, and that in the interval 1965-1975 mechanical power now used in industry will be replaced by electric power; and, as in forecast A, Government irrigation and drainage use will develop as scheduled in the project. The resultant overall rate of increase for use of power in nongovernmental enterprises under this forecast is approximately 8% annually.

The fivefold increase for general power uses indicated above may seem rather high. It must be admitted that too little is known about the factors which determine the growth of power demand under varying circumstances, and particularly at different income levels. All that can be said is that Egypt has been experiencing a rather rapid growth and that experience in other underdeveloped countries indicates that the increase in power consumption has been far outstripping the rise in national income. Even under conditions of relatively static per capita income power consumption appears to rise rather rapidly. In essence the increased use of electricity, as the increased use of motor cars and motor transports, is a reflection not simply of a rise in incomes, but of a changing way of life. In Turkey, for example, the consumption of electricity during the 15-year period 1938-1953 rose by 279% while real income per capita increased only around 15%. In Japan power consumption rose by 70% from 1938 to 1953 even though consumption was already at a very high level in 1938 and both industrial production and per capita incomes were about the same at the end of this period as at the beginning. During the same period there was probably no significant change in per capita income in India, but the consumption of power supplied by public utilities rose by 161%.

Comparison of forecasts

A comparison of the total peak loads under the several forecasts described above, and as illustrated graphically on Appendix I, is as follows:

Forecast	Peak in Mw				
	1954	1960 1/	1965 1/	1970 1/	1975 1/
EEC	272	628	1050	1610	2364
EDF	272	600	950	1400	1900
A	272	611	926	1480	2164
B	272	576	791	1219	1747

Provision has been made in the forecasts for fertilizer production at a synthetic nitrogen plant in which power will be used for the production of hydrogen by electrolysis of water.

1/ Includes 150 Mw for fertilizer plant

While forecasts A and B are intended to establish a range of expected power use on which benefits from the power aspects of the project may be evaluated, it is possible that forecast A, like those of EEC and EDF, is somewhat optimistic. It is, therefore, preferable to assume that the more conservative of the forecasts, B, is more likely to prove valid. Consequently, calculations of benefits from power operations of the project have been based on this more conservative forecast.

Interconnected transmission network

The projections used in this report assume that adequate provision will be made for a network to transmit power to all areas of potential use in Egypt. Thus, in addition to the main transmission line from Aswan to Cairo included in the project, it will be necessary to progressively develop an interconnected transmission system with Alexandria, Suez, Port Said and other main communities as demand increases. Electricite de France has stressed the importance of immediate plans for such a long range program including the standardization of voltages, the planning of distribution facilities and the establishment of logical tariffs. The forecasts of power use included in this report are based on the assumption that such a comprehensive power distribution system will be established and that the power system will be efficiently managed.

Installed capacity at Sadd el-Aali

A comparison of the estimated peak loads derived from the several forecasts given above with the effective installed capacity on the system (see Appendix I) indicates the requirements for new installed capacity to meet demand both in terms of amounts and time. Assuming the installation of the first 8 units of Sadd el-Aali will begin about 1963 and be completed in 1965, there will be excess capacity on the system according to forecast A until January 1971 and according to forecast B until December 1973. Within the range of these dates all the installed generating capacity, including existing thermal plants, should be utilized and additional generating capacity would need to be completed, either by construction of additional units at Sadd el-Aali or of new thermal plants.

In the interim period, after 1965 and until one or the other of the above dates, there will be more or less idle capacity on the system and from the single point of view of adequacy of power supply it would be possible to re-schedule the time of completion of the Sadd el-Aali units to more nearly conform to the schedule of growth in demand. Studies indicate, however, that in spite of the fact that a cost must be included for the maintenance of existing thermal plants in standby condition, Sadd el-Aali power can be delivered in Cairo, after transmission losses, at a cost below the fuel costs of producing power in the thermal stations. From the standpoint of system economy, therefore, it is desirable to complete according to schedule the construction of the first 8 units at Sadd el-Aali, thereby gaining all the construction economies possible, and to operate these hydro units in preference to the Cairo thermal units. The latter will serve as useful back-up and reserve. By the time of its completion in 1965 the peak load on the system will require operation of the entire effective capacity at Sadd el-Aali.

Another implication of these studies is that it may be advantageous for the Government of Egypt to complete construction of the second stage of Sadd el-Aali earlier than the 1971-73 dates mentioned above so as to take advantage of power production from such additional hydro units rather than to operate continuously the thermal units in existing Cairo plants. A decision on this point can be made after actual experience verifies the conclusion of studies to date.

Benefits from Sadd el-Aali power

Assessment of the benefits to the country's economy to be derived from the power resources of Sadd el-Aali raises two questions: (1) What is the relationship of the net value to the Egyptian economy of power contributed by the project (including that contributed indirectly by firming up Aswan power) to the investment cost incurred by the addition of power facilities; and (2) is the cost/benefit ratio for the Sadd el-Aali hydro facilities (taking the investment cost as only the extra investment in Sadd el-Aali necessitated by power) definitely more favorable than the cost/benefit ratio for possible alternative thermal capacity?

For a study of the first question a determination was made of the quantity of usable power contributed by the project. This varied from year to year according to forecasts of use and estimates were made according to forecast B, the more conservative of the several forecasts. (See Table No. 18.)

In computing the power supply available from Sadd el-Aali, account has been taken of the reduced cost of producing fertilizer in the Aswan plant because of the firming-up effect of the new reservoir on the Aswan power station, thus increasing manufacturing operations from 8 to 12 months annually. The Bank has estimated this saving in the range of LE 15 to LE 20 per ton of contained nitrogen. For the estimated annual production of 71,000 tons of nitrogen, the saving in cost attributable to Sadd el-Aali reservoir would approximate LE 1.25 million annually.

In estimating the value of power to the economy it is appropriate to take as a measure the price at which consumers would be willing to absorb the entire power supply. In actual practice, it is admittedly difficult to forecast the price at which the large block of additional power to be supplied by Sadd el-Aali could be sold. Presumably the price should be low enough to induce industrial consumers to forego the use of alternative power supplies, whether mechanical power or industrially-generated electricity, and also to encourage general consumers to increase their power consumption.

If the Sadd el-Aali power were sold at 4 milliemes per kwh wholesale, the retail price, including an adequate margin for costs of distribution and profits on distribution, could be fixed at 8.25 milliemes per kwh. 1/ Such a price would be substantially below the cost of production of industrial

1/ Distribution cost on the Government's system in the Cairo area in 1953-54 was 2.6 mms/kwh; a 25% margin above costs of purchased power (4.0 mms/kwh) and of distribution services (2.6 mms/kwh) is assumed.

power plants or the cost of mechanical power and would thus offer sufficient incentive to switch to public power. It would also greatly encourage additional consumption by the general consumer, particularly considering the fact that public power in Cairo is now sold at a composite rate of 17.08 milliemes. The valuation of Sadd el-Aali power at a wholesale price of 4 milliemes per kwh is therefore believed to be quite conservative.

This is in essence "the price the traffic would bear." The total value of power at this price would represent not only the gross economic benefits derived from power but also the maximum gross income, in financial terms, from the sale of power. With respect to the latter, the Government might, of course, elect to fix the actual power rate below what "the traffic would bear," thus sharing the economic benefits with the power consumers but reducing its own income from power. It should be noted that the cost of producing power will be substantially below this assumed price, as will appear from Table No. 20.

The resulting calculation of the economic benefits derived from Sadd el-Aali power is reproduced in Table No. 18. This calculation takes into account not only the value of power estimated according to the method set forth above, but also the savings in the cost of producing fertilizer at Aswan resulting from the effect of Sadd el-Aali in firming-up the power to be generated at the hydroelectric plant at Aswan dam.

Comparison of economic cost of thermal and hydro power

It is now necessary to examine whether the additional investment in Sadd el-Aali necessitated by the installation of hydro power facilities - namely LE 88.5 million plus interest during construction or a total of LE 101 million - would be worthwhile in the light of the alternative cost of supplying an equivalent supply of power in new modern thermal plants. For estimating construction costs of such plant the investment was taken at LE 60 per installed kw, or allowing 15% for reserve and as unavailable, at LE 70 per effective kw. Fuel consumption was estimated at 300 gms per kwh which should be obtainable in modern plants. A comparison of benefits from such thermal power stations for the years 1965, 1970 and 1975, and according to forecast B, shows that in each instance the incremental investment in Sadd el-Aali power facilities would be more advantageous (see Table No. 19). This comparison is, of course, based on present prices for fuel in Egypt and on thermal plants of presently achievable efficiency. It may be that further technological advance in thermal plant design would permit the construction of more efficient plants. However, even if the efficiency of future thermal plants were increased by as much as 100%, Sadd el-Aali would still provide the more economical source of electric power. This is quite apart from the consideration that the Sadd el-Aali plant would utilize for production of electric power an Egyptian natural resource, inexhaustible in character, rather than fuel oil which might well have to be imported in large part.

Table No. 18

COST - BENEFIT RATIO, SADD EL-AALI POWER

		1965	1970	1975
I.	Investment in power facilities (£E millions) 1/	78	101	101
II.	Total Sadd El-Aali power consumed, Forecast B, (millions kwh)	1,625	3,877 2/	4,077 2/
III.	Gross annual economic value, (£E millions) 3/	7.75	16.76	17.56
IV.	Annual Cost (of II) to the economy (£E millions)			
	(a) operating cost	0.40	0.40	0.40
	(b) maintenance of transmission facilities	0.18	0.25	0.25
	(c) depreciation of power plant and transmission facilities (2½% p.a.)	1.95	2.53	2.53
	(d) stand-by cost of CEGA thermal plants 4/	0.29	0.14	-
	(e) Total (£E millions)	2.82	3.32	3.18
V.	Net annual economic benefit from power, (£E millions)	4.93	13.44	14.38
VI.	Economic yield on investment in power facilities (per cent)	6.32	13.31	14.24

1/ Includes assumed interest during construction.
2/ Includes 400 million kwh in 1970 and 800 in 1975 of seasonal power at 50% value of firm power.
3/ Value assumed at 4 mms/kwh; also includes £E 1.25 million annual saving in cost of manufacturing fertilizer.
4/ Existing thermal plants in full or partial stand-by.

Table No. 19

ECONOMIC BENEFIT OF POWER FROM THERMAL PLANT EQUIVALENT TO SADD EL-AALI

		1965	1970	1975
I.	Investment in power facilities (£E millions) 1/	40	73	76
II.	Total power consumed, (kwh millions)	1,625	3,877	4,077
III.	Gross annual economic value (£E millions) 2/	6.50	15.51	16.31
IV.	Annual Cost of II to the economy, (£E millions)			
	(a) operating costs	1.63	3.88	4.08
	(b) maintenance of transmission facilities	0.05	0.12	0.12
	(c) cost of fuel, assuming 300 gms./kwh	3.02	7.19	7.56
	(d) depreciation of power plant and transmission lines (2.79% p.a.)	1.12	2.04	2.12
	Total	5.82	13.23	13.90
V.	Net annual economic benefit (£E millions)	0.68	2.28	2.41
VI.	Economic yield on investment, (per cent)	1.70	3.12	3.17

1/ Includes assumed interest during construction.
2/ Value assumed at 4 mms/kwh, or approximately 20% below generating cost in most efficient existing thermal station.

Potential Financial Results of Sadd el-Aali Power Operations

Since we have assumed that after completion of the project an autonomous agency will be created to conduct the business of generating and distributing power, an estimate has been made of the financial outcome of operations of Sadd el-Aali power facilities. It should be noted that financial results thus estimated closely parallel the estimated economic results. Table 20 sets forth in a preliminary way and in broad quantitative terms the prospective net income of the power plant both inclusive and exclusive of depreciation and suggests a possible allocation of the potential net cash income. This statement, which extends over a period of fifteen years following completion of the plant, is based on the following assumptions:

1) that the installation of the initial 720,000 kw (8 units) of generating capacity will be completed to a stage permitting operation of at least one-half the units by 1965, the first year of assumed operation at partial capacity and for the estimated costs as shown on page 31.

2) that the estimated system demands will have developed as shown on our estimate "B" (the most conservative indicated in the report);

3) that the amount of demand in kw and energy in kwh to be supplied by the Sadd el-Aali plant, and which are based on estimate "B", will be as shown in the first column of Table 20;

4) that the estimates of annual operating expenses, maintenance, standby expenses and depreciation accruals are the same as used in Table 18;

5) that the power will be sold at the wholesale price of 4 milliemes per kwh (1.15¢ U.S. equivalent), namely at the same rate as is used in the economic analysis;

6) that funds for construction of the "public" portion of the entire project, estimated at £E 281 million (see Table 8) together with £E 42 million of estimated interest during construction, or a total of £E 323 million, will have been arranged for so that the projected construction schedule will be met;

7) that the portion of the necessary capital investment pertaining to the electrical power plant, including transmission lines and substations at Cairo and other load centers, will be £E 101 million;

8) that an average interest rate on borrowed funds, local and foreign, of 3.75% be used.

9) that the total capital cost of the electrical power facilities, £E 101 million, which includes 12.5 million of estimated interest during construction, be amortized over the 15 years assumed to begin in 1966 and ending 1980; this assumes a maximum maturity of 25 years. The borrowing is assumed to be dated 1955 and funds will be drawn down over the 10 year period ending 1965;

TABLE NO. 29

ESTIMATE OF ANNUAL EARNINGS AND DEBT RETIREMENT

SADD EL-AALI POWER

	Projected Income						Allocation of Net Cash Income				
Year	Kwh Delivered	Gross Revenue @ 4 mms/Kwh	Cost of Operation Including Standby	Depreciation @ 2½%	Net Revenue after Depreciation	Net Revenue before Depreciation or net cash Income	Debt at Beginning of Year	Amount Assigned for Debt Service 66-2/3% of Net Cash Income	Interest @ 3.75%	Amortization	Contribution to Reserves 33-1/3% of Net Cash Income	Cumulative Reserves
						(All figures in millions)						
1965	1,625	LE 6.50	LE 0.87	LE 2.03	LE 3.61	LE 5.63	LE 101.00	LE 3.79 1/	LE 3.79	-	LE 1.84 1/	LE 1.84
1966	2,060	8.24	0.85	2.15	5.24	7.39	101.00	4.93	3.79	1.14	2.46	4.30
1967	2,497	9.99	0.84	2.27	6.88	9.15	99.86	6.10	3.74	2.36	3.05	7.35
1968	2,913	11.65	0.82	2.39	8.44	10.83	97.50	7.22	3.65	3.57	3.61	10.96
1969	3,288	13.15	0.81	2.51	9.83	12.34	93.93	8.23	3.52	4.71	4.11	15.07
1970	3,877	15.51	0.79	2.63	12.09	14.72	89.22	9.81	3.35	6.46	4.91	19.98
1971	3,917	15.67	0.76	2.63	12.28	14.91	82.76	9.94	3.10	6.84	4.97	24.95
1972	3,957	15.83	0.73	2.63	12.47	15.10	75.92	10.07	2.85	7.22	5.03	29.98
1973	3,997	15.99	0.70	2.63	12.66	15.29	68.70	10.19	2.58	7.61	5.10	35.08
1974	4,037	16.15	0.68	2.63	12.84	15.47	61.09	10.31	2.29	8.02	5.16	40.24
1975	4,077	16.31	0.65	2.63	13.03	15.66	53.07	10.44	1.99	8.45	5.22	45.46
1976	4,077	16.31	0.65	2.63	13.03	15.66	44.62	10.44	1.67	8.77	5.22	50.68
1977	4,077	16.31	0.65	2.63	13.03	15.66	35.85	10.44	1.34	9.10	5.22	55.90
1978	4,077	16.31	0.65	2.63	13.03	15.66	26.75	10.44	1.01	9.43	5.22	61.12
1979	4,077	16.31	0.65	2.63	13.03	15.66	17.32	10.44	0.65	9.79	5.22	66.34
1980	4,077	16.31	0.65	2.63	13.03	15.66	7.53	10.44	0.28	7.53 2/	7.85 2/	74.19

1/ To meet the first year's interest of LE 3.79 millions the amount of net cash income assigned to Debt Service has been increased by LE 0.04 millions and the contribution to Reserves reduced by that amount.

2/ In the final year the contribution to reserves includes LE 2.63 millions not required for Debt Service.

10) that the amount of fixed annual allocations to debt service is limited to only 66 2/3% of total available annual cash (net earnings plus depreciation).

As shown in Table 20, a debt of £E 101 million which represents the entire capital cost of the electric power including the related transmission facilities can be repaid out of earnings in the 15 year period ending with 1980. In addition, in the same period, there will be approximately £E 74 million ($212 million U. S. equivalent) over and above requirements of operation and debt service. With total debt service limited to 66 2/3% of the annual net earnings before depreciation, the annual coverages would be about 1.5 times.

Net earnings after depreciation which are assumed to start at £E 3.61 million in 1965, would represent a return that year of only 3.5% on the entire £E 101 million of estimated capital requirements for the electric power system. However, the rate of return would increase rapidly as shown in the following:

Table No. 21

Year	Net After Depreciation (£E Millions)	Percentage
1965	3.61	3.4%
1966	5.24	5.0
1967	6.88	6.6
1968	8.44	8.0
1969	9.83	9.4
1970	12.09	11.5
1971	12.28	11.7
1972	12.47	11.9
1973	12.66	12.0
1974	12.84	12.2
1975 and thereafter	13.03	12.4

Thus, as indicated above, the potential rates of return on the capital investment for power facilities, including interest during construction, are quite satisfactory and support the economic justification of the electric power portion of the Sadd el-Aali project.

C. Improvement in Navigation and Flood Control

While the economic justification of Sadd el-Aali rests in essence on the increase in agricultural output and in power supply, there are certain incidental economic benefits which must be mentioned. An effective control over floods would be established and conditions of inland water navigation would be greatly improved. These incidental benefits, however, are difficult to assess in quantitative terms.

Flood Protection

The benefits arising from the control of floods would be of two types: (1) certain savings in government expenditures which could in the future be used for productive investment or for constructive services to the community, and (2) the prevention of certain losses in national output and income which now result from inundations and infiltration during periods of high flood.

At present the government has to spend about £E 1.5 million per year to cope with the consequences of the flood cycle of the Nile. An elaborate system of levees and bunds has to be maintained to prevent floods. Because of the silting of the river bed by flood waters the levees have gradually been raised until they are now about 1 meter higher than in 1874. With the help of these levees the Nile can carry a flood of 7,750 m^3 per second, and at this volume the surface of the river is about 1.5 meters above the level of the adjoining land. High floods such as those in 1929, 1934, 1938 and 1946 and the extraordinary floods of 1874 and 1878, create special problems of flood protection. Even during normal years considerable manpower and some equipment is engaged in patrolling the Nile in the flood season, and the levees must be strengthened at critical points. On flood protection proper the Egyptian government spends annually close to £E 600,000. At the same time the silt brought down during the flood season entails an annual outlay of about an equivalent amount on clearing canals, drains and branches of the Nile. Finally, the annual floods substantially increase the cost of pumping out drainage canals. Altogether the government would save a total annual expenditure of about £E 1.5 million when the floods are effectively controlled. Since most of this expenditure is for labor, the economic cost of this labor, which is generally abundant, is negligible. The saving of this expenditure should therefore be considered not a part of the economic benefits of the project, but rather a part of the impact of the project on government finances.

In recent decades there have apparently been no large-scale inundations during the flood season. Now and again, however, some land is flooded with consequent damage to production. Moreover, during the flood season there is excessive water seepage and infiltration through levees and canal banks which tends to aggravate the drainage problem. The Egyptian authorities estimate the annual loss in national income owing to these two factors at £E 10 million. Unfortunately, there is no way of checking this

estimate or of determining the basis for a different estimate. In order to keep the estimate of benefits rather conservative, we have rather arbitrarily assumed that the loss in national income which would be obviated is only £E 5 million per year.

Improvement in Navigation

Since Egypt possesses about 3,350 kilometers of navigable waterways, inland water transport has always played a considerable role. Barge fleets are said to have a total capacity of 130,000 to 140,000 tons, and sailing feluccas a capacity of perhaps 200,000 tons. In recent years barges have carried on the average 825,000 tons annually, and feluccas perhaps another 2,000,000 tons consisting primarily of sand, stone and other bulky materials, much of them carried over relatively small distances. By comparison, the Egyptian State Railways carried about 4.7 million tons of commercial freight in 1952-53 and trucks are estimated to transport 3 million tons per year in other than purely local traffic. The primary economic contribution of inland waterways lies in the transport of heavy, bulky materials at a cost well below that of rail or road transport.

The sharp fluctuations in the flow and level of water in the river and canals greatly interfere with navigation at present. During the flood season navigation has to be virtually interrupted for a period of 60 days, partly because there is insufficient clearance under stationary bridges and partly because upstream traffic becomes exceedingly difficult. During the low water period navigation over certain stretches of the inland waterways again becomes impossible owing to shallow water. It is not improbable that the tonnage carried by inland waterways would increase by between one-fourth and one-third once the water level becomes more or less stabilized as the result of Sadd el-Aali.

The National Production Council claims that improved navigation would increase national income by about £E 5 million annually. This again seems a rather excessive expectation. If the Ministry of Finance and Economy is correct in assessing the "value added" by inland water transport of £E 2.9 million for 1953; the increase owing to a possible greater volume of traffic would at the most be £E 1 million. Even allowing for the fact that other sectors of the economy would gain from the resulting reduction in costs of transport, it is unlikely that the total annual economic benefit would exceed £E 2 million.

Altogether it is possible that the total annual benefit arising from improved navigation and flood control will run in the neighborhood of £E 7 million. This estimate, however, can at best be considered only an "educated guess," since there is little factual evidence on which to base a calculation.

D. Economic and Financial Benefits of Entire Project

Overall Economic Costs and Benefits

In separate sections we have treated the net annual economic benefits of the project in the fields of agriculture, power, flood control and navigation. By the year 1975 or 1976, when the project will have reached full fruition, assuming completion in the period 1965-1967, (except for the possible second phase of the power development which we have not considered), these benefits will be as follows (in £E 000,000's):

Agriculture	112
Power	14
Flood control & navigation	7
Total:	133

In each field the economic benefits have been calculated net of the cost of maintaining (or depreciating) and operating that portion of the total capital investment which is directly attributable to that aspect of the project. It is still, however, necessary to take into account the cost of maintaining the dam and attendant civil works which exclusive of the part already included in the analysis of the power aspects, involve a total investment of £E 91 million and is an item of joint cost. These facilities may be said to have an indefinite life provided they are properly maintained. We have accordingly allowed only maintenance as a cost element and at the rate of 0.5% per year. Since this would amount to only £E 455,000 it can be ignored as insignificant to the economic analysis.

Account should be taken, however, of the fact that this total benefit will not be realized for a long time. As already indicated, the first agricultural benefits would begin to accrue on a modest scale after the completion of the cofferdam, i.e., after approximately five years from start of construction. Additional agricultural benefits would begin to accrue upon the completion of the main dam, i.e., in about 10 years' time, and would mount gradually until they reach a maximum in or about the year 1975 or 1976. A small portion of the benefit in electric power would accrue from the completion of the cofferdam which would help to firm up power generation by the power plant now under construction at the existing Aswan dam. The Sadd el-Aali power plant itself can begin operating at partial capacity prior to final completion of the dam and its capacity will be fully utilized soon after 1970, according to the projection of power demand we consider most probable. The full navigation and flood control benefits would be realized once the main dam is finished.

The approximate time incidence of the economic benefits is shown in Table 22.

Table 22

Economic Benefits and Investment
(LE 000,000's)

Time from start of Project	Annual Net Benefits				Investment	
	Agri-culture	Power	Flood Control & Navigation	Total	Total	Ratio Net Benefit to Investment
5 years	11	1.3	-	12.3	164.3[a/]	7.5%
10 years	20	4.9	7	31.9	362.6[a/]	8.8%
Final	112	14.2	7	133.2	470.9[a/]	28.3%

a/ Including LE 11.6 million expected to be spent by mid-1956 on irrigation and drainage facilities for about 300,000 feddans.

As will be seen from this table, the net economic benefit or, in other words, the net increase in national income will be rather small until the dam is completed. In the first five years of construction, no benefits will be realized and during the next five years following the building of the upstream cofferdam the benefits will be modest. Thereafter, however, the benefits will rise sharply primarily as the result of the expansion of agricultural production. When the full fruits of the project are realized, the increase in national income directly attributable to the project will be about 28% of the total investment including interest on the public investment during the ten year construction period of the dam.

It should be noted that the benefits from the 6th to the 10th year would be substantially higher than those shown in Table 22 if further investigation should substantiate the claim of some Egyptian authorities that 6 milliard rather than 3 milliard m^3 of additional water could be stored behind the cofferdam one year after its completion. In that event it would be possible to provide water for about 600,000 feddans of new land. As a result it is probable that the economic benefits in the form of higher agricultural output would steadily rise from the 6th year to a total of perhaps LE 33 million in the 10th year. By that year the ratio of net benefits to the investment would then be over 12%.

In evaluating the relationship of the investment to the benefits a number of factors should be borne in mind:

(1) The investment is rather high because all of the investment incidental to the expansion of the cultivated area, including housing, schools, hospitals, public utilities, etc. have been included.

(2) The cost-benefit relationship will improve still further when ultimately, as the result of further growth in the power demand, it becomes necessary to install generating capacity at the dam in addition to the 720,000 kw now contemplated. Since much of the investment for this second phase of the power installation, including the power tunnels, concreting work, etc., amounting in all to £E 31 million (exclusive of interest during construction) will already have been made, the incremental investment will be much smaller in relation to the additional benefits than for the first phase of the power program.

(3) The rather conservative price at which power has been valued leaves out of account the benefits which are likely to accrue to industry from the advantage of using a more economical power supply than at present.

(4) Above all, the benefits summed up in Table 22 do not include the very great indirect effect which the increase in agricultural income is likely to have on income in other sectors of the economy including industry, trade, finance and other services. As already indicated, agricultural income will be the primary determinant of the development of national income as a whole. A roughly corresponding increase in income in the non-agricultural sectors cannot, of course, be simply added to the income effect of Sadd el-Aali since additional investment will also be required in these sectors. However, the proportion of this additional investment to the income generated will probably be more favorable than the proportion of the investment in Sadd el-Aali to the increase in income directly attributable to this project. The commercial and financial sectors will certainly be able to handle a larger volume of trade without a proportionate increase in investment; and, in view of the existence of some idle capacity, the same may well be true of transport and industry in part.

In view of the factors indicated above, the total increase in national income directly and indirectly attributable to Sadd el-Aali may ultimately be in the range of 35 to 40% of investment. Thus the project would have an overall capital-output ratio which justifies the conclusion that the investment would be economically worthwhile.

This conclusion regarding the economic soundness of the investment is reinforced by the consideration that the alternative opportunities of raising national output by other, non-agricultural investment projects are extremely limited. While there are opportunities for certain industrial projects and some expansion of industrial output may take place gradually as labor and managerial skills improve and production costs are brought down, it has been made clear in this report and the economic report that a substantial increase in agricultural income is needed if income from industry, commerce and other sources is to expand significantly. Without Sadd el-Aali the growth in the economy is likely to lag greatly behind the probable increase in the population. Under these circumstances, this would result in a steady pressure on the standard of living, with serious implications for the future social and political evolution of the country. While Sadd el-Aali may offer little prospect that Egypt will be able thereafter to enjoy a higher standard of living than at present, it will prevent, as a minimum, a disastrous deterioration in this standard and will, as already pointed out, give

Egypt a transition period which will provide opportunity for broadening the industrial base of the country and slowing up the present rate of population growth.

The Financial Results

The problems involved in financing the project during the construction period are discussed in the economic report. Here it is proposed only to examine the effect of the project on the government's income and to determine whether the income and savings accruing to the government will be sufficient to meet all the financial charges growing out of the project.

The direct financial results of the project can be calculated by adding (1) probable government receipts from newly irrigated land, particularly in the form of land taxes, (2) potential revenue from power, and (3) savings in flood control expenditures.

In Egypt special charges are not made for irrigation water. Since in essence there is no agricultural land other than irrigated land, the land tax is in effect also an irrigation tax. This tax is assessed on the basis of the yield of the land and is reassessed once improvements increasing the yield are completed. It may be expected that the tax on newly reclaimed and irrigated land will be about £E 4 per feddan. The additional tax that will be imposed on basin land which has been converted to perennial irrigation may be about £E 2 per feddan. Thus the total additional government revenue from 1.3 million feddans of newly irrigated land and 670,000 feddans of converted basin land will ultimately approximate £E 6.5 million per year. As a result of the increase in production and export of rice and cotton, on which export taxes are levied, the total amount of export taxes collected may also be higher by about £E 1 to 2 million per year.

Additional revenue will also be derived from the sale of public land which will be put under irrigation. How much of such land will be sold will depend on the ultimate selection of areas for irrigation, but it may well be considerable. In view of the lack of information regarding the amount of public land likely to be sold and the price that will be charged, no calculation has been made of the income accruing to the government on this amount. However, it may well exceed £E 25 million.

The net cash income from power based on a rather conservative estimate of the power rate which could be charged will, as pointed out previously in the report, rise ultimately to around £E 15.5 million per year. This sum is net of operating and maintenance costs, but inclusive of the cash reserves for depreciation which in principle are available for debt retirement.

The savings in government expenditures resulting from effective flood control have already been estimated elsewhere in this report at about £E 1.5 million per year.

Thus when the project comes to full fruition the total annual increase in government revenues plus savings in government expenditures would be about £E 25.0 million quite apart from the proceeds of possible public land sales. From this sum must be deducted the cost to the government of maintaining the dam and maintaining and operating the necessary drainage and irrigation works which has already been estimated at about £E 4.0 million. The net improvement in the government's financial position resulting directly from the project would accordingly be around £E 21 million.

As in the case of the economic benefits, the financial benefits will accrue in the main only after the completion of the dam, i.e. after ten years. Their incidence in time may be set forth roughly as follows (in £E millions):

Table 23

	Years after Beginning of Construction		
	5	10	Ultimate
Receipts from agriculture	1.5	3 a/	8.0
Income from power	-	5.6	15.7
Flood control savings	-	1.5	1.5
Total	1.5	10.1 a/	25.2

a/ Subject to upward revision if more water can be stored behind the cofferdam.

By comparison with the economic benefits, the increase in government income derived directly from the additional agriculture will be extremely modest as long as the present system of taxation is maintained. Taxes on agriculture have always been light, and most of the government revenue from agriculture accrues indirectly through taxes on trade, finance and industry whose income is largely dependent on agriculture. On the other hand, the potential net cash revenues from power are large. Moreover, since they will not be commingled with tax receipts, they can be more easily used to retire debt contracted in connection with the Sadd el-Aali project. In a preceding section of this report it has already been shown that of the government charges, a wholesale rate of 4 milliemes per kwh, the net cash income over a 15-year period would be sufficient to pay off a debt of £E 101 million, equivalent to the investment in power facilities, and still leave a surplus estimated to be £E 74 million.

The question arises, however, whether government revenues from the project would be sufficient to pay off all loans contracted for the project. In examining the possibility of retiring such loans it should be pointed out that there is no need, on economic grounds, to make the investment self-liquidating within a few decades. Apart from the investment in power, most of which has a more limited life and all of which could easily be paid off

within 15 years, the project will continue to serve the economy for an indefinite number of years. With proper maintenance, Sadd el-Aali will be able to supply irrigation water for centuries. In other words, as a counterpart of any debt contracted for the project the government will have an asset of great and enduring value. At the higher level of national income which the project will make possible, the government can carry a much larger public debt than at present.

The debt contracted for the project cannot, of course, be expected to have a maturity equal to the life of the project. It has already been indicated that the cash income from power would be sufficient to retire a debt of at least £E 101 million which would more than cover service on the foreign loan or loans of £E 70 million which, it has been assumed, would be contracted for the project. The domestic debt, insofar as it is not paid off from net power revenues during the first 15 years after the completion of the dam, would presumably have to be refinanced, particularly since this debt would carry shorter maturities, namely 10 to 15 years, than the foreign debt. Thus, during the 15 year period when the £E 101 million investment in power is being paid off, the government may have to meet maturities on part of the remainder of the debt or, as a minimum, will incur the interest charges on this remaining debt. After the initial 15 year period the net income from power would become available for the retirement of the remaining debt, thus gradually eliminating the need for refinancing.

The government's total tax revenues are likely in the future to be sufficient to service a rather large debt. It has already been indicated that Egypt's national income will probably be at least 55% higher than at present when the full fruits of Sadd el-Aali are realized. On this basis it can be expected that the government's tax revenues would, as a minimum, be 50% greater. These additional revenues will, of course, be largely used to finance an inevitable intervening expansion of government services. The regular government budget (exclusive of receipts and expenditures of public enterprises), out of which debt service will for the most part have to be provided, would then total approximately £E 300 million. Within this total it should not be difficult to provide for additional interest charges of about £E 6.4 million and sinking fund payments of perhaps another £E 3.6 million to provide a reserve for debt retirement when and if that should become necessary or desirable. A total annual financial charge of this dimension would represent only about 3% of the government budget.

IV. CONCLUSIONS

The project represents the most feasible and economic method of obtaining a very large volume of over-year storage of heretofore wasted flood waters of the Nile River which is essential for expanding crop production. The location is the most suitable on the Main Nile for a project of this nature and is strategic for full flood protection of Egypt. A valuable asset in electric power will also be developed by the project.

Water, rather than land, is the limiting factor for agricultural production in Egypt. The cropped land available for the large and rapidly expanding agrarian population in 1953 was only 0.70 feddans per head as compared with 0.90 feddans in 1927. The increase in population in Egypt, now at a rate of about 2.5% per year, makes it essential that additional irrigation supplies be developed.

The design of the project is sound and the estimated cost and construction schedule is reasonable. The benefits to be derived from the project justify the costs.

The reservoir capacity of the project is the optimum obtainable. The design capacity would provide regulation of the Nile for a minimum draft approximately equal to the average river discharge for the past 55 years. Furthermore, increase in design capacity would rapidly approach the limit of diminishing returns because of the increased ratio of evaporation losses. These losses for the selected reservoir volume, although large in actual amount, are in fact less in proportion to the storage obtained than for any other reservoirs on the river.

Of the various schemes proposed for annual regulation, Sadd-el-Aali is unquestionably superior, since other proposed annual storage reservoirs would even in the aggregate have insufficient storage capacity because all the other reservoirs that have been proposed would not even in the aggregate make available for irrigation as much water as Sadd el-Aali.

The project is consistent with, and would be an effective contribution toward the sound development of the Nile Basin as a whole. It provides basically annual storage and thus is not a substitute for the Century Storage scheme which is designed to regulate long wet and dry cycles. The two are therefore complementary.

The soundness of the project, however, is dependent on certain conditions:

a. There should be a satisfactory agreement between Egypt and the Sudan (i) for the division of water resources after development by the project, and (ii) for relocation of population displaced by the construction of the reservoir.

b. The Government of Egypt should make satisfactory arrangements or provision for the finances needed for the completion of the project and of the additional facilities required to assure the successful utilization of the water and electric power resources developed.

c. The Government should initiate a program leading to the selection of areas to be irrigated in a way which will ensure the maximum economic return from the additional water made available by the project.

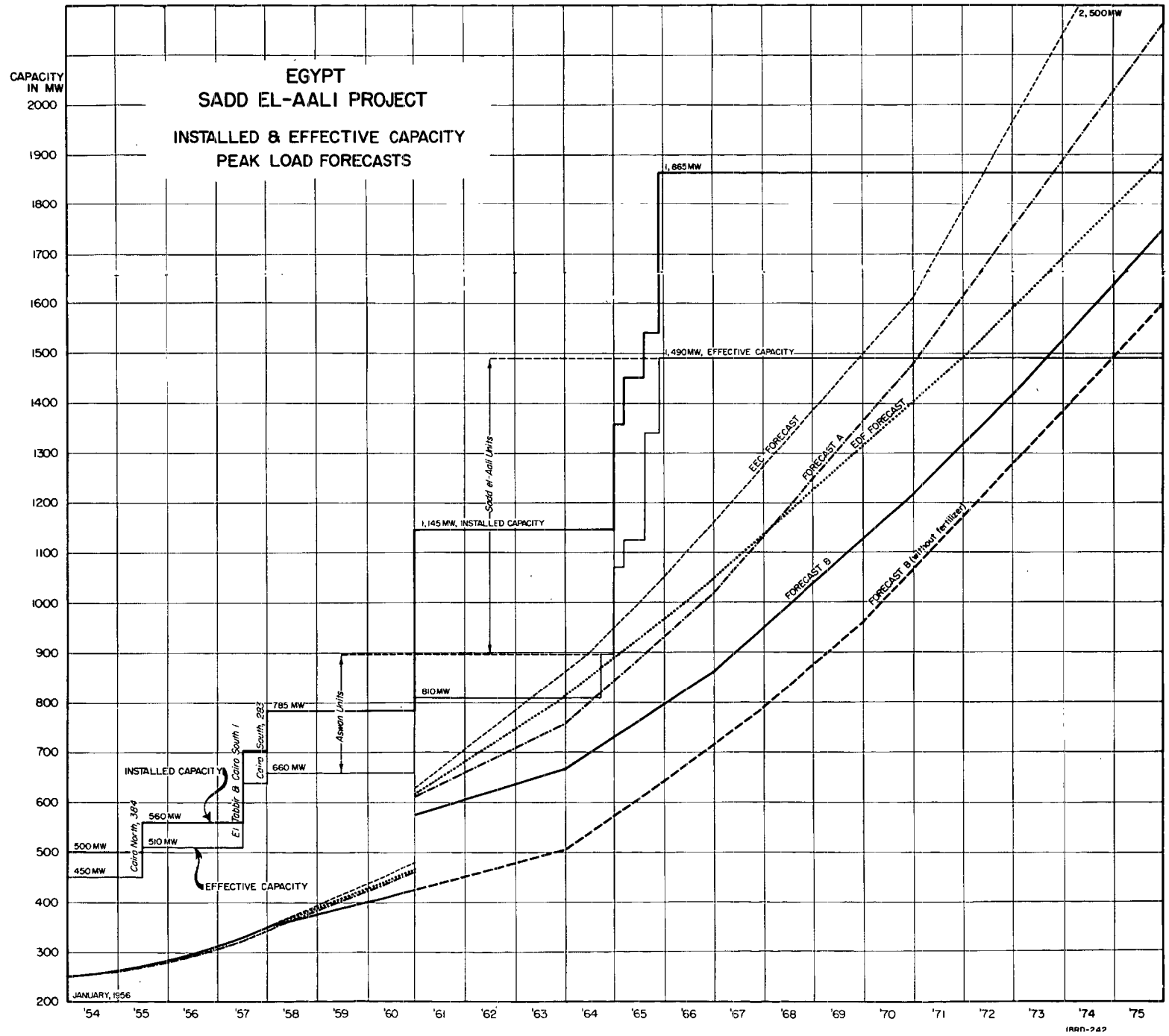
d) The Government should devise policies and legislation which would ensure that the private investment necessary to reclaim the new lands would be forthcoming.

e) In addition to the consultants already selected for the civil works portion of the project (Sir Alexander Gibb and Partners), properly qualified consultants should be selected and given responsibility for technical supervision of the other phases of the project. The services of all consultants should be continued throughout the construction period, and should include the preparation of plans, specifications, bidding documents, analysis of bids and supervision of construction.

f. Great care should be exercised in selecting qualified prime contractors for construction.

g. The International Board of Consultants should, in accordance with present plans, be continued during the period of design and construction of the project to provide needed advice on over-all design, construction methods and unusual technical problems that may develop during execution of the project.

h. The Government should take steps to establish an appropriate power authority to take charge of the transmission and sale of electric power and integrate it into an overall supply for the country under marketing and tariff arrangements which will assure its most effective utilization under sound business management.


EGYPT
SADD EL-AALI PROJECT
INSTALLED & EFFECTIVE CAPACITY
PEAK LOAD FORECASTS
CAPACITY IN MW
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
2,500MW
1,865MW
1,490MW, EFFECTIVE CAPACITY
1,145 MW, INSTALLED CAPACITY
Sadd el-Aali Units
Aswan Units
810MW
785 MW
660 MW
Cairo South, 283
El Tabbin & Cairo South I
Cairo North, 384
560MW
510 MW
500 MW
450 MW
INSTALLED CAPACITY
EFFECTIVE CAPACITY
EEC FORECAST
FORECAST A
EDF FORECAST
FORECAST B
FORECAST B (without fertilizer)
JANUARY, 1956
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APPENDIX 1

FORECAST A

GROWTH IN PEAK LOAD AND COMMERCIAL SALES

(Columns (2) to (9) inclusive, kw thousands; column (10) kwh millions)

Year	Electric Peak Exclusive of Irrigation & Drainage	New Industrial Peak	Conversion of Mechanical to Electrical	Total Commercial Peak	Government Pumping for Irrigation & Drainage	Fertilizer Plant Peak	Total Peak (Cols. 5, 6 & 7)	50% Commercial Peak (1/2 Col. 5)	Total Commercial Sales
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1953	257			257	15		272	129	1,130
1954	268			268	15		283	134	1,174
1955	285			285	16		301	143	1,253
1956	304	4		308	16		324	154	1,349
1957	323	8		331	16		347	166	1,454
1958	344	16		360	17		377	180	1,577
1959	367	33		400	17		417	200	1,752
1960	391	52		443	18	150	611	222	1,945
1961	417	71		488	18	150	656	244	2,137
1962	444	92		536	18	150	704	268	2,348
1963	476	114		590	19	150	759	295	2,584
1964	508	137	20	665	19	150	834	333	2,917
1965	541	163	40	744	32	150	926	372	3,259
1966	576	189	60	825	44	150	1,019	413	3,618
1967	614	218	80	912	66	150	1,128	456	3,995
1968	653	250	100	1,003	88	150	1,241	502	4,378
1969	696	282	120	1,098	110	150	1,357	549	4,765
1970	741	317	140	1,198	132	150	1,479	599	5,247
1971	789	354	160	1,303	154	150	1,606	652	5,712
1972	841	392	180	1,413	176	150	1,738	707	6,193
1973	895	434	200	1,529	198	150	1,877	765	6,701
1974	953	478	220	1,651	216	150	2,017	826	7,236
1975	1,016	526	240	1,782	232	150	2,164	891	7,805

Assumption: Use increases at rate of 6-1/2% per annum, doubling in 11 years; that 1953-5 mechanical peak will be converted to electrical 1964-75; that Government irrigation and pumping will be as forecast by HPW.

FORECAST B

GROWTH IN PEAK LOAD AND COMMERCIAL SALES

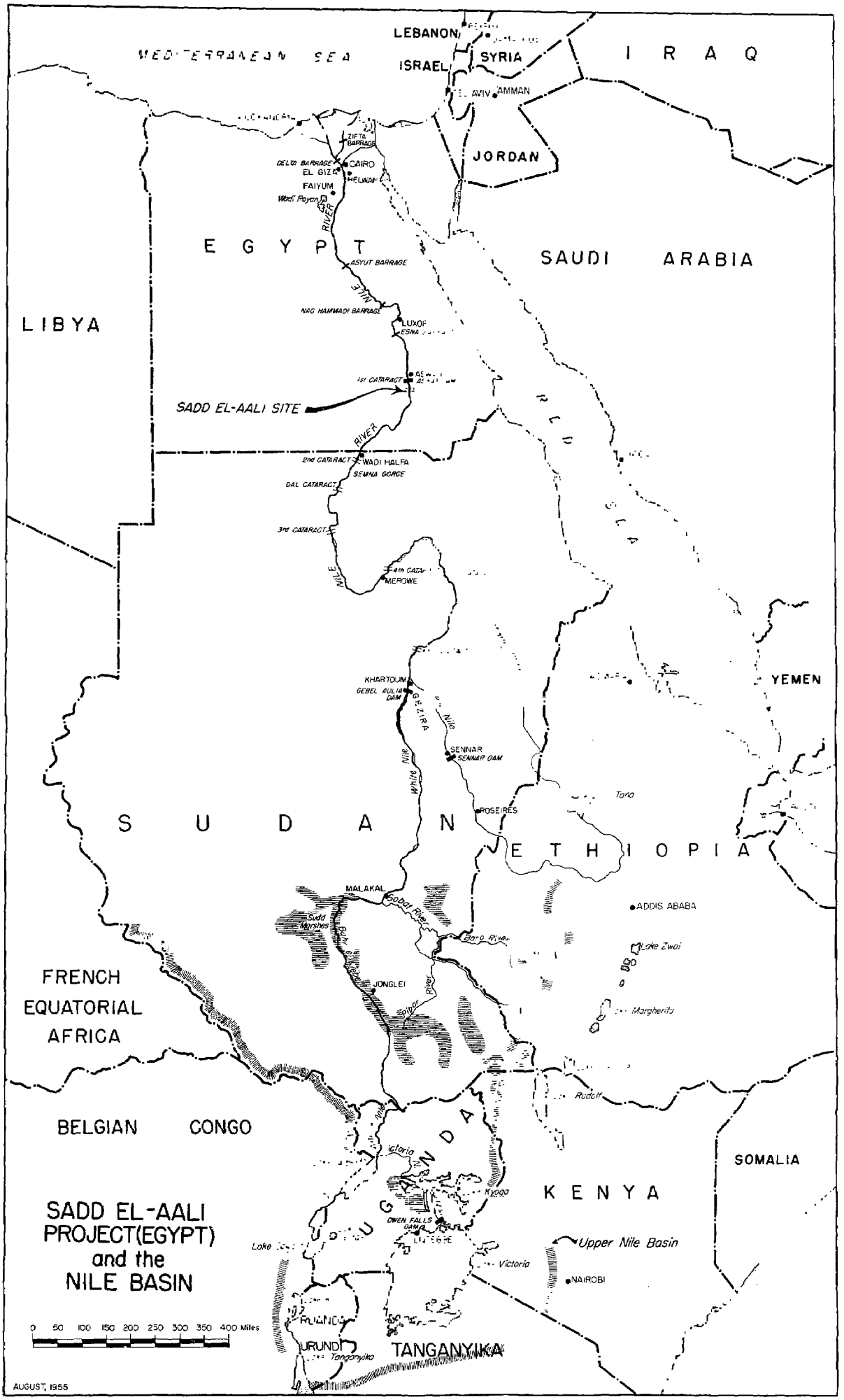
(Columns (2) to (8) inclusive, kw thousands; column (9) kwh millions)

Year (1)	Electric Peak Exclusive of Industry (2)	Industrial Peak (3)	Conversion of Mechanical Power to Electrical (4)	Total Commercial Peak (5)	Government Pumping for Irrigation & Drainage (6)	Total Peak Including Fertilizer Plant (7)	50% Commercial Peak (Excludes Fertilizer) (8)	Total Commercial Sales (Excludes Fertilizer) (9)
1953	117	140		257	15	272	129	1,130
1954	125	149		274	15	289	137	1,200
1955	134	158		292	16	308	146	1,279
1956	145	168		313	16	329	157	1,375
1957	156	179		335	16	351	168	1,472
1958	168	190		358	17	375	179	1,568
1959	180	202		382	17	399	191	1,673
1960	193	215		408	18	576	204	1,787
1961	208	229		437	18	605	219	1,918
1962	224	243		467	18	635	234	2,050
1963	240	259		499	19	668	250	2,190
1964	258	275	20	553	19	712	277	2,427
1965	277	292	40	609	32	791	305	2,672
1966	298	311	60	669	44	863	335	2,935
1967	320	331	80	731	66	947	366	3,206
1968	345	351	100	796	88	1,034	398	3,486
1969	370	374	120	864	110	1,124	432	3,784
1970	400	397	140	937	132	1,219	469	4,108
1971	430	422	160	1,012	154	1,316	506	4,433
1972	462	448	180	1,090	176	1,416	545	4,774
1973	500	477	200	1,177	198	1,525	589	5,160
1974	542	507	220	1,269	216	1,635	635	5,563
1975	585	540	240	1,365	232	1,747	683	5,983

Column (3) - 1953 industrial peak was 140,000 kW, and in addition industry had a mechanical peak of 250,000 kW equivalent (out of 514,000 kW equivalent installed). Thus total industrial energy used 1953-55 was 390,000 kW equivalent.

Column (7) - Includes 150,000 kW after 1960 for fertilizer plant.

Assumption: In period 1955-75, public utility uses (other than industry) will increase 5 fold and industry use will double. Government irrigation and drainage according to schedule forecast by Minister of Public Works.


MEDITERRANEAN SEA
LEBANON
ISRAEL
SYRIA
I R A Q
TEL AVIV
AMMAN
JORDAN
ZIFTA BARRAGE
DELTA BARRAGE
CAIRO
EL GIZA
HELWAN
FAIYUM
Wadi Rayan
NILE RIVER
E G Y P T
SAUDI ARABIA
ASYUT BARRAGE
NILE
NAG HAMMADI BARRAGE
LUXOR
ESNA
LIBYA
1st CATARACT
SADD EL-AALI SITE
RED SEA
2nd CATARACT
WADI HALFA
SEMNA GORGE
DAL CATARACT
3rd CATARACT
NILE
4th CATARACT
MEROWE
KHARTOUM
GEBEL AULIA DAM
GEZIRA
Blue Nile
SENNAR
SENNAR DAM
White Nile
YEMEN
Tana
ROSEIRES
S U D A N
E T H I O P I A
MALAKAL
Sobat River
ADDIS ABABA
Sudd Marshes
Bahr el Ghazal
Baro River
Lake Zwai
JONGLEI
Sobat River
FRENCH EQUATORIAL AFRICA
Margherita
Rudolf
BELGIAN CONGO
U G A N D A
Victoria
Kyoga
SOMALIA
K E N Y A
OWEN FALLS DAM
JINJA
Upper Nile Basin
Victoria
NAIROBI
RUANDA
URUNDI
Tanganyika
TANGANYIKA
SADD EL-AALI PROJECT(EGYPT) and the NILE BASIN
0 50 100 150 200 250 300 350 400 Miles
AUGUST, 1955
IBRD-213

RESTRICTED

Report No. EC-63a

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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

THE PROSPECTS FOR EXTRA LONG STAPLE COTTON

May 14, 1958

Economic Staff
Prepared by: Stanley Nehmer

The Prospects for Extra Long Staple Cotton

Tables

Summary and Conclusions

1. The present surplus of extra long staple cotton is likely to continue at least until 1965. Basic to this conclusion is the anticipated substantial increase in the Sudan's production of extra long staple cotton.

2. Although world production of extra long staple cotton represents only about 5% of total cotton output, it is of significance to the economies of Egypt, the Sudan, and Peru. Output of extra long staple cotton rose steadily from the 1953/54 crop year to the 1956/57 season at a compound rate of over 11%. Production in 1965 is estimated at slightly over 1.6 million bales with the only substantial increase in output expected to take place in the Sudan, assuming that the Sudan will continue to emphasize extra long staple cotton rather than shift to upland varieties. Production in Egypt is expected to decline from present levels while increased output in Peru and the United States will be smaller than in recent years.

3. Estimates of consumption of extra long staple cotton center around three possible growth rates. A rate of 1.7% represents the estimated growth rate for consumption of cotton as a whole for those countries, mostly high income countries, which represent over three-fourths of world consumption of extra long staple cotton. There is reason to believe that in these countries consumption of extra long staple cotton will rise faster than consumption of cotton as a whole, perhaps at a rate of 2.9%, which is the estimated growth rate for aggregate fiber consumption in the same group of countries. This is believed to be a more realistic level for extra long staple cotton than 1.7%. However, a growth rate of double the lower limit would be necessary if consumption is to be in equilibrium with production in 1965. While this might be attainable under highly optimistic circumstances, involving continued increases in exports of extra long staple cotton to the Soviet Bloc and relative stability in prices of the extra long staples in the future, on balance it is unlikely to occur unless the price of extra long staple cotton were to fall substantially.

4. In forecasting the price of extra long staple cotton in 1965 two assumptions are made with regard to Sudanese cotton production. Under the first assumption the Sudan would utilize all of the increased irrigated acreage to grow extra long staple cotton. Under the second assumption, the Sudan would utilize only a part -- perhaps 50% -- of the increased acreage for extra long staple cotton. On balance it is our judgement that, although in the medium term the Sudan might utilize all of its increased irrigated acreage for extra long staple cotton, the substantially lower price level which would result from such a development -- perhaps to 38 cents per pound -- will lead to a partial shift to the medium staples, bringing with it a recovery in price. Under such circumstances a reasonable price forecast for the mid-1960's would place the price of extra long staple cotton at around 45 cents per pound for Egyptian Karnak (c.i.f. Liverpool), with Sudanese Sakel perhaps 10% lower.

THE PROSPECTS FOR EXTRA LONG STAPLE COTTON

The purpose of this paper is to analyze recent developments and future prospects for extra long staple cotton. Although extra long staples (generally defined as having a staple length of over 1 3/8 inches) represent only 5 per cent of total cotton production in the free world, they are of significance to the economies of the three largest producers of this type of cotton - Egypt, the Sudan and Peru.1/ Together with the United States, the fourth major producer, these countries account for 98% of total world output of extra long staple cotton.2/

There is a degree of interchangeability in use between extra long staple cotton and upland types when price incentives for such substitution prevail, but extra long staple cotton is also used for different purposes than upland cotton. The fineness and high tensile strength of extra long staple cotton make it desirable for sewing thread, fine quality fabrics such as poplins for fine quality shirts and dress goods, lace and typewriter ribbon. There is also a significant degree of interchangeability in so far as production of the two types is concerned. Upland cotton can be grown on the same land as the extra long staples, and, if adequate water is available, the reverse is also true.

1. Recent Developments

a. Production

Post-World War II production of extra long staple cotton has been characterized by marked fluctuations although there was a steady rise in production in the three seasons following the 1953/54 crop year (Table 1). Due to an abnormally small crop in the Sudan as a result of disease and insect damage, world output during the 1957/58 crop year is estimated at 1,335,000 bales 3/, about 50,000 bales less than during the previous season. Growth between the 1953/54 and 1956/57 crop years was at a compound rate of over 11%.

1/ During 1954/55 - 1956/57, Egypt accounted for 48% of the world's output of extra long staple cotton; the Sudan 38%; Peru 8%; and the United States 4%.

2/ Egyptian extra long staple consists mostly of a variety known as Karnak and to a lesser extent, but growing in importance, Menoufi. Sudanese extra long staple cotton consists mostly of the Sakel variety and to a lesser extent, the Lambert variety. Most of the Peruvian extra long staple cotton is the Pima variety, but there is also some Karnak production. In the United States extra long staple cotton is referred to as American-Egyptian cotton; the variety currently planted is technically known as Pima S-1.

3/ All references to bales in this paper are to bales of 478 pounds net weight.

Table 1: Production of Extra Long Staple Cotton, 1947/48-1957/58

(in 1,000 bales of 478 pounds net weight)

Crop Year[a/]	Egypt	Sudan	Peru	United States	Others	Total
1947/48	302	223	25	1	4	555
1948/49	513	269	28	3	8	821
1949/50	750	284	73	4	9	1,120
1950/51	593	405	37	62	20	1,117
1951/52	647	195	28	46	24	940
1952/53	925	345	55	94	15	1,434
1953/54	507	365	46	65	22	1,005
1954/55	531	340	79	41	27	1,018
1955/56	552	390	77	42	39	1,100
1956/57	614	585	107	50	30	1,386
1957/58[b/]	808	320	90	83	34[c/]	1,335

a/ Beginning August 1.

b/ Preliminary.

c/ Two-thirds in Aden; balance in British West Indies and Italian Somaliland.

Source: International Cotton Advisory Committee

These fluctuations find their origin in a number of circumstances. Extra long staple cotton production has responded to international developments. Thus increased demand during the Korean conflict, particularly for stockpiling operations and for military items, resulted in the price of Egyptian Karnak cotton reaching a peak of $1.15 per pound and of Peruvian Pima a peak of $1.06 per pound, both c.i.f. Liverpool, in March 1951.1/ Cotton production in Egypt and Peru increased 56% and 49% respectively between the 1950/51 and 1952/53 seasons.

Similarly in the United States a purchase program was instituted under which the Government bought all extra long staple cotton tendered to it for as much as $1.10 per pound. Production rose by 51% between the 1950/51 and 1952/53 seasons.

When the increased demand of the Korean conflict disappeared, the United States and Egypt instituted acreage controls. The United States discontinued its purchase program. Between the 1952/53 and the 1955/56 seasons, extra long staple cotton production in these two countries declined by 55% and 40% respectively.

Extra long staple cotton production has also responded to more recent events. Increased exports of Egyptian extra long staple cotton to the Soviet Bloc and then the Suez crisis, resulted in the United States-produced variety, normally higher priced than other growths, becoming fully competitive both domestically and in world markets, as prices for the Karnak, Sakel and Pima varieties rose significantly. This situation led to the liquidation of virtually the entire inventory of Commodity Credit Corporation stocks of extra long staple cotton and the United States became an exporter of this type of cotton in substantial quantities for the first time since World War I.2/ With a significant reduction in stocks, acreage restrictions on the 1957 crop of extra long staple cotton were relaxed and 1957 output in the United States is the third highest since 1920.

Production in the Sudan and Peru has not been subject to Government restrictions. As a result there has been almost a steady increase in extra long staple output in these countries until the present (1957/58) crop year. Production in both countries will be below the peak levels reached during the 1956/57 season but in the case of Peru still higher than in any previous year.

1/ Karnak averaged 89 cents per pound c.i.f. Liverpool during the 1950/51 season and 90 cents per pound during the 1951/52 season. Pima averaged 55 cents per pound during the 1950/51 season and 91 cents per pound during the 1951/52 season.

2/ United States exports of extra long staple cotton have not been put on a subsidized basis as has been the case with upland cotton exports.

Increased production in the Sudan and Peru has been the result of increased acreage and, to a lesser extent, of higher yields (Table 2). Acreage devoted to extra long staple cotton in the Sudan increased by 35% between 1950/51-1951/52 and 1955/56-1956/57; in Peru the increase was 100%. Yields in the Sudan increased by 21% in the same period and in Peru by 41%. A reduction in both yields and acreage accounted for the decline in production of extra long staple cotton in Peru and the Sudan in 1957/58.

Table 2: Acreage and Yields of Extra Long Staple Cotton 1950/51-1957/58

(in 1,000 acres; yields in pounds per acre)

Crop Year[a]	Egypt		Sudan	Peru[c]	United States	Others[c]	Total
	Karnak	Menoufi	Sakel	Pima/ Karnak	American-Egyptian		
				Acreage			
1950/51	709	60	392	60	103	38	1,362
1951/52	747	147	357	50	64	77	1,442
1952/53	969	32	415	75	107	44	1,642
1953/54	493	17	452	85	92	42	1,181
1954/55	581	37	415	85	34	61	1,213
1955/56	816	55	414	100	41	70	1,496
1956/57	631	166	597	120	44	72	1,627
1957/58[b]	630	327	515	112	82	74[d]	1,740
				Yields			
1950/51	368	385	494	295	298	221	392
1951/52	349	324	261	268	354	133	312
1952/53	439	515	397	350	425	140	417
1953/54	470	609	386	259	340	255	407
1954/55	401	568	392	444	589	210	401
1955/56	287	535	450	368	500	232	351
1956/57	335	495	469	426	583	199	407
1957/58[b]	317	570	297	386	482	221[d]	366

a/ Beginning August 1.

b/ Preliminary

c/ Estimated.

d/ See Footnote c/, Table 1.

Source: International Cotton Advisory Committee

b. Stocks

Aggregate carryover stocks of extra long staple cotton in producing countries on August 1, 1957 were the highest since 1953. Together with increased output during the present crop year, aggregate supply in producing countries of 2 million bales will be the highest on record, an 11% increase over the previous season.

Not included in these figures, but an important factor in the extra long staple cotton situation, is the planned disposal by the United States Government of its stockpile of extra long staple cotton accumulated during the Korean conflict.1/ A total of 269,000 bales was in the stockpile; 50,000 bales of this total were released for sale in July 1957 by Act of Congress. If Congress approves, the balance will be sold over a five-year period, retroactive to August 1, 1957, with the 50,000 bales already released included in the first year's disposals. The disposal plan specifies that sales for export will not be made at a lower price than for domestic use and that the minimum price at which the stockpile will be sold will be 110% of the support price.2/

Only the Sudan of the four major producers had an unusual increase in stocks at the beginning of the present marketing season. Stocks in the Sudan on August 1, 1957, were 2½ times the level of the previous year and more than twice the average level of the period 1953-56. Egypt's stocks were 160% of the previous year's level, but only 64% of the average level of 1953-56. Stocks in Peru and the United States, excluding the stockpile, were substantially below previous levels.

c. Consumption

The long-term trend in consumption of extra long staple cotton would, of course, not move independently of consumption of all fibers or of cotton as a whole. Nevertheless in the shorter term, despite incomplete consumption data, it would appear that consumption of extra long staple cotton does not necessarily follow the consumption trends for cotton as a whole. For example, free world consumption of all growths rose by 3% between 1954/55 and 1955/56; consumption of extra long staples rose by 9%. Between 1955/56 and 1956/57 free world consumption of all growths rose by about 4%; consumption of extra long staples declined by 11%.

This variation is due essentially to the sensitivity of extra long staple cotton consumption to price fluctuations, which have traditionally

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1/ This is in the strategic stockpile and should not be confused with CCC stocks.

2/ For the 50,000 bales released in July 1957, sales are made at a minimum price of 105% of the support price.

been significant. This is shown in Table 3, using data on Egyptian extra long staples.

Table 3: Index of Prices of Egyptian Extra Long Staple Cotton, Liverpool, 1906-09 to 1935-37 and 1950/51 to 1956/57 a/

	Sakels b/ (1935-37 = 100)
Average 1906-09	102
" 1910-14	116
" 1915-19	298
" 1920-24	217
1919 c/	496
Average 1925-29	183
" 1930-34	77
1931 d/	55
Average 1935-37	100
	Karnak e/ (1953/54 = 100)
1950/51	210
1951/52	191
December 1951 c/	235
1952/53	100
1953/54	100
November 1953 d/	93
1954/55	109
1955/56	118
1956/57	132

a/ Seasons beginning August 1.

b/ Sakels Fully Good Fair; Egyptian production of Sakels virtually ceased after 1941 and was replaced by Karnak.

c/ High.

d/ Low.

e/ Karnak Fully Good.

Source: Liverpool Cotton Association price data and International Cotton Advisory Committee.

Although the price elasticity of demand for cotton as a whole is said to be relatively low, limited available data indicate that the

opposite may be the case for the extra long staples. For example, consumption of Egyptian extra long staple cotton in the United States has been markedly affected by price changes when prices were above 55 cents per pound (Karnak Fully Good, c.i.f. Liverpool). A 52% drop in price between 1951/52 and 1952/53 was accompanied by a 69% increase in consumption; an 8.5% increase in price between 1954/55 and 1955/56 was accompanied by an 18% reduction in consumption; an 11.5% increase in price the following season was accompanied by a 61% reduction in consumption; and a 24% drop in price during the first four months of the current season was accompanied by a 27% increase in consumption.1/

As the price of the extra long staples rises, substitution by synthetics and by the longer staples of the upland varieties occurs. In this process extra long staple cotton has already lost out to synthetics in varying degrees in such uses as thread, lace and gloves. Indeed the wide fluctuation in extra long staple cotton prices in itself adversely affects its consumption prospects in view of the significantly greater price stability for synthetics, both the cellulosics and the newer non-cellulosics. This is of importance to textile mills which find that processing costs rise whenever changes are made in the composition of fibers consumed at the mill. Table 4 shows the relative fluctuations in prices using United Kingdom data.

Table 4: Index of Prices in the United Kingdom for Karnak Cotton, Rayon Viscose Staple, and Rayon Acetate Staple, 1951/52 to 1956/57

(1951/52 = 100)

Season beginning August 1	Karnak	Viscose Staple	Acetate Staple
1951/52	100	100	100
1952/53	61	103	82
1953/54	57	92	82
1954/55	63	92	80
1955/56	66	92	80
1956/57			
August	80	92	80
September	80	92	80
October	83	92	80
November	85	92	80
December	85	92	80
January	85	92	80
February	85	92	80
March	84	92	80

Source: Based on International Cotton Advisory Committee data

1/ A similar situation apparently prevails with regard to Indian consumption of Egyptian extra long staple cotton. Based on the same price series as used above, it appears that the 52% drop in prices between 1951/52 and 1952/53 was accompanied by a 29% increase in consumption; the 8.5% increase in price between 1954/55 and 1955/56 was accompanied by a 26% reduction in consumption; and the 11.5% increase in price the following season was accompanied by a 38% reduction in consumption.

Similarly, extra long staple cotton is vulnerable to competition from the longer staples of the upland varieties. The staple length of some upland cotton may reach 1¼ inches and over. In the U.S. annual production of upland cotton 1 1/8 inches in staple length and over is roughly 500,000 bales, about 4% of total U.S. output. During the Suez crisis when Egyptian and Sudanese extra long staples were high priced and in short supply in certain markets, cotton mills in the U.K., which had been using these cottons, switched in part to the longer staples of U.S.-produced upland cotton.1/ The extra long staples primarily displaced were Sudanese Lamberts which normally have a staple length of 1¼-1 3/8 inches.2/ In September and October 1957, Sudanese Lamberts were selling in Western Europe at 48 cents per pound; U.S.-produced upland varieties of comparable grade with a staple length of 1 1/8-1¼ inches were selling in Western Europe at 37-42 cents per pound. The latter prices reflected the U.S. subsidy on exports of upland cotton.

In absolute terms, consumption of extra long staple cotton by free world countries is estimated at 883,000 bales in 1954/55; 968,000 bales in 1955/56; and 857,000 bales in 1956/57.3/

Data on consumption in the Soviet Bloc are not available, but statistics on exports of extra long staple cotton to the Soviet Bloc show a growing volume of trade, increasing by 129% between the average of 1950/51-1952/53 and 1954/55-1956/57. Combined data on consumption in the free world and exports to the Soviet Bloc, shown in Table 5, give the order of magnitude of world consumption of extra long staple cotton.4/

1/ They also switched to the U.S.-produced American-Egyptian cotton, 21,000 bales of which were exported to the U.K. during the 1956/57 marketing year.

2/ Sudanese Lamberts are considered to be an extra long staple variety although some Lambert output may be between 1¼ and 1 3/8 inches.

3/ Data on the consumption of the extra long staples prior to 1954/55 are not available. However, exports of such cotton totalled 986,000 bales in 1952/53 and 1,159,000 bales in 1953/54. Of these totals, 152,000 bales went to the Soviet Bloc in 1952/53 and 105,000 bales were exported in 1953/54.

4/ Re-exports of extra long staple cotton by the Soviet Bloc to Western Europe have been reported, but not in quantities which would appreciably change the totals of Table 5.

Table 5: Consumption of Extra Long Staple Cotton in the Free World and Exports to the Soviet Bloc, 1954/55 to 1956/57

(in 1,000 bales of 478 pounds net weight)

	1954/55	1955/56	1956/57
Free World Consumption			
Western Europe	551	583	534
Asia	203	235	178
United States	110	120	110
Others	19	30	35
Total	883	968	857
Exports to Soviet Bloc	148	258	275
Grand Total	1,031	1,226	1,132

Source: International Cotton Advisory Committee data.

It is of interest to note that Egypt is the only producer of extra long staple cotton to have exported to the Soviet Bloc in recent years, except for minor exports by the Sudan.[1/] Egypt's dependence on the Soviet Bloc as a market for its extra long staple cotton has increased substantially in recent years. During the 1954/55 season exports to the Bloc represented 24% of Egypt's total exports of the extra long staples; during 1955/56 it increased to 40%; and during 1956/57 it increased further to 51%.

1/ Sudan exported 12,000 bales to the Soviet Bloc in 1954/55; 14,700 bales in 1955/56; and 14,000 bales in 1956/57. These exports represented no more than 5% of Sudanese extra long staple cotton exports.

2. Short-term Prospects

The burdensome world surplus of extra long staple cotton now in existence can be expected to affect the prospects for this type of cotton.

At the end of the current marketing year on July 31, 1958, it is estimated that the carryover of extra long staples in producing countries will have reached about 1.0 million bales. Approximately 100,000 bales of this total represent extra long staple cotton from the U.S. stockpile which will be available for sale under current disposal plans during the 1958/59 season.

A total carryover of 1.0 million bales in producing countries would be the highest stock level on record, 40% higher than the previous year, about twice the average carryover in the period 1950-57, and about 83% of the estimated level of world consumption for the 1957/58 season (1,100,000 bales).

The effects of this surplus on the price of the extra long staples were apparent even before the beginning of the current marketing year. The price of Egyptian Karnak fell almost steadily from January 1957 to March 1958, reaching the lowest price for this variety almost since the end of World War II.1/ Likewise the price of Sudanese Sakel fell during 1957 and early 1958 reaching by March 1958 the lowest level since August 1954. 2/ The price of Peruvian Pima also fell, reaching a low point in March 1958, the lowest since January 1954.3/

Although the magnitude of the 1957/58 world surplus of extra long staple cotton might indicate a further decline in price, any further substantial decline is not realistic for two reasons.

First, Egypt is not likely to let the price of extra long staples decline precipitously. The recent decline in the price of Egyptian Karnak has already made that variety fully competitive in the world market. Stringent acreage restrictions could be imposed on the next crop. Shifts to medium staples would be emphasized. Substantial stocks could be held by the Egyptian Cotton Commission to assist the growers. Increased sales to the Soviet Bloc might be possible.

1/ Fully good, c.i.f. Liverpool: January 1957 - 81.98 cents; December 1957 - 51.95 cents; March 1958 - 45.38 cents.

2/ G5S, c.i.f. Liverpool: January 1957 - 76.93 cents; December 1957 - 48.21 cents; March 1958 - 45.17 cents.

3/ No. 1, 1 9/16", c.i.f. Liverpool: January 1957 - 68.75 cents; December 1957 - 54.34 cents; March 1958 - 45.73 cents.

Secondly, as the price of the extra long staples falls, consumption and stocks in consuming countries can be expected to rise. This development may be intensified towards the end of the current marketing season and during the 1958/59 season. Because of the current shortage of good quality upland cotton, the price of such cotton has risen. As the price of the extra long staples declines, and the price of the better qualities of upland cotton increases, it is quite reasonable to anticipate some substitution of the extra long staples for longer staple upland cotton. This may already be in process. The price for Good Middling 1 5/32" cotton c.i.f. Liverpool, an upland variety, had risen to 40.60 cents per pound in the latter part of December 1957. Sudanese Lamberts, an extra long staple variety, were selling at the same time for 40.43 cents.

3. Prospects for 1965

a. Production Prospects

In the long-term the increase in the production of extra long staple cotton can be expected to be proportionately greater than for cotton as a whole. This is due in most part to a substantial increase in the Sudan, which, by 1965, can be expected to become the world's largest producer of extra long staple cotton. Growth in Peru and the United States can be expected to be lower than in recent years. On the other hand, extra long staple cotton output in Egypt can be expected to decline substantially from present levels and show only a negligible increase over average levels in the period 1953/54-1955/56.

No one of the three major producers of extra long staple cotton appears to have any advantage in production costs over the other two major competitors. Production costs in Peru were estimated to be 19 cents per pound for Pima cotton on newly irrigated lands.[1/] The recent Bank mission to the Sudan was given a figure of 20 cents per pound as a rough average of costs of production of extra long staple cotton. It is believed that Egyptian costs are of the same order of magnitude. Such cost figures, when related to prices at which the cotton is sold in world markets, explain the profitable nature of extra long staple cotton production. This relationship also explains the incentive to expand production, subject only to limitations due to the availability of irrigated land, the need for crop rotation, and the usually greater return from the production of medium staple, rather than extra long staple, varieties.

Egypt

Cotton acreage in Egypt is limited by the availability of water and by the need to increase food production on available land as population increases. Any increased acreage for cotton might be devoted in most part to the medium staple varieties, the yields of which are higher than for the extra long staples. The premium paid for extra long staple cotton has not in recent years been large enough to offset the advantage to the grower of the higher yields of the medium staples.[2/] Only the construction of the High Aswan Dam could increase acreage by more than a negligible amount; this is not assumed for the next decade.

It is assumed that Egypt will continue to export substantial quantities of extra long staple cotton to the Soviet Bloc, from perhaps one-third

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1/ IBRD Report on Quiroz-Piura Irrigation Project (Second Stage), March 25, 1955.

2/ The Egyptians are developing the Menoufi extra long staple variety because it is higher yielding than Karnak. The difference in yields is shown in Table 2. If Menoufi should replace Karnak as the dominant extra long staple variety in Egypt, there might be an incentive to produce more rather than less extra long staple cotton. However, the wider market for medium staples might be an offsetting factor.

to one-half of Egyptian production, about the same as in recent years.

The Sudan[1/]

A substantial increase in the production of extra long staple cotton is envisaged in the Sudan. Upon completion of the Managil project, expected by 1964/65, an estimated additional 270,000 acres of land would be gravity irrigated and available for extra long staple cotton cultivation. An estimated additional 145,000 acres of land would also be available for this type of cotton by 1965 for cultivation through pump irrigation. Using an average yield of 450 pounds to the acre for production through gravity and pump irrigation[2/] and assuming that production through flood irrigation will remain constant at about 20,000 bales, the average level during the period 1953/54-1955/56, estimated Sudanese production in 1965 of extra long staple cotton would be approximately 800,000 bales. This compares with an average of 365,000 bales in the period 1953/54-1955/56 and 585,000 bales during 1956/57.

Apparently the Sudanese Government is giving no consideration to the possibility of future restrictions on the production of cotton as has been done in Egypt and the United States. On the contrary, substantial additional acreage devoted to cotton is envisaged beyond 1965 if the Roseires dam project is undertaken.

It is possible, however, that the Sudan will shift its emphasis from extra long staples to upland varieties.[3/] This shift could result from a number of factors. First, if demand for Sudanese extra long staple cotton should not keep pace with increasing production, there would be an incentive to shift to upland varieties. Secondly, an incentive might be provided when it is recognized that, as in the case of Egypt and the United States - countries producing both extra long staple and medium staple varieties on irrigated land - there could be a greater return to the farmer through the production of higher yielding medium staple varieties than through the extra long staples. Thirdly, Sudan's labor shortage for cotton might become even more acute with increasing output. Upland varieties lend themselves to mechanization to a greater extent than do the extra long staples. Finally, until the Roseires dam is completed, the amount of water available for the completed Managil development might limit the period of

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1/ Information used in this section comes primarily from the recent IBRD and ICA missions to the Sudan.

2/ 93% of total production of extra long staple cotton in the Sudan was through gravity and pump irrigation during the period 1953/54-1955/56. Average yields during this period were 480 pounds for gravity irrigation and 460 pounds for pump irrigation. Using these yields for the acreage expected to be available by 1965 would mean total production of 843,000 bales. A 10% reduction in these yields would mean total production of 763,000 bales. Both figures include 20,000 bales through flood irrigation.

3/ For alternative assumptions regarding Sudanese production of extra long staple cotton see part 3, c., below.

irrigation for extra long staples and cause a shift to upland varieties which need less water.

Peru

Substantial increases in Peruvian extra long staple cotton output have occurred in recent years with increased acreage resulting from the development of irrigation facilities in the Piura and Chira valleys. New irrigation developments become more costly as water is brought from longer distances.

The only new irrigation project which is expected to affect the production of extra long staple cotton in Peru by 1965 is the second stage of the Quiroz-Piura project. The plans for the project anticipated that approximately 50,000 acres would be devoted to extra long staple cotton production when the project is completed in 1959 and that yields would be approximately 365 pounds to the acre.[1/] On this basis, the increase in Peruvian extra long staple cotton production would amount to 40,000 bales. This would represent an increase of almost 45% over the 1957/58 season and compares with a 100% increase over the last 4 years.

United States

Extra long staple cotton production in the United States is conditioned to a considerable extent by production of upland cotton. When upland cotton is subject to stringent acreage restrictions, extra long staple cotton becomes attractive to growers in the West. However, yields for extra long staple cotton are considerably lower than for upland cotton[2/] in the areas where both are grown, and when acreage restrictions on upland cotton are relaxed, the latter becomes more attractive.

Similarly, as upland cotton continues to move to the higher-yielding areas of the West, production prospects for extra long staples become relatively less favorable.

The growers of extra long staple cotton in the United States do not envisage any significant increase in output over the long term from the level reached in the 1957 crop year. They feel that, except in unusual circumstances, as occurred during the Suez crisis, they will not be able to compete in world markets with the other producers. Therefore, their

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1/ IBRD Report on Quiroz-Piura Irrigation Project (Second Stage), March 25, 1955. Yields of 365 pounds would be slightly lower than average yields of the last five years. See Table 2, above.

2/ Yields for extra long staple cotton in Arizona, the major producing state, in 1956 averaged 699 pounds to the acre; in 1957 this had declined to 592 pounds. Yields for all cotton in Arizona in 1956 averaged 1,108 pounds; in 1957, 1,097 pounds. Extra long staple cotton yields in New Mexico averaged 422 pounds in 1956 and 349 pounds in 1957. Yields for all cotton in New Mexico averaged 797 pounds in 1956; in 1957, 629 pounds.

market is essentially limited to the United States. Even in selling in their domestic market, the United States growers face competition from foreign extra long staples, 95,000 bales of which can be imported under the annual quota. This is only 15,000 bales less than United States consumption during the 1956/57 marketing year.

The United States growers feel that their long-term ability to produce and sell 85,000-100,000 bales of extra long staple cotton depends upon a growing market in the United States. In order for demand to grow and for substitution of synthetic fibers to be inhibited, the producers feel that there must be stable prices at a reasonable level. For this reason, the growers of extra long staple cotton are supporting a reduction in price supports from the present fixed level of 75% of parity to 60%.

These growers are also quite unique in their desire to have acreage restrictions continued, although relaxed as much as the law would permit. The reason for this position is that the continuation of acreage restrictions limits production of extra long staple cotton to the existing growers, who number only about 4,200. Their desire to restrict output to the existing producers also tends to keep production to about current levels.

U.S. Government policy with regard to exports of upland cotton might have an indirect effect on other countries' marketings of extra long staple cotton. As pointed out on pages 7 and 8 above, substitution of extra long staples by U.S. upland cotton has occurred. Such substitution would undoubtedly not have occurred if the upland cotton were not exported on a subsidized basis and if the price of the extra long staple cotton had not been so high. For the future, however, it is not expected that the U.S. will do more than maintain its current policy of being competitive in the world market for upland cotton in order to maintain a "fair share" of world trade. It is not expected that the U.S. will engage in full scale price competition at the expense of other countries' marketings of upland cotton.

U.S.-grown extra long staple cotton does not exercise the same influence on world prices as does U.S. upland cotton because the U.S. is a minor producer and exporter of extra long staple cotton. The relatively small quantities of extra long staple cotton exported by the U.S. are not subsidized. The only significant direct impact which the U.S. could have on the world market for extra long staple cotton would occur if the strategic stockpile of 269,000 bales were to be made available for sale all at one time. This possibility, as pointed out on page 5 above, is not, however, envisaged by the stockpile disposal plan now before Congress.

In Summary

The foregoing analysis would indicate that production of extra long staple cotton in 1965 could total slightly more than 1,600,000 bales, distributed as follows, in thousand bales, as compared with 1957/58 and the average of 1953/54-1955/56:

	1965	1957/58	Average 1953/54-1955/56
Egypt	550	808	530
Sudan	800	320	365
Peru	130	90	67
United States	100	83	49
Others	35	34	29
Total	1,615	1,335	1,040

A level of 1,615,000 bales would represent a 21% increase over 1957/58 levels and a 55% increase over average output in the period 1953/54-1955/56. The latter represents a compound rate of growth of 4.5%.

It should be noted that production of 1,615,000 bales assumes that the Sudan will not shift its emphasis from extra long staples to upland varieties and that Egypt will not increase its output of extra long staples significantly over 1953/54-1955/56 levels at the expense of medium staples or of food crops. The possibility of the Sudan using only part of its increased acreage from the Managil project for extra long staple cotton is discussed in part 3, c., below as one of two alternative assumptions.

b. Demand Prospects

In the projection of fiber and cotton consumption in the IBRD paper, Prospects for Cotton, Report No. EC-62a, May 1958, it is concluded that "world cotton consumption in the next decade or so may increase at a compound rate of about 2.3% per year . . ." This conclusion was based upon an analysis for the U.S., Canada, Western Europe, and various countries of Asia and Latin America of population growth, per capita incomes, the displacement of cotton by substitute fibers, and aggregate fiber consumption.

Based on this methodology, an analysis of the demand prospects limited to those countries which are the major consumers of extra long staple cotton (U.S., Western Europe, Japan and India, representing in the aggregate 77% of world consumption) would show a lower limit in growth rate of 1.7% and a higher limit of 2.9%.[1/] This is due to the

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1/ This conclusion is based on Table XXI of Prospects for Cotton. Using data in this table, cotton consumption in the United States, Western Europe, Japan, and India are weighted by consumption of extra long staple cotton to get the lower limit. The aggregate percentage increase in all fiber consumption in these countries is used as the higher limit. The increase in over-all cotton consumption, weighted by consumption of extra long staple cotton, is estimated at 12.8% between 1955 and 1962. The increase in fiber consumption in the same period is estimated at 22.3%.

heavy concentration of extra long staple cotton consumption in the United States and Western Europe (59% of world consumption) which have the lowest estimated increases in consumption of cotton as a whole or of fiber consumption.

There is reason to believe, however, that the use of consumption estimates of cotton as a whole, even though limited to those countries which are the major consumers of extra long staple cotton, tends to understate consumption prospects for the extra long staples. In the United States and the countries of Western Europe, countries with relatively high per capita incomes, the trend is towards the consumption of better quality cloth. Therefore, it is reasonable to assume that in Western Europe, where a 1% increase in expenditure is associated with an 0.7% increase in the quantity of fiber consumption, there will be an increase in the share of the total which goods manufactured from the extra long staples will command.

Other evidence exists in the case of the United States, the only country for which data on consumption of extra long staple cotton are available over a long period. Consumption of extra long staple cotton in the United States has increased at a faster rate than has cotton as a whole. Between 1935-39 and 1952-56, consumption of the extra long staples increased 37.5% while consumption of all cotton increased by 27.5%. The growth rate over this 17-year period was 1.9% for extra long staples and slightly over 1.4% for cotton as a whole.

Therefore, it is not unreasonable to conclude that the consumption of extra long staples would tend to increase, not at the lower limit, but rather at the higher limit, of the range of 1.7% (cotton consumption) to 2.9% (aggregate fiber consumption).

The growth rate, however, would have to be double the lower limit of 1.7% for consumption to approximate production.[1/] This higher growth rate, although quite optimistic, is attainable on the basis of two hypotheses regarding price stability and consumption growth in the Soviet Bloc.

As shown in Table 3, prices of extra long staple cotton have fluctuated widely in the past. The substantially greater degree of stability in prices of synthetics has resulted in substitution. If it can be assumed that prices will be more stable in the years ahead, perhaps resulting from an international commodity arrangement, which is technically feasible for extra long staple cotton, the growth rate could be higher than 2.9%. It is recognized, however, that even with stability, the price level would have to be substantially below present levels for the growth rate to be higher than 2.9%.

1/ It should be noted that the difference in growth rates for production and consumption between 1953/54-1955/56 is due to differences in levels during the base period. Production in 1953/54-1955/56 was 1,040,000 bales; consumption was 1,139,000 bales.

The second hypothesis concerns consumption in the Soviet Bloc. If the growth rate in consumption of extra long staple cotton in the Soviet Bloc has followed the increasing rate of exports to the Bloc of this type of cotton (an increase of 129% between 1950/51-1952/53 and 1954/55-1956/57), and if this growth should continue, even at a more moderate rate, the growth rate for consumption of extra long staple cotton on a world-wide basis could be higher than 2.9%.

c. Price Prospects

Price prospects for 1965 are obviously dependent upon the consumption growth of extra long staple cotton (with a growth rate for consumption of 2.9% believed to be the most realistic rate) and upon assumptions with regard to production growth in the major producing countries.

Uncertainty with regard to production levels in the Sudan, and to a lesser extent in Egypt, however, represents a more difficult problem. For purposes of price forecasts, two assumptions are made with regard to Sudanese production of extra long staple cotton. Assumption I holds that the Sudan will utilize all newly irrigated land resulting from the Managil project to increase the production of extra long staple cotton. Assumption II would mean that only some of the new acreage will be used for extra long staple cotton. Both assumptions keep Egyptian extra long staple cotton production constant at slightly above the 1953/54-1955/56 average for the reasons stated in part 3a, above. A third possible assumption to the effect that none of the additional cultivable acreage in the Sudan will be used for extra long staple cotton is not made because it would not be realistic in the light of Sudanese plans or estimated supply-demand relationships for extra long staple cotton.

Assumption I would mean consumption of 1,515,000 bales of extra long staple cotton in 1965 at a growth rate of 2.9% per annum as compared with estimated production of 1,615,000 bales. This disequilibrium is substantial when considered together with the stock level in 1965 which would consist of (a) the present level of stocks (estimated at about 1,000,000 bales in producers hands on August 1, 1958), (b) releases from the U.S. stockpile during the third, fourth, and fifth years of the program (an additional 150,000 bales by August 1, 1961) and (c) any increments to stocks resulting from excess of production over consumption between the present and 1965. The stock level at the beginning of the 1964/65 season on this basis would theoretically exceed 2,000,000 bales. It is inconceivable that such an unprecedented level of stocks - even when related to the estimated consumption level - would, in fact, occur. It is more realistic to assume that prices would fall to a level which would increase consumption, even at the expense of the medium staple varieties, and inhibit stock accumulation. In the absence of known price elasticities of demand and of the degree of substitution between extra long staple and upland cotton, it is not possible to compute the level to which the price would need to decline in order to hold down stocks. It is possible, however, to look at previous prices for extra long staple cotton and their relationship to prices of upland cotton. This relationship is quite pertinent to a forecast of extra long staple cotton prices in view of (a) the interchangeability of production of the two varieties in all areas where extra long staple cotton is grown and (b) the substitution which is known to exist-although to an unknown degree-between the consumption of longer staple upland varieties and the extra long staples.

As shown in Table 6, in the period from 1906 to 1938, the price of Egyptian extra long staples 1/ in Liverpool ranged from 115% (1922) to 232% (1920) of American upland 2/. Both the mean and median differentials for the entire period were 167%. In only three years out of 33 was the differential less than 133%; in only 5 years was it above 200%. In the period 1935-38 the differential was 150%. During the 1953/54 marketing season, a period between the Korean conflict and the Suez crisis, the differential in Liverpool between the Egyptian extra long staples 3/ and American upland cotton was 148.8%. 4/ In February 1958 the differential was 148%.

Under Assumption I, with its substantial build-up of stock, it is not inconceivable that the price of extra long staple cotton would drop to as low as 133% of the price of upland cotton, or even lower. A differential of 133% related to the estimated Liverpool price of Middling 1 inch upland cotton of 30 cents per pound, 5/ would mean a price of around 38 cents per pound for Egyptian Karnak Fully Good. The price of Sudanese Sakel, based on traditional differentials, might be 10% lower.

Assumption II would mean that the Sudan would not put all of the increased irrigated acreage into extra long staple cotton production, but perhaps use only half of the additional acreage for extra long staple cotton. Under this assumption, production in 1965 would total 1,415,000 bales, and at a consumption growth rate of 2.9% per annum, would be 100,000 bales less than consumption. Stocks at the beginning of the 1964/65 season would bear about the same relationship to consumption during the 1964/65 season (about two-thirds of consumption) as stocks at the beginning of the current (1957/58) season bear to estimated consumption during this season. There would be one major difference between the two seasons: during the current season production is expected to exceed consumption by over 200,000 bales; in 1964/65 under Assumption II it is expected that consumption will exceed production by 100,000 bales. In the period between the current season and the 1964/65 season consumption could be expected to exceed production by relatively small margins (an average of 4%) during the last 5 years of the period.

On this basis it would be reasonable to assume that prices in 1965 can be expected to be somewhat higher than current levels. Related to the mean and median differentials between extra long staple and upland cottons in the period 1906-1938 of 167%, the price for Egyptian Karnak Fully Good, c.i.f. Liverpool, would be around 48 cents per pound. Sudanese Sakel would be about 10% lower. A more conservative estimate would use the differential of 150%, resulting in a price of about 43 cents per pound for Egyptian Karnak.

1/ Sakel Fully Good Fair.
2/ Middling 7/8 inch.
3/ Karnak Fully Good.
4/ Middling 15/16 inch.
5/ From Prospects for Cotton, IBRD Report No. EC-62, April 1958. An adjustment has been made in the price in relating the historic differentials, based on 7/8 inch or 15/16 inch cotton, to 1 inch cotton.

The supply-demand relationship in 1964/65 under the two assumptions, compared with the current season, is shown in summary in the following tabulation, in thousand bales:

	1957/1958	1964/1965	
		Assumption I	Assumption II
Beginning Stocks	672	2,200	1,030
Production	1,335	1,615	1,415
Consumption	1,100	1,515 b/	1,515
Ending Stocks	1,000 a/	2,300 b/	930
Price (US cents per lb.)	51.98 c/	38 d/	43-48 d/

a/ Includes 100,000 bales from U.S. stockpile.
b/ As pointed out in text, under this assumption consumption would likely be higher and stocks lower.
c/ Average August 1957-March 1958 for Karnak Fully Good, c.i.f. Liverpool; average price in March 1958 was 45.38 cents per pound.
d/ Karnak Fully Good, c.i.f. Liverpool.

It is recognized that in the medium-term it is quite possible that the present plans of the Sudan to utilize all of its increased irrigated acreage for extra long staple cotton (Assumption I) will materialize. If this should occur, prices could decline to the 38-cent level described above. The impact of such a situation, however, could be expected to result in a partial shift away from the extra long staples to the medium staples (Assumption II), bringing with it a recovery in price. Under such circumstances, a reasonable price forecast for the mid-1960's would be around 45 cents per pound for Egyptian Karnak, c.i.f. Liverpool.

Table 6 : Prices of U.S. Upland Cotton and Egyptian Extra long Staple Cotton in Liverpool, 1906/07-1938/39 and 1950/51-1957/58

Year beginning August 1	Upland a/ (cents per lb.)	Extra long Staple b/ (cents per lb.)	Extra long Staple as Pct. of Upland
1906	12.60	27.00	214.5
1907	12.73	23.82	186.5
1908	11.00	18.27	166.2
1909	15.70	29.88	190.7
Average 1906-09	13.02	24.74	189.5
1910	16.32	28.12	172.4
1911	12.63	23.33	184.7
1912	14.00	21.87	156.2
1913	15.08	21.35	141.7
1914	15.00	18.33	166.8
Average 1910-14	13.81	22.60	163.8
1915	15.04	26.32	175.0
1916	24.72	50.99	206.2
1917	43.56	61.27	140.6
1918	39.46	54.56	138.2
1919	42.40	96.35	229.7
Average 1915-19	33.04	57.90	175.2
1920	19.73	45.72	232.4
1921	20.19	33.97	168.8
1922	28.70	32.99	115.1
1923	32.99	39.35	119.4
1924	27.09	58.76	216.0
Average 1920-24	25.74	42.16	163.8
1925	21.82	40.47	185.5
1926	16.57	31.20	188.4
1927	22.65	39.38	173.9
1928	21.36	36.83	172.5
1929	18.44	29.44	159.7
Average 1925-29	20.17	35.46	176.0
1930	11.61	18.42	158.7
1931	7.54	10.69	141.1
1932	8.52	11.77	138.7
1933	12.47	16.73	134.1
1934	14.24	17.49	122.8
Average 1930-34	10.88	15.02	138.1
1935	13.50	18.99	140.6
1936	14.62	22.19	151.9
1937	10.31	17.06	165.6
1938 c/	10.15	14.46	143.4
Average 1935-38	12.15	18.18	150.4

Year beginning August 1	Upland (cents per lb.)	Extra long Staple (cents per lb.)	Extra long Staple as pct. of Upland
1950 d/	48.81	115.76	237.2
1951	43.44	105.01	241.7
1952	38.20	55.27	144.7
1953	36.82	54.80	148.8
1954	37.31	59.60	159.7
Average 1950-54	40.92	78.09	190.8
1955	3295	64.65	196.2
1956	28.38	72.11	254.1
1957 e/	29.26	53.84	184.0
Average 1955-57	30.20	63.53	210.4

a/Middling 7/8 inch for 1906 to 1938; Middling 15/16 inch for 1950-57
b/Sakel Fully Good Fair for 1906 to 1938; Karnak Fully Good for 1950-57
c/11 months
d/ 7 months
e/ 6 months

Source: 1906-38: US Department of Agriculture, World Cotton Situation, September 5, 1939
1950-57: International Cotton Advisory Committee

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Report No. AS-74b

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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PRESENT ECONOMIC POSITION AND PROSPECTS OF

THE UNITED ARAB REPUBLIC

December 1, 1959

Department of Operations
South Asia and Middle East

CURRENCY EQUIVALENTS

Egyptian Region:

1 U.S. $	-	£E 0.345
1 £E	-	U.S. $2.8716
1 million £E	-	U.S. $2,871,600

Syrian Region:

1 U.S. $	-	£S 3.58
1 £S	-	U.S. $0.279
1 million £S	-	U.S. $279,000

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1 Feddan - 1.038 acres - 4,200 m^2

1 Cantar of lint cotton - approx. 100 lbs.

BASIC STATISTICS

(1958 figures, unless otherwise indicated)

	EGYPT	SYRIA
Population (1957)	24 million	4.1 million
GNP, 1957 (rough approximation)	£E 950 million ($2,730 million)	£S 2,300 million ($640 million)
per head	£E 40 ($115)	£S 550 ($160)
Cultivated area	6.3 million feddans	11.9 million feddans
Cropped area	10.0 million feddans	
per head	0.42 feddan (0.61 in 1927)	2.9 feddan
percentage irrigated	100%	13%
Imports	£E 216.4 million ($621 million)	£S 739 million ($206 million)
per head	£E 9 ($25.8)	£S 180 ($50.1)
% of GNP	25%	32%
Exports	£E 161 million ($462 million)	£S 432 million ($120.5 million)
of which cotton (including yarn and piece goods)	74%	41%
to Soviet bloc (as % of total)	44%	31%
Public finance	1958/59 (budget)	1958/59 (budget)
Government revenues	£E 281 million	£S 440 million
% of GNP	30%	19%
Monetary data (end of year) (1954 = 100)	1958	1958
Money supply	113	128
Bank credit to private sector	154	114
Bank credit to government (net)	494	135
Net gold and foreign assets	50	71

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SUMMARY AND CONCLUSIONS

i. In February 1958 the Republic of Syria joined with the Republic of Egypt to form the United Arab Republic. The Egyptian Region and the Syrian Region of the U.A.R. vary widely in economic structure. The Central Authorities are working towards economic integration and steps have already been taken in this direction. However, until more is learned about the manner in which the union will alter previous economic mechanisms and policies in the two Regions, it is hard to discuss prospects of the U.A.R. as a whole. This report therefore discusses the economy of each Region separately.

ii. The Egyptian Region has emerged in a relatively sound position from the heavy financial strains imposed by the consequences of the nationalization of the Suez Canal and, more recently, by the steep drop in world prices of long staple cotton. Admittedly, foreign exchange reserves decreased substantially; freely available net foreign assets now amount to some £E 114 million (about six months of imports) as compared to £E 270 million at the end of 1954. In addition, the net balance against Egypt on payment agreement accounts, which stood at £E 11 million at the end of 1954, had increased to £E 37 million by the end of June 1959. Also, many changes were made in the exchange system; at present all imports pay a premium of 27.5% above the official rate. However, serious inflationary pressures were avoided and no significant balance of payments arrears or large scale suppliers' credits were incurred. Over-all fiscal policies have, on the whole, been prudent. Notwithstanding continued efforts towards economic development, the large cash deficit of the Government during 1956/57, the year of the Suez crisis, changed to a surplus position in 1957/58; the recurrence of a cash deficit in 1958/59 was largely of a temporary nature (cotton financing).

iii. In the next few years the maintenance of internal monetary stability will nevertheless require careful financial management. There is likely to be pressure to increase local development expenditures from a level which in recent years has contributed to a continuous and substantial drain on foreign assets. The necessity for financial stability is even more pressing now that Egypt's ability to draw regularly on foreign exchange reserves has been largely exhausted. However, assuming that the authorities will be successful in preventing inflationary developments, the country's medium-term balance of payments prospects should not be unfavorable, provided that the present industrialization drive gives adequate results and the High Dam project will be executed. The resulting increases in agricultural and industrial exports, together with some rise in the net foreign exchange receipts from the Suez Canal, may in that case lead to a rise of Egypt's total foreign receipts on current account by something like 25% in the coming seven to ten years, as compared to foreign exchange earnings in 1958 of £E 251 million.

iv. The basic long-run problems of the Egyptian Region have not changed since 1955, the year when the previous Economic Report was prepared. The

relative stagnation in agricultural output in the face of a population growth by some 2-2½% per annum has by and large continued. Even if the High Aswan Dam project is completed with reasonable speed, and on optimistic assumptions regarding further increases in agricultural productivity, agricultural output cannot be expected to increase over the next 20 years by much more than the anticipated rise in population during that period (about 50%), whereas employment possibilities in agriculture would not go up proportionately.

v. Further industrialization - which is being vigorously promoted by the Government through the Five-Year Industrial Plan - thus remains the sole basis for any substantial increase in real per capita income barring unexpected developments in the mineral field or drastic changes in technology. Yet, assuming that the Five-Year Plan will be reasonably successful and that the same would apply to further industrialization efforts - which because of the limitations of the internal market should be primarily oriented towards exports - it remains highly doubtful whether Egypt's employment problem could be fully solved.

vi. The Syrian Region still has a substantial long-range development potential, particularly in agriculture; no problem of population pressure exists. However, this Region's immediate internal and external prospects are difficult. Inflationary pressures are already apparent, mainly because the Ordinary Budget has been in constant deficit since 1955, partly due to growing expenditures for national defense. This might develop into a serious situation if the recently announced plans for general economic development and for industrial development were carried out on the scale and in the time now envisaged without compensating reduction in other fields of expenditure.

vii. Syria's foreign exchange reserves have fallen considerably in 1958, and are less than three months of imports during that year. This development reflects the combined effects of a marked decrease in exports (due to the failure of the 1958 cereal crop because of poor rainfall) and of rising imports resulting from the inflationary pressures referred to above. As in Egypt, therefore, there is need for careful management of both internal and external finances.

viii. The disbursed and still outstanding external debt of the U.A.R. (exclusive of debts incurred for military purposes) amounts to about $224 million equivalent (91% Egyptian Region; 9% Syrian Region). In addition, the Egyptian Region has unutilized external credits amounting to $407 million equivalent and the Syrian Region unutilized credits amounting to $140 million, bringing total unutilized credits for the U.A.R. to $547 million equivalent. These lines of credit, which are mainly from Soviet bloc countries, were extended to meet import requirements for development purposes, including the Egyptian five-year Industrial Plan and the first stage of the High Aswan Dam. Although these credits may not be fully utilized, it is necessary to assume for the purposes of this report that they will be drawn down completely, in which event total

service payments of the U.A.R. would reach a peak of $88 million equivalent in 1963. This is around 10% of current foreign exchange earnings for both Egypt and Syria. After 1967 the service burden on present external debt and lines of credit (if utilized before their respective closing dates) would fall off rapidly.

ix. Service on the large Soviet bloc credits - payable in local currency available for the purchase of Egyptian goods by the creditor country - may prove to be somewhat less burdensome than if the debt were incurred wholly in transferable currencies. Nevertheless service on the over-all debt, including that on military credits, would be heavy during the early 1960's. In view of the reasonably favorable medium-term balance of payments prospects of both Regions, however, there does appear to be some room for the assumption of additional debt for productive purposes assuming that stable political conditions and sound financial management continue to prevail.

THE UNITED ARAB REPUBLIC

1. On February 22, 1958, the Republic of Syria joined with the Republic of Egypt to form the United Arab Republic. On June 14, 1958 the Government of the U.A.R. notified the Bank that by virtue of the merger the United Arab Republic was a single member of the Bank. On July 18, 1958 the Executive Directors of the Bank decided that the U.A.R. be substituted for Egypt and Syria on the Bank's records. Egypt is now officially called the Egyptian (or Southern) Region, and Syria the Syrian (or Northern) Region.

2. The two Regions differ widely in their characteristics. In Egypt there is heavy pressure of population on agricultural land, all of which is irrigated. In Syria the population, 17% of the Egyptian, occupies a cultivated area that now slightly exceeds the cropped area of Egypt; and only 13% is irrigated, the rest being under dry farming. Syrian agriculture fluctuates widely in yield because of variations in rainfall from season to season, while fluctuations in agricultural output in Egypt are small, affecting principally crops requiring water during the low flow period of the Nile. National income per head in Egypt is equivalent to approximately $115 while in Syria it is about $160. In 1957 imports per head in Egypt were equivalent to $22 or 19% of national income, while in Syria they were equivalent to $41.5 per head, or 27% of national income. Also in 1957, budget revenues in Egypt were about 27% of national income while in Syria they were about 14%.

3. The central authorities are working toward economic integration of the two Regions. In October 1958 a new government structure was established, extending the principles of central direction to all the economic ministries. As a result the Ministries of Economy, Communications, Supply, Agriculture and Agrarian Reform, and Industry all have central cabinet ministers. A single Civil Aviation Administration has been established, as has a General Authority for Petroleum Affairs.

4. A unified Budget for the Republic has been established. Its revenues consist of contributions from the Egyptian and Syrian Regions 1/, with Egypt contributing almost 60% of the total. Expenditures from this budget are for the Presidency, the National Assembly, Foreign Affairs, and National Defense. The Ordinary and other Budgets of the two Regions still carry the expenditures for social and economic purposes, such as health, education, public investment, etc.

5. The Central Bank of Syria and the National Bank of Egypt have so far retained their separate characters without merging their resources. Arrangements have been made whereby, within limits, a resident of the

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1/ These contributions have been treated, in the subsequent discussions of public finance, as part of the budget expenditures of the respective Region.

Syrian Region can obtain bank credit from the Egyptian Region under the guarantee of the Central Bank of Syria, and vice versa. In September, two decrees were promulgated under which all foreign banks and insurance undertakings in Syria must within 5 years be registered as U.A.R. joint-stock companies. The new regulations are similar to but somewhat different from the Egyptianization laws on banking and insurance introduced in Egypt in 1956. However, the monetary policies of the two Regions still remain distinct and it has been officially announced that unification of the Syrian and Egyptian currencies will not occur in the near future.

6. Customs duties between the two Regions have been eliminated and their customs administrations are being unified; there is complete freedom of movement of trade between the Regions in commodities originating in either Region. So far, the foreign trade policies of the two Regions remain distinct; those of Egypt being based on stronger control over foreign trade and payments than applied in Syria. The year 1958 and the first half of 1959 saw a sharp rise in trade between the two Regions. (Table 30).

7. The exports of the two Regions are not competitive with one another in world markets; both export cotton, but Syrian cotton is of American quality whereas the greater part of Egyptian cotton is long staple. Syria exports cereals including wheat while Egypt imports wheat; however Syrian wheat is of a different type than that customarily imported by Egypt - being better for such products as macaroni than for bread making.

8. Despite the heavy pressure of population on agricultural land in Egypt, it seems unlikely that there will be massive migration to Syria, at least not in the foreseeable future; the Egyptian people have always shown a great attachment to their land and their country. However, some interchange of people possessing special skills and abilities may well develop, to the benefit of the recipient Regions. This could be true in the technical and managerial levels of industry, commerce, transport, etc., as well as in government administrative services.

9. Until more is learned about the manner in which the union between Egypt and Syria will alter previous economic mechanisms and policies in the two Regions, it is hard to discuss the prospects of the U.A.R. as a whole. If economic integration were to remain loose, the prospects for the U.A.R. would be essentially the same as those of the two Regions. Close economic integration, however - so that the Central Budget of the Republic assumes major economic significance, the exchange systems become identical or almost so, all trade agreements are applied to both Regions and a single currency unit is established - would involve basic prior and consequential changes of economic mechanisms and policies in one or the other Region, or both.

10. This Report proceeds to discuss each Region separately, followed by a review of their joint position from the point of view of creditworthiness.

THE EGYPTIAN REGION

Introduction

11. A report on "The Economic Development of Egypt" was prepared in 1955 (No. AS-40a, dated August 25, 1955). The basic long-run problems described in that report are unchanged; the continuing problem is still to raise output faster than the growth of population, estimated at 2% to 2.5% per annum. Agricultural production, which is wholly dependent upon irrigation and already highly intensive, has been relatively static over the last few decades; and Egypt has managed to maintain its admittedly low living standard owing largely to the substantial progress of its manufacturing industries.

12. Certain events since that report was written have at least temporarily aggravated Egypt's development problems. The nationalization of the Suez Canal and the subsequent military action in the Canal area led to difficulties for Egypt in both external and domestic finances. Moreover, after a short period of abnormally high prices, the world price of Egyptian long staple cotton fell, and in the first eight months of 1959 was about 46% lower than the 1955/56 average.

13. Despite these adverse circumstances, the Egyptian authorities have been able to maintain and even intensify their efforts toward economic development. On balance, the longer-range development prospects of the Egyptian Region are neither markedly better nor significantly worse than at the time of the 1955 Economic Report, although the short-run difficulties confronting the Egyptian authorities have increased.

Recent Developments

Trade

14. The nationalization of the Suez Canal in July 1956 was followed by a freezing of Egypt's sterling, franc, and dollar assets and the military action in the Canal area some months later led to a virtual cessation of exports to the United Kingdom and France; American economic and technical assistance also ceased. The freezing of sterling assets was actually more important than the loss of exports to the United Kingdom and France (which in 1954 had amounted to some 20% of total exports), because Egypt had formerly used releases from the accumulated sterling assets to finance imports from many countries. The loss of access to these resources, together with the fall in long staple cotton prices in Western markets, made it hard to maintain imports from traditional sources and induced a shift of trade towards the Soviet area. Whereas in 1954 only 6% of Egypt's imports came from, and 14% of its exports went to, that area, the proportions rose to 26% and 46% respectively in 1957 and to 35% and 44% in 1958. (See Table 1.) Commercial imports from the Soviet bloc consisted mainly of wheat, petroleum products and, more recently, capital goods.

15. At the same time imports from Western Europe were maintained at a higher level than they would otherwise have been by incurring deficits on bilateral trade and payments agreements with Western countries where such existed. These two policies, aided by abnormally high prices for long staple cotton for a short period, enabled Egypt to maintain imports during 1956 and 1957 at almost the 1955 level and to raise this level in 1958 without incurring commercial arrears or resorting to the guarantee of external debt in the form of suppliers' credits. The swings on payments agreements with Western European countries were exceeded only to the extent of about £E 23 million and the excesses have subsequently been funded with the respective creditor countries.

16. A further drawdown in Egypt's net foreign exchange reserves (i.e. after taking into account net adverse balances on bilateral payments agreements) was inevitable, however. As in 1955, the balance of payments on current account in 1956 as well as in 1957 showed a deficit of over £E 30 million; preliminary figures for 1958 show a reduction of this deficit to £E 12 million (Table 4). Net foreign assets and gold (Table 5) were £E 228 million at the end of 1955 and £E 151 million at the end of 1957; excluding the effect of the 1957 currency exchange in the Sudan (£E 29 million, of which £E 19.5 million in sterling) the two-year loss amounted to £E 49 million. A drawdown of £E 29 million occurred during 1958, followed by a further decline by some £E 22 million during the first six months of 1959. As a result, the Egyptian Region's net gold and foreign exchange reserves at the end of June 1959 amounted to about £E 100 million. Of this £E 23.4 million have been pledged, under the terms of the financial agreement reached with the U.K. on February 28, 1959, against the remaining compensation payment, due on February 29, 1960, for Egyptianized British properties. This leaves some £E 77 million net of freely available foreign assets, as compared to £E 228 million at the end of 1955. The Egyptian Region's total drawings on the IMF amount to £E 10.4 million.

Exchange System

17. Under the circumstances these results in trade and payments cannot be regarded as unsatisfactory. However, to meet the difficulties confronting them, the Egyptian authorities resorted to a variety of devices which stemmed from the attempt to dispose of cotton exports on the most favorable terms in the face of price declines, while at the same time protecting the producer from the full income effects of lower prices. The authorities consider that the latter is necessary to avoid serious social and economic consequences that would result if the income of cotton producers were drastically reduced. Thus a domestic support price for cotton was established which was reduced as world prices fell, but at a slower rate.

18. Since this support price was above world prices when converted at the official exchange rate (Table 6), it was necessary to take additional measures to sell in Western markets. These took the form of permitting exporters to offer cotton against payment in convertible currencies at a

discount under the official support price, compensated by a premium on the official exchange rate. However, the permitted discount has frequently been changed (Table 7) - whenever the Egyptian authorities believed the statistical position of long staple cotton in world markets justified such action - and the resulting uncertainty has disturbed the cotton trade (completely in private hands, both in Egypt and in the Western importing countries), and importers have been reluctant to hold stocks of Egyptian cotton.

19. Simultaneously, Egypt facilitated Eastern bloc purchases of cotton through bilateral payments agreements. Under these agreements Egyptian imports from Eastern countries are paid for in Egyptian pounds, which are usable for exports from Egypt. As a result, in 1958 the Eastern countries (including Mainland China) took 63% of Egyptian cotton exports, compared with 31% in 1955 (Table 8). Although exports to Eastern countries are charged at the full support price, some part of these exports has reappeared in European markets at prices lower than the private Egyptian exporter could offer even with the discount for Western purchases; and the possibility that this might occur at any time further unsettled the European market for cotton imported directly from Egypt.

20. To encourage exports for convertible currencies the exchange premium was also applied to other exports except rice, petroleum products and ship supplies. Invisible payments for Suez Canal dues, expenditures by aircraft companies, and remittances for educational purposes and of capital or the income from capital are made at the official rate.

21. To balance the export premiums, importers making payment in convertible currencies were required to purchase exchange at a premium equivalent to that granted for cotton exports. Since this was frequently changed the effective exchange rates for imports also fluctuated, but this system had the effect of avoiding any deficit in the local currency counterpart of foreign exchange operations; in fact the exchange premium account consistently showed a small surplus.

22. During 1958, owing to the difficulty of financing imports from convertible currency areas, the authorities approved numerous compensation or barter arrangements, whereby an Egyptian importer could import free of official license provided he did not use official exchange but obtained his exchange by the export of Egyptian products. Under these arrangements the effective exchange rate for imports varied from transaction to transaction, but on average was something like 50% higher than the official rate.

23. By March 1959 the exchange system had become quite complex, with frequent variations of de facto exchange rates against convertible currencies. Recognizing its many unsatisfactory features, the Egyptian authorities, in early May 1959, imposed a single premium of 27.5% on all private import payments in convertible currencies. Although this was an increase over the previous official premium of 17.6%, it represented a considerable reduction

from the unofficial premiums resulting from barter deals. The premium payable on cotton exports was raised to 52%, then shortly afterwards lowered to 48.5%; the premium on other exports (except that for onions which was 34.5%) remained at 17.6%.

24. On September 1, 1959, the exchange system was again changed. Barter deals were abolished and all exchange transactions are now required to be made through the Central Bank or authorized banks. Invisible payments other than for the purposes mentioned in paragraph 20 carry a premium of 27.5%, while receipts of free currencies for invisible purposes enjoy a premium of 27.5% with exception of Suez Canal dues and certain other items. The premium on private imports paid in free currencies of 27.5% was maintained and extended to imports by all government departments (which previously had been subject to a premium of 17.6%). Exports other than cotton receive no premium while the premium on exports of cotton and cotton products payable in free currencies was set at 30%, corresponding to a discount of 22.5%. Simultaneously export duties on all varieties of cotton except long-staple Ashmouni were abolished. As formerly, however, this premium may be varied in accordance with changes in world cotton prices.

25. In view of the present world overproduction of long-staple cotton there seems little prospect that prices will improve much in the short-run, although they may recover somewhat from the low levels of the first few months of 1959 now that the Sudan has completely disposed of its cotton stocks from the previous two seasons; in fact some recovery has already taken place. Nevertheless, expectations as to medium-term supply and demand for long-staple cotton make it unlikely that prices for the next five years or so will rise above an average of some 38¢ per pound, c.i.f. Liverpool, for Karnak FG. This means that the present level of support prices in the Egyptian Region would still necessitate a foreign exchange premium equivalent to a discount of about 20%.

Government Finance

26. The 1956 military action in the Suez Canal area had a serious impact on government finances. The over-all cash deficit (resulting from both the Ordinary Budget and the Development Projects Budget) rose from £E 26 million in 1954/55, to £E 36 million in 1955/56; in the next financial year the deficit in the Ordinary Budget alone was £E 46 million. Since the actual results for the Development Projects Budget in 1956/57 are not available, the best indication of the over-all picture for this and subsequent years is afforded by the banking statistics; they show an over-all cash deficit of almost £E 83 million for 1956/57 (Table 9).

27. A sharp reversal took place in 1957/58. Ordinary Budget estimates for that year showed a surplus of almost £E 19 million, partly through reduction of ordinary expenditures (principally military) and partly through a substantial increase of revenues; the Development Projects Budget was also heavily curtailed. The banking statistics indicate an over-all cash surplus for this year.

28. The Ordinary Budget for 1958/59 estimated a surplus of £E 9.3 million, the Development Projects Budget was increased to the level of two years before, and the banking statistics show an over-all cash deficit of £E 32 million. However, this cash deficit was wholly incurred in the last six months of fiscal 1958/59, due largely to government cotton financing, a temporary phenomenon; government cotton stocks increased between the beginning of the cotton season (September 1, 1958) and April 15, 1959, by some 1.4 million kantars or by roughly £E 20 million in value. As these stocks are depleted, the government's cash position will improve proportionally.

29. As presented, the Ordinary Budget for 1959/60 shows a surplus of £E 27.7 million, but Development Projects expenditures are estimated to increase by more than 100% over the level of the 1958/59 Budget, leaving an apparent over-all deficit of £E 70.3 million. However, the authorities plan to utilize (for the first time) £E 20 million of counterpart funds resulting from PL-480 food imports from the U.S., and to draw-down £E 20 million of foreign credits granted for the Five-Year Plan and for the Aswan High Dam. In addition, the President of the Republic has ordered a 2% reduction of all Ordinary Budget expenditures - an economy which is expected to realize an additional surplus of some £E 6 million in the Ordinary Budget. The authorities therefore expect to be able to finance the 1959/60 Development Projects Budget with resort to domestic bond issues of £E 25 million, much the same level as in recent years.

30. The following table summarizes the budgetary situation over the last six years (actual results for 1954/55, 1955/56 and 1956/57 - in the latter year for the Ordinary Budget only; all subsequent figures are budget estimates).

(£E million)

Fiscal Year (July 1-June 30)	Ordinary Budget			Develop. Projects Budget			Over-all Deficit	Estimated actual cash deficit (See Table 9)
	Expend.	Revenues	Balance	Expend.	Revenues	Balance		
1954/55	228.1	219.7	- 8.4	29.0	2.7	-26.3	-34.7)	-78.6
1955/56	275.6	267.5	- 8.1	39.4	3.1	-36.3	-44.4)	
1956/57	308.0	264.6	-43.4	45.8	-	-45.8	-89.2	-82.9
1957/58	281.8	300.5	+18.7	28.3	-	-28.3	- 9.6	+14.8
1958/59	271.5	280.7	+ 9.2	46.0	-	-46.0	-36.8	-31.8
1959/60	293.8	321.5	+27.7	98.0	-	-98.0	-70.3	n.a.

Note:

(1) In the year 1954/55 actual receipts and expenditures under the Ordinary Budget did not differ greatly from the estimates. The same would have been true for the next year had not expenditures

of the Ministry of War been increased from £E 55 million to £E 85.4 million, thus reaching 31% of total expenditures. In both fiscal years actual expenditures on the Development Projects Budget lagged far behind the original estimate (budget and actual figures for 1954/55 are £E 42 and £E 29 million respectively; and for 1955/56, £E 54.2 and £E 39.4 million).

(2) Revenues and expenditures in the Ordinary Budget for 1958/59 for the first time excluded total receipts and expenses of the State Railways and the Petroleum Authority (in the preceding year they had amounted to £E 32.2 and £E 36.5 million respectively); only the net balance resulting from the operation of these two agencies is now accounted for. Also from 1958/59 onward certain expenditures formerly separately mentioned, such as the Presidency, the Ministry of War and the Ministry of Foreign Affairs, were included under Egypt's contribution to the Central U.A.R. budget.

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31. It should be pointed out that the over-all cash deficit shown in the above table over-states the net inflationary influence of government. The Development Budget in certain years has been financed partly through the issue of development bonds, to a total of £E 59 million (net) from the end of 1954 through the middle of 1959; of this amount some 70% represent genuine savings by the public, the Postal Savings Bank and other institutional investors. The table showing changes in money supply (Table 11) indicates that in both 1957 and 1958 the Government's resort to bank finance decreased markedly; the increase in early 1959 was due largely to temporary financing of cotton stocks.

32. There are a number of other budgets in addition to the Ordinary Budget; autonomous budgets have recently been established for the State Railways and the General Petroleum Authority (formerly included in the Ordinary Budget), and there are also a number of smaller "annexed and independent budgets" (for example, the Agrarian Reform Budget, the Educational Buildings Organization Budget and the Egyptian Broadcasting Budget); these annexed budgets tend to balance, partly through contributions from the Ordinary Budget. The results of these budgets are incorporated in the over-all cash position as indicated by the banking statistics and discussed above. Details about the major sources of government revenues and the major distribution of expenditures under the Ordinary Budget are given in Table 10.

Money and Prices

33. Money supply increased by 3% in calendar 1955, 14% in 1956 and 6% in 1957 (allowing for currency withdrawn from the Sudan); it decreased by 4½% in 1958 and by 4.9% in the first half of 1959. The fact that the increases over the first three years were moderate, apart from the abnormal year 1956, was due largely to the drawdown of foreign exchange assets. An important additional factor influencing the slight decrease in 1958 was a considerable increase in time and savings deposits. The decrease in the

first half of 1959, despite the recurrence of the fiscal deficit - which after reaching a high of £E 76.5 million in 1956 had virtually disappeared in 1958 - is attributable, apart from the continued drawdown of foreign exchange reserves, primarily to a substantial decline of bank credit to the private sector, which had shown a fairly constant upward trend before. (See for details Table 11.) Increases in prices, as measured by available price indices, have been moderate. These indices were, however, designed many years ago and are now being revised.

34. Nevertheless, indications are that while Egypt is not free of inflationary pressures, they are not yet severe. The facts that the Ordinary Budget has been in surplus for the last three years, including the current year, and that expenses budgeted in the Development Budget - which have consistently run below the estimates - have, on the whole, not substantially exceeded available resources seems to indicate that the authorities are aware of the danger of excessive deficits in over-all government finances. Moreover, in 1956 they took measures to prevent resources being diverted to excessive private real estate investment by controlling the demolition of old buildings and the construction of new ones.

Production

Agriculture

35. As a result of population increase the cropped area per head has constantly diminished. Although Egyptian agriculture is already one of the most intensive in the world there is still room for some increase in productivity through use of improved seeds (e.g. hybrid corn) and more fertilizers and insecticides. In the last few years the importation of fertilizer has increased markedly and plants for its domestic manufacture are being expanded. Nevertheless, on the most optimistic expectations, increased productivity alone would not enable agricultural output to keep pace with population growth.

36. Large additions to the area under cultivation would be possible only through major regulation of the flow of the Nile, to store water during flood season for release during low water. This is the purpose of the projected High Dam at Aswan, which has been studied by the Bank ("Preliminary Report on the Sadd El-Aali Project", Report No. T.O. 94-b, dated February 28, 1956). Its construction would ultimately add about 24% to the cultivated area and 36% to the cropped area; the cropped area exceeds the cultivated area because double-cropping on some areas now single-cropped would become possible. In addition, the Dam would prevent a rise in the water table during the flood periods, and thus improve the drainage of lands now under crop, contributing to their increased productivity. As a result of greater crop area and of higher productivity (through improved drainage and better agricultural practices) total agricultural output might ultimately be increased by about 50%. However, completion of the Aswan project was estimated in 1955 to require 10 years, and its full benefits were not expected to be realized until some ten years after that.

37. In December 1958 Egypt obtained a credit equivalent to £E 40 million from the Soviet Union for the import requirements of the first stage of the High Dam; the first contract for the supply of equipment and technical assistance was signed in September 1959. Finance for the subsequent stages is not yet in sight, although the Federal Republic of Germany has announced that its offer of DM 200 million (about £E 22 million) toward financing the Dam remains open.

38. However, even if the first stage of the High Dam is started soon and the subsequent stages are steadily carried through to completion, it would not solve Egypt's agricultural or economic development problem. In twenty years time her population will have increased about 50%, by some 12 million people, unless the rate of population increase falls significantly. Even on optimistic assumptions as to the future increase of agricultural productivity the 20-year outcome would be roughly the same agricultural output and income per head as at present. It should be noted that if the High Dam is completed, the cultivated area would increase by 24%, or by about half the probable percentage increase of population in twenty years. Egyptian agriculture is already highly labor-intensive and increased productivity would not require any addition to the rural labor force. Taken together these two considerations mean that, if effective employment opportunities are not found elsewhere, concealed under-employment in rural areas as well as urban unemployment would increase considerably; in total by at least 2-2½ million people over a 20-year period (estimating the number of employable adults at some 30-40% of the population increase).

39. Meanwhile the stability of agricultural output, noted in the previous Economic Report, has by and large continued. The area under major crops increased by about 7% from the 1950-54 average, i.e. by about 1% per year (Tables 12 and 13), and that under cotton by about 5%. Cotton production in 1958 was considerably above the 1950-54 average but less than in 1952/53. The cotton area is kept under strict government control through a central seed distribution, which also controls the varieties to be grown. This system prevents expansion of the area under cotton when domestic support prices are higher than world prices.

40. In the years 1954-58 there has been a steady increase in the area under long staple cotton, especially of the new Menoufi variety, while the area under medium staple cotton, especially of the Giza 30 variety, declined (see Table 14; more details on cotton production, exports and domestic consumption are given in Table 15). As a result, the proportion of long staple production rose from 34% of all cotton produced in 1954 to 58.5% in 1958. Together with the increased output of Sakel type cotton in the Sudan and the recent recession in the European textile industry, this development contributed to the sharp fall in long staple cotton prices during the past two years. The Egyptian authorities seem aware of the dangers of this situation. For the present crop season the acreage of long staple cotton has reportedly been reduced by 28%, while the medium staple acreage has been expanded.

41. The only other major crop for which the cultivated area has increased since 1950-54 is maize; the increase is some 15%, with an equivalent rise in production. The wheat area decreased somewhat but increased productivity raised total output in 1958 some 16% above the 1950-54 level. Rice production has shown a substantial increase; productivity is high and rice exports are increasingly important, having risen in value from £E 2.6 million in 1954 to £E 11.7 million in 1957. However, the area under rice is small in comparison with other crops and is liable to wide fluctuation, depending on the availability of water during the season of low Nile flow. Production of onions, another export item occupying an even smaller area, has also increased considerably. In general, however, agricultural production has shown no substantial advance.

42. The agricultural cooperatives set up in the areas affected by the agrarian reform appear to be successful, both from the point of view of village welfare and as a means of introducing better agricultural practices, credit facilities, use of mechanical equipment, and cooperative marketing. The Egyptian authorities intend to follow the same system in newly developed areas.

Minerals

43. No significant discoveries have been made since 1955. The production of some minerals (manganese, phosphates) declined somewhat following the military action in the Canal area, but is now reported to be increasing.

44. Oil production, after a setback due to the Suez crisis, is on the rise again and exploration is continuing on an increasing scale. In 1958 total crude oil production in the Egyptian Region was 3.2 million tons, as against total consumption of petroleum products of just over 4 million tons (see Table 16). It is expected that in the next few years production will rise faster than consumption, so that by 1961 Egypt may be able to satisfy its requirements, although some imports and exports would still be necessary to balance consumption requirements with refinery characteristics.

45. Policy with respect to exploration, transportation and marketing of oil has recently been entrusted, for the U.A.R. as a whole, to a General Petroleum Authority. The Authority owns a "General Petroleum Company," which has been granted certain exploration concessions.

46. Iron ore produced in upper Egypt satisfies part of the requirements of the new steel mill at Helwan.

Industry

47. The last Economic Report pointed out that "the development of manufacturing has compensated largely for the relative stagnation of agricultural output and contributed significantly to the maintenance of the standard of living," and noted the Government's desire to stimulate industrial production as much as possible. Since then there has been some further progress in existing industries, particularly in 1955, when production in most sectors increased, notably textiles, sugar, fertilizers, cement and electric power (see Table 17). A preliminary index of industrial production, constructed by the National Bank of Egypt, showed an over-all rise of 9.4% for that year. By contrast 1956 showed an increase of only 1.2%; but in 1957 there was again a decided upward trend. Tentative national income estimates indicate that in recent years manufacturing industries contributed about 11% to the total national product.

48. In July 1957 the Five-Year Industrial Plan was published, listing a number of proposals for establishment of new industrial capacity or expansion of existing facilities. The Plan contemplated expenditures of £E 220.7 million over the 5-year period, of which about 60% would be in foreign exchange. It embraced mining (£E 5 million) and petroleum (£E 40 million) as well as manufacturing industry proper. The authorities now estimate that the Industrial Plan will cost a total of £E 248 million, of which £E 86 million worth would be inaugurated in 1959, £E 92 million in 1960 and £E 70 million in 1961. If these targets can be achieved the industrial plan will have been carried out ahead of schedule.

49. As discussed in a later section, financial resources for the Plan have come from government funds (including bond sales), some private capital and lines of credit from the Soviet Union (£E 61 million), West Germany (£E 44 million), Japan (£E 10.5 million), Yugoslavia (£E 3.5 million) and East Germany (£E 7.5 million), totalling £E 126.5 million.

50. In selecting projects for inclusion in the Plan, the authorities used four main criteria - namely, the extent to which the project would provide employment, its contribution to national income growth, the extent to which it would replace imports, and its readiness from the engineering and technical standpoint. These criteria may, of course, sometimes be inconsistent. Actual decisions emphasize getting things done rather than producing a fully coherent industrial program. The allocation of funds available under lines of credit, as speedily as technical considerations permitted, was especially stressed.

51. The Plan was drawn up in the Ministry of Industry. The Plan seeks to secure private capital participation in individual projects that it regards as suitable for private enterprise. The remaining projects are entrusted to the Organization for the Execution of the Five-Year Plan.

52. It is apparently intended that after they have come into production these industrial projects will be administered by the Economic

Development Organization (see Annex). The E.D.O., an official holding company for enterprises in which the Government has a controlling interest, initially took over most of the enterprises which had formerly been administered by various Ministries; it later administered properties Egyptianized at the time of the Suez crisis.

53. The general industrial policy results from the belief that, to obtain rapid growth, the Government must intervene widely in the industrial sector, both in the establishment of new industries and in the operation of existing industries; for example, the law provides that a 25% holding of voting shares gives the E.D.O. the controlling interests. The law also endows the Minister of Industry with wide powers to review the production and financial plans of private industry. This philosophy is in part an extension of the accepted relation of Government to agriculture, in which for a very long time the distribution of irrigation water and the use of land has been almost completely under Central Government control. It also partly results from a distrust of the "oligarchic" or "feudal" character of earlier forms of Egyptian business enterprise, which was noted in the last Economic Report.

54. The Mission was not able to appraise the economic or technical merits of the many projects in the Industrial Plan, but it was impressed by the extent to which the authorities responsible for its execution were aware of the difficulties involved. They placed considerable emphasis on the need for vocational training; they have established (and are still establishing) a number of vocational training centers throughout the country. They are also arranging for Egyptians to go overseas for technical training and for foreigners to come to Egypt to teach specific techniques. E.D.O. officials readily admitted the importance of developing managerial skills and, with advisory assistance from the Ford Foundation, are establishing a Staff College for potential managers. These officials explained that the policy of the E.D.O. as a holding company is to permit maximum autonomy to the individual enterprises it controls, permitting them to act in their day-to-day business as if they were privately owned.

55. Even if all the physical facilities contemplated under the Five-Year Industrial Plan are completed, it would not be surprising if the estimated economic benefits would not be fully realized. Egypt's internal market is relatively small; at least for a while the capacity in some specific plants may well exceed demand. The difficulty of training an adequate number of managerial, supervisory and technical personnel is acknowledged, and for a while, again, there may be a shortfall in this respect. Finally, much of the new industry will require raw materials imports. While the import of raw materials to produce finished products formerly imported results in an apparent exchange savings, the gain for the balance of payments may be more apparent than real. The necessity of maintaining urban employment makes it harder to restrict imports of raw materials than of the corresponding finished products in times of payments difficulties; moreover, if fiscal and monetary policies permit excess demand to exist in the economy, the balance of payments will remain under pressure despite

the establishment of imports-replacing industry. The experience of Pakistan, India and Turkey, for example, shows that it is not easy to avoid a situation in which industry is actually operating below capacity for lack of imported raw materials.

56. As regards the further development of industry, beyond the present Industrial Plan, it seems clear that continued expansion cannot be based on import replacement as the leading principle. The 1955 Economic Report stated that "to a large extent the possibilities of supplying the domestic market at the expense of imports have already been exhausted, at least in the range of goods which Egypt can reasonably be expected to manufacture without unduly high costs." When it is remembered that total imports per head in Egypt are about LE 7.6 (including wheat, tobacco, coffee and tea, timber, capital goods, etc.), it is apparent that the scope for replacing imported manufactures is limited. This means that further industrial expansion must be oriented towards exports if any considerable part of the population increase which cannot profitably be engaged in agriculture is to be absorbed into productive employment, and the real income of the Egyptian people thereby increased. The building up of industrial export markets, now mainly confined to certain textile products, will of course take time. Egypt's access to regional markets might be improved if an effective Arab Customs Union were to be established; the idea for forming such a Union has been under discussion within the Arab League.

Economic Planning

57. There has been established in the Egyptian Region an apparatus for over-all economic planning. The Minister of Planning, who is also Vice President of the Republic, is Chairman of a National Planning Committee, served by a strong permanent Secretariat. In each Ministry there is a planning division in close contact with the Secretariat of the National Planning Committee, and the views of the government and non-government sector are obtained through six consultative committees, which in their turn have established 60 sub-committees on specific matters.

58. In the previous Economic Report on Egypt it was stated that "there has been a proliferation of agencies charged with various development programs and little over-all planning and direction." The organization now established for over-all economic planning is thus a step in the right direction. Several institutions which previously acted more or less independently, such as the Permanent Council for the Increase of National Production and the Council for Public Welfare Services, have been abolished. There still remains a considerable amount of independence in planning economic development in the various Ministries and in new organizations such as the Economic Development Organization. However, the concept of over-all planning - that is, of objectively appraising problems and examining possible solutions and available resources - has now been acknowledged and is apparently being widely disseminated. After discussions with some members of the Planning Secretariat, the Mission felt that its professional staff is displaying a realistic grasp of the problems confronting Egypt.

The Financing of Development

59. The Ordinary Budget and the annexed and autonomous Budgets include some development expenditures, but it is not possible to obtain a consolidated statement of them. The principal sources of development expenditures are the Development Projects Budget and the Five-Year Plan Organization.

60. From 1952/53 to 1957/58 the Development Projects Budget estimated expenditures at £E 213.2 million and actually spent £E 153.4 million on the general purposes shown in the table below (see also Table 18).

DEVELOPMENT PROJECTS BUDGET

(£E millions)

	Actual Expenditures 1952/53 - 1957/58	Budgeted 1958/59	Budgeted 1959/60
Public works (primarily irrigation and water control)	57.6	12.0	14.2
Development of oil and mineral resources	22.1	4.2	1.5
Agriculture and livestock improvement	8.8	0.4	2.5
Roads and communications	34.4	10.0	11.2
Projects undertaken by independent organizations a/	18.9	19.3 b/	68.7 c/
Finished projects	11.6		
Total	153.4	46.0	98.1

a/ The projects undertaken by independent organizations include land reclamation in Beheira and Fayoum provinces, development of Natrun Valley, preliminary work (surveys, etc.) on the High Dam project; the Permanent Organization for Land Reclamation and the Liberation (Tahrir) province.

b/ Including (for the first time) a contribution of £E 12 million to the Five-Year Industrial Plan.

c/ Of which £E 45.5 million for the Five-Year Industrial Plan and £E 13.2 million for the High Aswan Dam.

61. Of the £E 153.4 million of actual expenditures, £E 39 million were obtained by net bond sales and £E 28 million from contributions from the Ordinary Budget. The remaining gap was financed with bank credit (see also paragraphs 30 and 31). For the budget years 1958/59 and 1959/60 no actual figures are available but indications from the Government's cash position in 1958/59 are that financing of development through bank credit in that year cannot have been substantial, taking into account the influence of government cotton financing on the 1958/59 cash deficit and the early-1959 bond issue of £E 20 million net to help finance the local currency costs of the Five-Year Industrial Plan. As to the financing of the 1959/60 budget, it has already been mentioned (paragraph 29) that apart from an estimated surplus of £E 27.7 million in the Ordinary Budget which will be allocated to development, some £E 46 million in total is likely to be available from drawings on foreign credits, from the use of counterpart funds of PL-480 imports and from additional economy measures relating to Ordinary Budget expenditures.

62. The total net amount contributed to the Development Projects Budget through the issue of bonds amounts to £E 59 million 1/. This means in a four-year period an annual contribution of about £E 15 million, the figure which the previous Economic Report estimated as the average annual amount that the Government could be expected to raise through public loans. However, some 30% of these bonds have so far been taken up by the banking system, while the banks took almost 50% of the 1959 issue. Of the total of £E 162 million of government bonds outstanding at the end of 1958, 31% were held by the Central Bank and by commercial banks, 31% by the Postal Savings Bank and government departments, and 38% by other holders (see Table 19).

Prospects

Short-run Prospects

63. So long as the Western markets for Egyptian cotton remain depressed, Egypt's short-run position will be difficult. In the $4\frac{1}{2}$ years from the end of 1954, Egypt's assets in foreign exchange were reduced by £E 133 million to £E 137 million, of which £E 60.6 million in gold; freely available foreign assets, at the end of June 1959, were reduced to about £E 114 million, some 50% of the recent annual import level. In addition, the net balance against Egypt on payment agreement accounts increased over the same period from £E 11 million to £E 37 million. The possibilities for a further draw-down in foreign exchange holdings have therefore narrowed considerably, and the authorities are facing the need to adapt their policies to a new situation of substantially reduced Sterling balances available for current payments.

1/ £E 25 million in 1955
£E 10 million (net) in 1956
£E 4 million " in 1958
£E 20 million " in 1959.

64. U.S. aid, which was almost wholly cut off between 1956 and 1958, was recently resumed; this should ease the foreign exchange position somewhat, and may also provide some non-inflationary financing for economic development (but firm decisions have not yet been reached on the latter point). Since September 1958 the U.S. has provided about $25 million of surplus wheat and in May 1959 a new agreement was reached covering some $23.5 million of tobacco, coarse grains and rice. Also in May 1959 agreement was reached under which the USA would supply 800,000 tons of PL-480 wheat, valued at $57.7 million, during the fiscal year 1959/60. The activities of "CARE" have also been resumed and may provide annual free imports of $10-15 million.

65. Offsetting in part the unfavorable short-term position of cotton are the increase of receipts from the Suez Canal (now at an annual level of over £E 45 million gross; the major part of this - some £E 40 million - represents net foreign exchange receipts), possible increases in tourists receipts, the growing export of onions and the possibility that rice exports may increase again if Nile water availability is favorable.

66. The short-run prospects for domestic finance give little cause for concern. The 1959/60 Ordinary Budget estimates a surplus of £E 27.7 million. The Development Projects Budget for the same year estimates expenditures of £E 98 million but actual expenditures have consistently run below estimates and, when taking into account other likely sources to finance development apart from the Ordinary Budget surplus (PL-480 counterpart funds, drawings on foreign credits, etc.) the over-all 1959/60 deficit, if any, should be limited. This does not suggest a serious inflationary danger, so long as expansion of bank credit to the private sector is kept under control, but uncomfortably little room is left for additional development expenditures.

Longer Run Prospects

67. It is difficult to assess the longer run prospects for the Egyptian Region; much will depend upon the skill with which the Government and the private sector handle the technical and financial problems confronting the country. Earlier sections of this report pointed out that, even with the maximum foreseeable development of Egyptian agriculture, as regards both area under cultivation and productivity, agricultural output per head at the end of 20 years would be about the same as now, and that over the next 20 years policy must be directed toward providing productive employment outside agriculture. In the absence of major mineral discoveries, the extent to which this can be achieved will depend largely on the development of manufacturing industry which, in view of income limitations in the internal market, will in turn depend on industry's ability to produce for export. High-cost and inefficient industry, unable to compete even in regional markets, would lead to economic stagnation in Egypt. Even assuming a very favorable rate of industrial development it cannot, moreover, be foreseen that industry alone could absorb the whole increase in the labor force, nor does it seem likely that all those not so absorbed could be usefully employed in ancillary services.

68. Achievement of the longer run objectives in agricultural and industrial development will require very large investments both in human resources and in physical facilities. Industry in particular will require a widespread dissemination of new technical and managerial skills; a good beginning in this direction is now being made.

69. However, Egypt is entering on the coming decades with fewer financial resources than were available even five years ago. The 1955 Economic Report estimated that, over a period of ten years, Egypt could afford to draw down her foreign exchange reserves by borrowing from the National Bank of Egypt about £E 100 million. In fact, in the $4\frac{1}{2}$ years 1955-mid-1959, Egypt's net foreign exchange assets were reduced by £E 158 million. At the same time Egypt has assumed substantial foreign obligations and her capacity to undertake additional borrowing is reduced pro tanto. In short, external resources are not readily in sight, after the completion of the Five-Year Industrial Program and the first stage of the High Dam, further industrial development and the general development of agriculture, communications and power.

70. On the other hand, one purpose of the Five-Year Industrial Program is to replace present and future imports; that contribution to future resource availability cannot be overlooked, but it cannot be reliably quantified at the present time. However, efficient industrial development would strengthen the Egyptian economy and thereby reduce the relative financial burden of construction of the High Dam and related projects.

71. It is clear, nevertheless, that the danger of inflation will be persistent during the coming years. The level of local development expenditures in recent years has, as explained earlier, already been so high that the Government had to resort to inflationary financing of part of the over-all program. In the past internal monetary stability could nevertheless by and large be maintained, due to the offsetting effects of the balance of payments deficit. Now that possibilities to draw down foreign exchange reserves further have been virtually exhausted, any increase in the existing level of local currency expenditures might easily lead to serious inflationary pressures. The balance of payments consequences of inflation would eliminate much of the balance of payments gain from import replacement. And inflation would also impair the prospects for industrial exports, by making it easier for industry to earn paper "profits" and reducing the incentives to careful costing and factory efficiency, and also because exchange rates are usually over-valued during inflation, making export products expensive in foreign markets.

72. The need is therefore greater today than it was in 1955 for that "thorough review of development programs and financial resources / which will have / to be undertaken to show an appropriate balance between the two," to which the 1955 Economic Report drew attention. That Report also noted that "in its desire to move ahead on all fronts, the government had adopted a rather pell-mell approach to development with little consideration for the financial resources likely to be available in the long-run."

Considerable advance has been made in economic planning since those words were written, and the National Planning Committee and its Advisory Committees have been paying considerable attention to estimating probable investment resources and claims, showing real awareness of the dangers of inflation. The over-all Plan is still in process of being drafted, however, and the Mission was not able to appraise it.

73. Assuming that inflation can be avoided, it would seem that Egypt can look forward to a reasonably viable balance of payments position in the future. By 1967, assuming that some 50% of the final benefits of the High Dam project are realized by that time, total foreign exchange receipts may reach something like £E 310 million, compared with £E 251 million during 1958. This assumes little or no increase in earnings from cotton; the potential increase in cotton output, particularly of medium staple varieties, as a result of the High Dam, is likely to be offset by lower prices. By 1967 exports of rice and onions might increase by about £E 10-13 million and, if recent trends give any indication, industrial exports by another £E 10 million. Invisible receipts (excluding Suez Canal dues) may increase by about £E 10 million, but payments should rise by approximately the same amount. Gross foreign exchange receipts from the Suez Canal, which were £E 43 million in 1958, can be tentatively assumed to rise to around £E 65-70 million annually by 1967 (i.e. by some 50% as compared to the 1958 level). However the prospects for future petroleum shipments through the Canal are subject to a number of factors whose effect cannot now accurately be predicted: hence, the above estimate is considered to have a margin of error of the order of 10 to 20%. The increase in Canal receipts is of particular importance since they have no counterpart in increased personal incomes within Egypt but accrued directly to a government agency.

74. The probable level of imports in 1967 will depend in part on the success of Egyptian agriculture and industry in meeting consumer demand, and in part on the proportion of capital equipment imports financed from Egyptian resources and from capital inflow, respectively. Nevertheless, it would seem that the growth in foreign exchange revenues, particularly those from the Suez Canal, could give Egypt a manageable balance of payments position in the future provided domestic monetary stability is maintained.

THE SYRIAN REGION

Introduction

75. The report of a Bank Survey Mission was published in 1955 under the title of The Economic Development of Syria. This chapter briefly summarizes recent developments in the Syrian Region.

Recent Developments

Agriculture

76. The year 1958 was one of poor rainfall and consequent low yields in cereals; wheat production was only 41%, and that of barley 31%, of the 1957 level (see Table 20). In the years 1951 and 1955, similarly, the output per hectare was only about half that of the year before. Cotton is grown largely on irrigated land and is not subject to such wide fluctuations in yield as the cereals. Nevertheless, cotton output in 1958 was 14% lower than in 1957 and about the same as in 1956.

77. These fluctuations in agricultural output, particularly of cereals, have important financial consequences, since cotton, wheat and barley are important exports. Syrian cotton is of the American type; indeed, seed is imported annually from the United States. Syria has therefore not experienced the difficulties that Egypt has encountered in disposing of her longer staple cottons in overseas markets.

Petroleum and Minerals

78. During 1958 the Authorities gave increasing attention to petroleum exploration and exploitation. The five-year Industrialization Plan (mentioned below) earmarks almost 40% of its expenditures for petroleum development, primarily in the Karatchok fields of northeastern Syria, where the U.A.R. General Petroleum Authority plans to drill six wells during the coming year. An American company operating under an exploration concession granted in 1955 had brought in four successful wells, but failed to convert its exploration permits to a development concession; its permits were cancelled in September 1958. A West German firm, Concordia, is now the only foreign company exploring for oil in the Syrian Region.

79. A general geological survey is being undertaken by Soviet technicians under an Agreement for Technical and Economic Aid, entered into in December 1957.

Industry

80. During 1957 and 1958 industry showed few signs of growth. In 1957 a decline was reported in the output of several major industries, such as cement, sugar and glass, and a further fall in cement production occurred

in 1958. Electricity output outside private industry showed a 10% rise in 1957 but fell by 4% in the first nine months of 1958.

Development Activities

81. Investment by the private sector, particularly in agriculture, has been a principal feature of the post-war period and has led to a large growth in agricultural production, notably of wheat and cotton. The cultivated area has more than doubled in the last ten years, while the irrigated area, although still comparatively small, has increased about 130%, principally through expansion of private pumping. The development activities of the Syrian government, while modest, have been increasing.

82. The Bank Survey Mission proposed a development program costing £S 986 million for the period 1955-60. These recommendations formed the basis for a seven-year Extraordinary Budget for Economic Development, voted in August 1955, which contemplated the expenditure of £S 660 million (later raised to £S 686 million) during the period 1955-61. Actual Development Budget expenditures were £S 221 million up to June 30, 1958. Of this amount, £S 103 million was financed from current revenues (principally the oil transit dues assigned to the Development Budget); £S 98 million from domestic borrowing, and £S 20 million from repayments on earlier loans.

83. Not all the projects included under the Development Budget are strictly developmental. A substantial part (£S 68 million) was for projects related to national defense, including construction of military roads. Other outlays included hospital construction, maintenance of museums and historical monuments, the purchase of electric utilities and a railroad, etc. The principal development outlays have been for the Ghab reclamation project, the Port of Latakia, the Agricultural Bank, and some road improvement and irrigation works. The Development Budget has also met some service payments on a loan from Czechoslovakia for an oil refinery, which is not yet on stream.

84. Since the union with Egypt, a ten-year Development Plan for the Syrian Region (totalling £S 2,200 million) was announced in September 1958, and, in addition, an Industrial Development Plan (totalling £S 560 million) in November 1958. The Permanent Economic Council and the Institute for Economic Development, set up in 1955 to control the execution of development projects, were dissolved in February 1959. Major development projects will now be handled by the Ministry of Public Works and other projects turned over to various Syrian Ministries.

85. The major expenditures of the ten-year Development Program are for river development and irrigation, for which budgeted expenditures total £S 1,400 million; the largest single item is the Euphrates Basin project, costing £S 1,100 million to irrigate 800,000 hectares and generate 100,000 KW of electric power. The five-year Industrial Development Plan envisages the expenditure of £S 226 million, or 40% of total expenditures,

for development of the oil industry, the remainder being principally for textile and other manufacturing industries. Included in the ten-year Plan is an Industrial Bank, which has already been established as a joint-stock company guaranteed by the State and supervised by the Ministry of Industry. The share capital of the Bank is £S 12.5 million, of which the Treasury subscribed £S 3.1 million and the Central Bank of Syria £S 1 million; the remainder was offered in January 1959 to private subscription and was taken up immediately. The Treasury guarantees an annual dividend of 5% on the Bank's shares.

86. Partial financing for the 10-year Development Plan has been obtained from the Soviet Union under the Economic and Technical Aid Agreement, concluded in December 1957, which includes a line of credit of £S 535.5 million, equivalent to $150 million, to be drawn against specific purposes or projects. The Development Projects Budget 1959/60 estimates total expenditures at $185.5 million, to be financed partly from revenues of public services and enterprises, partly from drawings on foreign credits and partly through further resort to the banking system (Table 21B).

87. The Mission was not able to appraise these development plans nor any of the major projects included in them.

Government Finance

88. From 1949 through 1955 the Syrian Ordinary Budget consistently showed substantial surpluses; for example, in 1955 the realized surplus was almost 11% of actual revenues. Since 1955 the Ordinary Budget has been in deficit each year and the 1958/59 budget 1/ forecasts a deficit of almost 5% of revenues, after taking credit for a grant of £S 25 million from the Egyptian Region. These deficits have been partly due to growing expenditures on national defense, which amounted to 33% of Ordinary Budget expenditures in 1953, 51% in 1957, and an estimated 51% for 1958/59. The recently published Ordinary Budget for 1959/60 estimates revenues and expenditures to balance at a level some £S 50 million above that of the previous year (see Table 21B).

89. In addition to the Ordinary Budget there are Related Budgets (the General Directorate of Customs, the Tobacco Monopoly, etc.) and Autonomous Budgets (the Postal and Telegraph, the Agricultural Bank, etc.). In 1957 actual expenditures from these budgets were £S 50 million, compared with Ordinary Budget expenditures of £S 387 million, to give total government expenditures outside the Development Budget of £S 437 million.

1/ Up to 1957 the fiscal year coincided with the calendar year. In 1958 the fiscal year was changed July-June to conform to fiscal practice in the Egyptian Region, and two budgets were presented simultaneously, one for the first six months of 1958 and the other for the fiscal year 1958/59.

90. Analysis of the banking statistics indicates that the public sector (including the Development Budget), was in over-all cash surplus during 1955 and in substantial deficit in each of the years 1956, 1957 and 1958 (see Table 22).

Money and Prices

91. These cash deficits were a principal cause of substantial increases in money supply, amounting in 1956 to 21% and in 1957 to 11%. In 1958 the expansionary effect of the deficit was offset by a considerable fall in foreign exchange holdings and a small reduction in credit to the private sector. (See Tables 23, 24 and 25.)

92. The large increase of money supply in 1956 exerted some pressure on prices; wholesale prices increased 5.3%, while the cost of living index rose by 15%. However, increased import duties and other indirect taxes and a rise in the price of commodities sold by government monopolies, such as tobacco, contributed to the price rise in 1956, as did an increase in prices for a number of imported commodities, such as fuel and some manufactured goods. The wholesale price index fell in both 1957 and 1958, while the cost of living index, which rose 9% in 1957, fell 4% in 1958.

93. The Syrian authorities claim that money supply increases have exerted little inflationary pressure, pointing to the fact that price increases as measured by available indices are moderate, that exchange holdings increased in 1956 and that, although they fell in 1957, they were no lower at the end of that year than they were in 1955. However, the fact that imports increased considerably in 1958 despite the loss of incomes resulting from crop failures and the imposition of some import restrictions is evidence of inflationary pressure in that year.

Trade and Payments

94. Exports of cotton, wheat and barley have increased considerably in volume, although there have been substantial variations from year to year, particularly in the cereals, owing to the influence of weather on the crops. (See Table 26.) However, because of the decline in export prices of cotton, the dollar value of exports, as valued by the International Monetary Fund for balance of payments purposes, was virtually stable from 1954 to 1957 at a level of around $160 million. Imports have run consistently higher than exports, the deficit being financed mainly by receipts from oil companies for pipeline transit and by a net surplus on current invisibles. (See Tables 27 and 28.) Between 1954 and 1957 exchange holdings, as reported in "International Financial Statistics" have shown relatively small fluctuations, around US $70 million. In 1958 exports fell, as the result of bad harvests of wheat and barley, and imports increased; there was thus a draw-down of foreign exchange holdings of $24 million, or 35%, the largest loss of exchange experienced in recent years.

95. In 1955, 48% of Syria's exports went to Western Europe including the United Kingdom, 4% to the U.S.A. and 8% to the Soviet Bloc. In 1956 exports to the United Kingdom fell heavily and have not recovered their former importance. In 1958, 26% of exports went to Western Europe, including the United Kingdom, and 31% to the Soviet Bloc. (See Table 29.) Syria has thus experienced the same shift in the direction of her trade as Egypt, although to a lesser extent.

Prospects

96. The immediate outlook will be greatly influenced by the level of agricultural production. Should this not substantially recover from the low level of 1958, the short-term Syrian position will be extremely difficult. 1/ Foreign exchange reserves fell sharply in 1958, and at the end of that year were equal to less than three months imports at the 1958 rate.

97. Even if export volume and earnings recover in 1959, a continuation of the inflationary pressures that were apparent during 1958 might render difficult any restoration of Syria's exchange holdings. These inflationary pressures stemmed principally from the continuous government deficits since 1956. The promulgation of the Ten-Year Development Plan and the Five-Year Industrial Development Plan suggests that the authorities will undertake more public investment in Syria than in the past, including considerable investment in petroleum. It will not be easy to finance expenditures on the scale contemplated in these Plans while devoting about half of budget expenditures to national defense. Until more is known, therefore, of the scale of public investment expenditures actually undertaken and the means of financing them, the short-term outlook for the Syrian Region must be regarded as weak.

98. The Mission was not able to undertake any independent examination of Syria's basic productive potential nor any appraisal of its longer range economic outlook. Observers agree, however, that Syria's natural potential for economic growth is good; the 1955 Survey Mission Report points out especially that in agriculture "potentialities are still large". The irrigated area can be expanded considerably through major projects (e.g. the Euphrates), by smaller projects (e.g. the Sinn) and by well irrigation. Geological exploration is continuing and qualified sources are hopeful that oil production in the Northeast will be increased. The Bank's 1955 Survey Mission suggested that "the period of rapid industrial expansion has come to a close," but that some further increases could still be expected.

1/ Since this was written it is reported that the 1959 cereals harvests in Syria are again bad and that there is a possibility that the U.S. may supply the Syrian Region with wheat and barley under PL-480.

99. Nevertheless, it seems clear that the future rate of expansion of the industrial sector, as indeed the agricultural, will be greatly influenced by government policies regarding private investment and enterprise. The private sector played a very important role in Syria's rapid economic growth over the past decade. If difficulties in financing public investment and balance of payments should lead the authorities to assume increasing direction over private trade and payments, private capital may be less attracted to productive enterprise than formerly.

EXTERNAL DEBT AND CREDITWORTHINESS

External Debt

100. The disbursed and still outstanding external debt of the U.A.R. amounts to about $224 million equivalent. In addition, there are unutilized balances on lines of credit from both Eastern and Western countries amounting to $547 million. The table below summarizes the estimated situation as at December 31, 1958, plus major reported additions through June 5, 1959; a full statement appears in Table 31 in the Statistical Appendix. It should be noted that external debt resulting from certain military credits and service payments on such credits are not included in these tables.

SUMMARY OF EXTERNAL PUBLIC DEBT
AND UNUTILIZED CREDITS OF THE U.A.R. a/

(in millions of US $ equivalent)

	Debt: Disbursed & still outstanding	Credits: still unutilized
Outstanding December 31, 1958	181.8	538.6
Egypt	161.0	398.6
Contractual debt	66.3	5.0
Payments settlements	29.7	-
Credits		
from Western countries	32.8	104.2
from Eastern countries	32.2	289.5
Syria	20.8	140.0
Contractual debt	11.2	-
Credit (from Eastern country)	9.6 b/	140.0 b/
Major Reported Additions c/ Jan. 1 - June 5, 1959:		
Egypt	53.9	8.5
Payments settlement	12.1	-
Credits (from Western countries)	41.9	8.5

a/ Does not include drawings on the International Monetary Fund, U.S. Government loans repayable in local currency, or the debts which are itemized in footnote 1 to Table 31 in Statistical Appendix.

b/ Estimated.

c/ In January 1959, $11.5 million equivalent was paid as instalment on compensation to the former Suez Canal Company.

101. It will be noticed that the external debt of the U.A.R. differs in structure from that of many countries. The amount of bonds outstanding is insignificant. The greater part of contractual debt is for compensation to the former Suez Canal Company and the remainder largely for the supply of equipment for specific projects. Borrowing for general balance of payments purposes has been small and has taken the form of funding excess swings on payments agreements with three countries. There are no suppliers' credits, in the usual sense of that word, outstanding. Finance of the supplier's credit type - for example, for the import of industrial machinery - has been obtained almost wholly through government-to-government lines of credit, some from Western and some from Soviet countries. Use of these lines of credit is being carefully supervised by the authorities and permitted only for purposes which they believe fit in with official development programs. Included under the heading "credits" is one loan for the import requirements for the first stage of the High Dam, construction of which is central in the Government's development plans. So far little has been utilized on these lines of credit.

102. It is difficult to estimate the service payments on this debt in view of the large amount still unutilized. It is not yet known whether the full amount of the lines of credits will in fact be drawn, nor how quickly drawings will be made. For purposes of this report, it has been assumed that the full amount of all credits will be drawn before the closing date, although the Mission received indications that this is in fact unlikely to occur. The table presented below shows, therefore, the maximum service burden that could arise from existing credit arrangements, if presently unutilized balances were drawn in equal annual instalments during the remaining life of the respective credits.

ESTIMATED SERVICE PAYMENTS a/

(in millions of $ equivalent)

	Egypt	Syria	Total
1963			
Convertible currencies	35.6	1.6	37.2
Local currency and goods b/	35.0	15.6	50.6
Total	70.6	17.3	87.8
1967			
Convertible currencies	22.5	-	22.5
Local currency and goods b/	30.2	14.4	44.6
Total	52.7	14.4	67.1

a/ On debt included in Table 31, Statistical Appendix.
b/ i.e. payable in an Egyptian or Syrian Pounds account against which the creditor country can buy goods in the Region concerned.

103. 1963 is the peak year of service both for total service of existing U.A.R. external debt (including unutilized amounts) and for service in the Egyptian Region; the peak year for the Syrian Region is 1962, which slightly exceeds 1963. After 1967 service falls off rapidly in the Egyptian Region and somewhat more slowly in the Syrian Region. (See Table 32.)

Creditworthiness

104. The following discussion assumes that each Region of the U.A.R. will undertake the primary burden of servicing external debt which has been incurred for its benefit. This in effect assumes that it will be some time before there is an identity of monetary and exchange policies and a pooling of exchange reserves between the Regions. However, the possibility that in times of difficulty one Region would assist the other to meet its external obligations is not excluded.

105. The structure of the foreign exchange receipts of the U.A.R. in 1957 is shown in the following table:

FOREIGN EXCHANGE RECEIPTS, 1957

(in millions of $ equivalent)

	Egypt	Syria	Total
Total Current Account Receipts	680	187 a/	867
Exports to Soviet Bloc b/	227	24	251
Balance	453	163	616

a/ "Other services" net.

b/ Available statistics indicate that invisible current receipts from the Soviet bloc are small; the "Balance" therefore approximates current account receipts from the non-Soviet world.

106. Comparing estimated service in 1963 (the peak year) with foreign exchange earnings in 1957 as a starting point, it would appear that the 1963 service is about 10% of foreign exchange earnings for both Egypt and Syria. However, service in "local currency and goods", which is service on debt to the Soviet bloc, expressed as a ratio to exports to the Soviet bloc, considerably exceeds 10% for both Egypt and Syria, while service in convertible currencies is less than 8% of exchange receipts from the non-Soviet world for Egypt and very small for Syria. This suggests that if and when full service becomes payable on credits from the Soviet bloc, some shift in trade and/or payments from the 1957 pattern is likely to take place.

107. Such a shift would not necessarily affect the ability of the U.A.R. or of the Egyptian Region to service external debt payable in convertible currencies, even if the present lines of credit are fully drawn. In the first place, the Soviet bloc credits are intended to be used for productive purposes which would have direct or indirect balance-of-payments effects. The greater part of these credits is for financing of new industry, including petroleum and mining, the development of which would replace some present or future imports. One Soviet credit is for construction of the first stage of the High Dam, without which Egypt's net food imports would probably increase. In the second place, service on the Soviet bloc credits differs in character from that payable in convertible currencies. These credits are serviced by payment of Egyptian or Syrian pounds into non-resident bank accounts, and are available for the purchase of Egyptian or Syrian goods and services, respectively, for export. Such purchases may or may not be made, at the option of the creditor; there is no obligation on the part of the debtor to supply goods at specific dates. Thirdly, the U.A.R. is under no obligation to settle its indebtedness to the Soviet bloc in convertible currencies; the Soviet credit to Syria provides that 40% of service will be made in Sterling, but it has an additional clause that the treatment accorded Syria will be no more burdensome than that given to Egypt, and the Egyptian credits from the Soviet are payable wholly in "local currency and goods". It may be assumed that Syria will take advantage of this escape clause.

108. It would therefore seem that, even if the present lines of credit are fully drawn, the resulting structure of external debt and the burden of service payments would be no more onerous, and in all probability would be less so, than if the debt were payable wholly in non-Soviet bloc currencies. The question therefore becomes whether, on present prospects, the aggregate burden of debt appears to be manageable.

109. In earlier sections of this Report it was concluded that the short-term external position of both Egypt and Syria is likely to be difficult. Foreign exchange reserves in both Regions have fallen to a level that provides little room for a further drawdown. In Egypt the short-run balance of payments prospects, even assuming internal monetary stability, are not bright at the anticipated level of cotton prices and until the benefits anticipated from the first stage of the High Dam and the industrialization drive have been realized. Syria's balance of payments outlook depends on the size of her agricultural production, which in turn is largely dependent on rainfall.

110. In both Regions, moreover, inflationary dangers are likely to be persistent. Although recent fiscal policies in Egypt, on balance, have had a favorable influence on the monetary position, it will be difficult for Egypt to finance from her own resources any substantial addition to development expenditures. In the Syrian Region the existing inflationary pressures may be aggravated if public investment is carried out on the scale now envisaged, without compensating reductions in other fields.

111. The U.A.R. authorities must therefore take extreme care in the management of internal and external finances and with regard to the assumption of any additional foreign obligations requiring service payments during the next five years or so, particularly since service payments on existing external public debt (including military debt not shown in Tables 31 and 32) would be heavy during this period if existing credits are fully utilized.

112. Longer term balance of payments prospects appear reasonably favorable. Egypt's foreign exchange receipts, as pointed out earlier, are likely to increase, perhaps in the order of magnitude of 25% over the next eight years or so if agricultural and industrial development give good results. Egypt's longer run balance of payments should thus provide room to assume some additional foreign debt provided that undue expenditures for non-economic purposes are avoided and that the Authorities continue to handle the difficult technical and financial problems confronting them with prudence and skill, and that political conditions remain stable. The same general conclusion applies to the Syrian Region.

Annex

THE ECONOMIC DEVELOPMENT ORGANIZATION

A presidential decree was issued on January 13, 1957 establishing the Economic Development Organization (E.D.O). The E.D.O. was created initially to consolidate most existing government investments in one entity. Later, it also took over the French and British companies which were "Egyptianized" in 1956. The activities of the Organization so far are limited to the Egyptian Region.

One of the objectives of the E.D.O., as described in Law 20, 1957, is to take part in directing and utilizing public funds for economic development projects. It is therefore empowered to found commercial, financial, industrial, agricultural and real estate companies; to increase or decrease its investment in various enterprises; to own companies' shares and bonds; to contract loans from the government or banks, or from foreign governments or institutions, or from international institutions; and to issue its own bonds. The shares of the companies founded by the E.D.O. are intended to be negotiable, but according to information given to the Bank mission, none have yet been offered for sale. The E.D.O. is entitled to purchase on the market part or all of the equity capital of any company in which it wishes to participate.

The Board of Directors is appointed by the President. Only Egyptians by birth, who have no interest in companies in which E.D.O. has invested or participated, are qualified for membership of the Board. Decisions of the Board are submitted to the President for approval, who has the right to cancel or amend them. The President of the Republic also approves the annual accounts of the E.D.O. (financial year, January 1-December 31). The net profits are to be transferred to the State Treasury after allocating appropriate reserves for the Organization.

The E.D.O. is entitled to be represented on the board of a company in proportion to its ownership of that company's equity. It is authorized to have one seat on the board of a company in which it holds at least 5% of the equity. If its equity holding is 25% or more it has the right to appoint the chairman, the managing director and the general manager of that company. The E.D.O. also has the right to request reconsideration of any decision taken by the Board of Directors or General Assembly of such companies.

As of April 1959 the E.D.O.'s investments totalled a little over LE 53 million in some 51 companies. It has also given credit of about LE 9 million to various companies (details not available). Of its total investment, some 20% was in banks or insurance companies, 18% in metal and engineering industries, 10% in mining companies, 6% in textile industries, 18% in chemical industries, and 10% in trade and transportation companies and 18% in other industries. Thus E.D.O. has a substantial control over banks, insurance companies, several mineral resources companies and an important assortment of industrial enterprises (see attachment for details).

INVESTMENT OF ECONOMIC DEVELOPMENT ORGANIZATION IN EGYPTIAN ENTERPRISES

As of March, 1959

		Share Capital LE '000	E.D.O. Ownership LE '000	Percentage
I.	Banks and Insurance Companies			
1.	Bank of Alexandria	1,000	1,000.0	100.0
2.	Banque du Caire	1,000	499.4	45.4
3.	Bank al Goumhouriah	1,000	252.0	25.2
4.	Banque de l'Union Commerciale	500	125.5	25.1
5.	The Industrial Bank	1,500	768.0	51.2
6.	Le Credit Agricole et Cooperatif	1,500	750.0	50.0
7.	Le Credit Hypothecaire	1,500	1,500.0	100.0
8.	Le Credit Foncier Egyptien	8,000	4,752.0	59.4
9.	La Societe Unie pour les Assurances	200	200.0	100.0
10.	La Societe "Al Chark" pour les Assurances	300	258.9	86.3
11.	The National Insurance Co. of Egypt	161	106.1	65.9
12.	Misr Insurance Co.	500	145.0	29.0
13.	The Cairo Insurance Company	400	100.0	25.0
	Sub-total	17,561	10,456.9	59.5
II.	Minerals			
14.	The General Petroleum Company	3,000	3,000.0	100.0
15.	Societe Egyptienne pour Raffinage et le Commerce du Petrole	1,500	741.0	49.4
16.	The Sinai Manganese Company	400	400.0	100.0
17.	The Safaga Phosphate Company	100	100.0	100.0
18.	Societe Generale d'Ilmenite	500	500.0	100.0
19.	Mineral Wealth Company	700	435.6	62.23
20.	The Associated Mines Company	250	217.5	87.0
21.	The Egyptian Black Sands Company	180	45.0	25.0
	Sub-total	6,630	5,439.1	82.0
III.	Metal and Engineering Industries			
22.	The Egyptian Iron & Steel Company	19,000	8,493.0	44.7
23.	Societe Generale Egyptienne de Materiel de Chemins de Fer "SEMAF"	500	383.5	76.7
24.	Electro Cable Egypte	600	312.0	52.0
25.	The Smelting Company	250	247.0	98.8
26.	The Egyptian Copper Works	800	96.0	12.0
	Sub-total	21,150	9,531.5	45.1

	Share Capital LE '000	E.D.O.'s Ownership LE '000	Percentage
IV. Chemical Industries			
27. The Egyptian Chemical Industries Co. "KIMA"	16,000	6,600.0	41.25
28. Societe Generale de l'Industrie du Papier	1,195	491.1	41.1
29. The Transport and Engineering Company	2,000	500.0	25.0
30. The Portland Cement Co. - Helwan	1,650	960.5	58.21
31. The National Cement Production Co.	2,000	224.0	11.2
32. Societe Generale pour les Produits de Ceramique et de Porcelaines	1,000	326.0	32.6
33. Industrial Gases Co.	300	300.0	100.0
Sub-total	24,145	9,401.6	38.8
V. Textile Industries			
34. The Nile Fine Spinners	1,250	1,097.5	87.8
35. Societe Egyptienne de Filature et Tissage en Laine "Poletex"	600	376.2	62.7
36. Societe Egyptienne pour les Industries Textiles	500	250.0	50.0
37. The Nile Textile Company	800	336.0	42.0
38. The Beida Dyers	1,000	333.0	33.3
39. Societe Egyptienne de Teinture et d'Apprets	165	14.4	8.7
40. The General Jute Products Co.	3,000	750.0	25.0
Sub-total	7,315	3,157.1	28.1
VI. Trade and Transportation			
41. The Misr Foreign Trade Co.	500	275.0	55.0
42. The General Interior Trade Co.	500	375.0	75.0
43. The Tractor and Engineering Co.	1,000	596.0	59.6
44. The General Company for Pharmaceuticals	500	500.0	100.0
45. Societe Generale pour la Navigation Maritime	3,000	3,000.0	100.0
46. Misrair (Egyptian Airlines)	1,350	689.8	51.85
47. Bassili Timber Company	500	118.5	23.7
Sub-total	7,350	5,554.3	75.5
VII. Other Industries			
48. Societe des Sucreries et des Distilleries d'Egypte	12,000	6,120.0	51.0
49. The Eastern (Tobacco) Company	4,000	3,272.0	81.8
50. Societe pour la Construction et les Habitations Populaires	500	100.0	20.0
51. Societe Egyptienne pour l'Aliment	400	110.0	27.5
Sub-total	16,900	9,602.0	56.6
GRAND TOTAL	101,051	53,142.5	52.6

SOURCE: The Economic Development Organization, Cairo.

STATISTICAL APPENDIX

THE EGYPTIAN REGION

THE SYRIAN REGION

THE UNITED ARAB REPUBLIC

Egyptian Region:

TABLE 1: DIRECTION AND BALANCE OF TRADE
(£E million)

Area and Principal Countries	1954			1955			1956			1957			1958		
	Imports	Exports	Balance	Imports	Exports	Balance	Imports	Exports	Balance	Imports	Exports	Balance	Imports	Exports	Balance
EASTERN COUNTRIES															
U.S.S.R.	2.3	1.9	- 0.4	2.3	7.0	+ 4.7	7.9	5.6	- 2.3	18.6	31.3	+ 12.7	31.6	27.3	- 4.3
Czechoslovakia	2.7	6.0	+ 3.3	3.7	8.8	+ 5.1	3.8	20.8	+ 17.0	6.3	14.6	+ 8.3	11.3	11.5	+ 0.2
China	0.3	4.0	+ 3.7	0.3	8.5	+ 8.2	3.9	8.4	+ 4.5	7.2	14.7	+ 7.5	11.2	11.6	+ 0.5
E. Germany	0.5	0.7	+ 0.2	0.9	1.4	+ 0.5	2.9	3.4	+ 0.5	6.5	6.9	+ 0.4	8.8	7.4	- 1.4
Poland	0.5	2.4	+ 1.9	0.5	2.9	+ 2.4	1.0	3.9	+ 2.9	2.8	6.9	+ 4.1	3.3	4.5	+ 1.2
Rumania	1.7	2.7	+ 1.0	3.9	4.0	+ 0.1	5.0	3.3	- 1.7	2.0	3.3	+ 1.3	3.8	3.8	-
Hungary	1.3	1.8	+ 0.5	0.7	4.2	+ 3.5	1.6	1.7	+ 0.1	2.3	1.1	- 1.2	3.2	3.3	+ 0.2
Others	.1	.1	-	-	-	-	.6	1.5	+ 0.9	1.0	0.3	- 0.7	1.8	1.0	- 0.8
TOTAL	9.4	19.6	+ 10.2	12.3	36.8	+ 24.5	26.7	48.6	+ 21.9	46.7	79.1	+ 32.4	74.8	70.4	- 4.4
WESTERN AND SOUTHERN EUROPE															
United Kingdom	20.9	14.5	- 6.4	23.6	8.0	- 15.6	21.9	4.9	- 17.0	2.7	0.1	- 2.6	17.4	5.8	- 11.6
West Germany	17.9	11.5	- 6.4	19.2	8.0	- 11.2	21.0	6.8	- 14.2	18.1	5.6	- 12.5	19.9	2.3	- 17.6
Italy	12.6	10.5	- 2.1	14.9	7.5	- 7.4	11.9	8.2	- 3.7	13.7	6.3	- 7.4	4.0	4.6	+ 0.6
France	16.2	15.9	- 0.3	15.9	12.1	- 3.8	9.6	10.3	+ 0.7	2.1	3.2	+ 1.1	4.9	4.4	- 0.5
Belgium	5.1	2.5	- 2.6	4.9	2.1	- 2.8	5.1	1.4	- 3.7	5.6	5.5	- 0.1	3.4	2.2	- 1.2
Switzerland	4.8	4.3	- 0.5	7.2	5.5	- 1.7	5.3	3.9	- 1.4	5.1	4.8	- 0.3	12.4	14.4	+ 2.0
Netherlands	5.1	3.1	- 2.0	5.8	3.3	- 2.5	4.9	3.4	- 1.5	7.1	3.7	- 3.4	5.7	2.2	- 3.5
Spain	0.3	3.3	+ 3.0	0.3	1.9	+ 1.6	0.3	0.4	+ 0.1	0.8	1.8	+ 1.0	7.6	5.6	- 2.1
Austria	2.7	2.5	- 0.2	2.6	2.9	+ 0.3	2.5	2.3	- 0.2	4.4	3.9	- 0.5	3.3	3.6	+ 0.3
Finland	3.3	0.6	- 2.7	3.7	0.9	- 2.8	2.3	0.6	- 1.7	2.8	1.0	- 1.8	2.9	1.3	- 1.6
Sweden	5.0	0.5	- 4.5	5.5	0.5	- 5.0	3.1	0.5	- 2.6	1.8	0.4	- 1.4	1.6	0.2	- 1.4
Others	7.7	1.7	- 6.0	5.9	1.3	- 4.6	5.3	1.8	- 3.5	6.0	2.7	- 3.3	3.2	1.5	- 1.7
TOTAL	101.6	70.9	- 30.7	109.5	54.0	- 55.5	93.2	44.5	- 48.7	70.2	39.0	- 31.2	86.4	47.8	- 38.6
ARAB COUNTRIES															
Sudan	3.1	5.6	+ 2.5	4.3	7.6	+ 3.3	4.7	9.4	+ 4.7	4.9	7.5	+ 2.6	4.1	4.4	+ 0.4
Saudi Arabia	5.6	1.8	- 3.8	5.2	2.2	- 3.0	4.1	1.8	- 2.3	6.0	3.4	- 2.6	2.4	3.3	+ 0.9
Lebanon	0.9	1.6	+ 0.7	1.3	1.5	+ 0.2	0.8	2.0	+ 1.2	2.1	3.6	+ 1.5	1.9	2.3	+ 0.4
Syria	0.7	0.9	+ 0.2	0.9	1.0	+ 0.1	1.4	1.3	- 0.1	3.5	1.4	- 2.1	4.8	3.8	- 1.0
Others	0.9	1.3	+ 0.4	0.9	1.7	+ 0.8	0.7	2.1	+ 1.4	1.3	2.3	+ 1.0	3.0	3.5	+ 0.6
TOTAL	11.2	11.2	-	12.6	14.0	+ 1.4	11.7	16.6	+ 4.9	17.8	18.2	+ 0.4	16.2	17.3	+ 1.2
WESTERN HEMISPHERE															
U.S.A.	17.8	6.6	- 11.2	21.8	9.0	- 12.8	25.0	4.7	- 20.3	16.4	7.8	- 8.6	13.4	3.0	- 10.4
Others	3.5	1.9	- 1.6	1.2	0.2	- 1.0	2.7	0.1	- 2.6	3.1	0.2	- 2.9	0.3	0.1	- 0.2
TOTAL	21.3	8.5	- 12.8	23.0	9.2	- 13.8	27.7	4.8	- 22.9	19.5	8.0	- 11.5	13.7	3.1	- 10.6
OTHER COUNTRIES															
Japan	2.0	6.8	+ 4.8	4.7	8.3	+ 3.6	3.7	10.6	+ 6.9	7.3	10.4	+ 3.1	4.3	8.4	+ 4.1
India	4.0	18.3	+ 14.3	7.3	12.9	+ 5.6	7.0	8.9	+ 1.9	8.3	7.5	- 0.8	8.5	4.9	- 3.6
Ceylon	6.5	0.5	- 6.0	6.4	0.4	- 6.0	2.9	0.4	- 2.5	2.5	0.5	- 2.0	1.8	1.3	- 0.5
Yugoslavia	0.7	1.1	+ 0.4	1.0	1.6	+ 0.6	0.7	1.4	+ 0.7	3.8	3.3	- 0.5	6.0	3.1	- 2.9
Others	8.8	7.1	- 1.7	10.4	8.6	- 1.8	12.4	6.6	- 5.8	6.7	4.2	- 2.5	4.6	4.7	+ 0.1
TOTAL	22.0	33.8	+ 11.8	29.8	31.8	+ 2.0	26.7	27.9	+ 1.2	28.6	25.9	- 2.7	25.2	22.4	- 2.8
GRAND TOTAL	165.5	144.0	- 21.5	187.2	145.8	- 41.4	186.0	142.4	- 43.6	182.8	170.2	- 12.6	216.3	161.0	- 55.3

NOTE: 1) Export figures include re-exports.
2) Imported gold for monetary purposes has been excluded.

SOURCE: Bureau of the Census and Statistics, Egyptian Region.

Egyptian Region

Table 2: MAIN ARTICLES OF IMPORT

(LE million)

	1954	1955	1956	1957	1958
Wheat and wheat flour	2.2	0.3	8.2	21.7	24.2
Maize	-	-	2.1	1.8	1.2
Fruits and vegetables	3.6	4.1	4.2	4.0	2.0
Meat, fish and products	0.9	1.3	1.9	2.4	1.6
Vegetable and animal oils & fats	-	-	4.2	6.3	4.8
Tea and coffee	10.0	11.0	7.9	8.3	9.9
Tobacco in leaves	4.7	4.8	5.1	5.5	5.4
Pharmaceuticals	5.2	5.7	4.7	5.2	8.2
Crude oil and petroleum prod.	18.0	17.0	18.0	10.9	30.9
Fetilizer	11.2	9.5	8.0	13.3	15.3
Iron and steel wares	8.8	12.6	16.1	10.7	13.2
Timber for construction	7.1	8.4	5.5	6.7	9.0
Jute sacks	1.8	3.4	3.0	3.7	2.8
Cardboard and paper	4.5	4.8	4.8	5.6	7.5
Machinery and parts	9.4	16.3	15.6	8.0	21.5
Vehicles, parts and accessories	6.1	10.6	8.8	5.5	7.0
Wool, raw	2.2	2.0	1.9	3.3	3.9
Wool fabrics	1.8	1.9	1.2	0.3	0.3
	97.5	113.7	121.2	125.2	168.7
Total imports	165.5	187.2	186.0	182.8	216.3

Source: National Bank of Egypt Bulletin, 1958, Cairo.

Egyptian Region

Table 3: MAIN ARTICLES OF EXPORT

(LE million)

	1954	1955	1956	1957	1958
Cotton	113.1	107.4	98.9	124.7	109.9
Cotton yarn	4.4	4.4	4.5	5.8	7.1
Cotton piece goods	1.0	1.0	3.6	3.6	4.5
Onions	2.3	2.6	4.7	3.4	4.0
Rice	2.6	7.3	8.9	11.7	13.5
Groundnuts	-	-	0.7	0.7	1.0
Sugar and molasses	-	-	0.7	1.3	1.9
Artificial silk fabrics	-	-	3.4	2.3	1.4
Others	4.9	15.7	7.5	18.1	20.5
Total exports	138.3	138.4	132.9	171.6	163.8

Note: In some years totals do not fully check with the total exports shown in Table 1. The latter were supplied by the Bureau of the Census and Statistics.

Source: N.B.E. Bulletin, 1958, Cairo.

Egyptian Region

Table 4: BALANCE OF PAYMENTS ESTIMATES

(£E million)

CURRENT TRANSATIONS	1954	1955	1956	1957	1958
RECEIPTS:					
Proceeds of exports	139.8	133.1	129.9	166.0	151.3
Transit trade	4.4	6.0	2.6	1.0	2.0
Insurance a/	0.5	0.4	0.4	0.1	-
Shipping	7.1	9.1	8.7	7.4	12.9
Suez Canal dues	30.6	31.8	29.3	24.3	43.0
Interest, div. & other revenues	5.0	7.3	5.6	4.8	5.0
Travel maintenance	1.7	1.5	1.9	1.4	0.7
Other receipts	33.1	38.1	40.4 b/	32.2	36.0
Total	222.2	227.3	218.8	237.2	250.9
DISBURSEMENTS:					
Payments for imports	150.7	190.3	192.3	217.5	207.2
Transit trade	5.2	3.6	3.7	1.1	1.6
Films	0.3	0.3	0.3	0.2	-
Other commercial payments	2.4	2.5	2.9	2.7	-
Insurance a/	1.0	1.0	0.6	0.3	10.8
Shipping	6.8	9.3	8.8	9.1	-
Interest, div. & other revenues	18.1	17.1	10.7	2.9	2.2
Travel	11.2	8.3	6.1	7.7)	2.6
Maintenance	1.8	1.9	1.9	1.2)	
Egyptian Government expenditures	9.4	11.0	12.9	16.9	22.4
Other disbursements	11.7	16.0 b/	11.6	8.8	16.1 c/
Total	218.6	261.3	251.8	268.4	262.9
Balance of current transactions	+ 3.6	- 34.0	- 33.0	- 31.2	- 12.0
CAPITAL REMITTANCES					
Inflow	2.6	4.8	3.5	1.3	3.4
Outflow (private)	2.9	2.6	3.2	2.5	- 1.8
Net inflow or outflow	- 0.3	+ 2.2	+ 0.3	- 1.2	+ 1.6
Donations	-	-	+ 1.7	+ 1.1	-
Overall surplus or deficit	+ 3.3	- 31.8	- 31.0	- 31.3	- 10.4
Accounted for as follows:					
Changes in sterling balances	- 2.2	- 34.9	- 37.7	- 19.2)	
Changes in other foreign exchange holdings	+ 9.1	+ 2.6	- 0.6	- 13.9)	- 15.7
Changes in N/R bankers a/cs (inc., -)	- 2.6	+ 0.7	+ 2.1	- 6.1)	
Changes in other N/R a/cs & other liabilities (dec., +)	- 1.2	+ 0.2	- 0.5	- 5.3)	+ 6.2
Use of IMF resources	-	-	- 5.2	- 5.2	-
Monetary gold	-	-	+ 5.0	-	- 5.0
Claims in respect of Suez Canal Dues	-	-	+ 5.4	-	-
Liabilities to the Sudan:					
Reduction in Egyptian pounds				+ 28.9	-
Increase in foreign currencies				- 9.4	-
Errors & omissions	+ 0.2	- 0.4	+ 0.5	- 1.1	+ 4.1
Total	+ 3.3	- 31.8	- 31.0	- 31.3	- 10.4

a/ Other than on imports or exports.
b/ Including unallocated items.
c/ Including some items separately mentioned in previous years.
Source: N.B.E. Economic Bulletins.

Table 5: NET FOREIGN ASSETS

(Securities at nominal value)

£E million (converted at official exchange rates)

End of:	£ No. 1	£ No. 2	US $	Other currencies	Gold	Total	Balance of Payments Agreements against Egypt	Balance of Payments Agreements in favor of E.	Balance of Payments Agreements Net	Total net foreign assets
1954	34.7	146.2	13.3	14.8	60.6	269.6	16.1	4.8	- 11.3	258.3
1955 March	52.5	131.1	15.4	14.9	60.6	274.5	18.3	9.3	- 9.0	265.5
June	49.1	129.8	13.9	15.6	60.6	269.0	24.8	9.7	- 15.1	253.9
September	37.1	125.0	18.3	11.3	60.6	252.3	26.1	8.3	- 17.8	234.5
December	20.8	124.9	21.3	9.7	60.6	237.3	19.5	10.4	- 9.1	228.2
1956 March	28.6	102.1	24.9	11.1	60.6	227.3	18.2	10.3	- 7.9	219.4
June	21.6	101.4	22.0	7.8	60.6	213.4	17.5	12.8	- 4.7	208.7
September	9.3	100.5	20.3	20.5	60.6	211.2	20.5	13.9	- 6.6	204.6
December	7.1	100.3	20.9	16.5	65.6	210.4	23.8	13.8	- 10.0	200.4
1957 March	26.0	80.7	23.6	18.6	65.6	214.5	26.2	18.2	- 8.0	206.5
June	28.0	66.1	22.2	24.5	65.6	206.4	35.1	19.4	- 15.7	190.7
September	27.3	66.1	21.5	26.4	65.6	206.9	60.4	18.0	- 42.4	164.5
December	27.1	61.3	15.8	18.6	65.6	188.4	54.6	16.8	- 37.8	150.6
1958 March	45.5	41.8	12.9	16.2	65.6	182.0	46.9	9.4	- 37.5	144.5
June	45.6	41.8	6.2	16.2	60.9	170.7	39.5 a/	10.5	- 29.0	141.7
September	44.0	41.8	4.6	12.6	60.6	163.6	49.1 a/	14.6	- 34.5	129.1
December	44.5	41.8	4.2	10.4	60.6	161.5	56.8 a/	16.7	- 40.1	121.4
1959 March	53.4	22.3	1.1	2.1	60.6	139.5	48.4 a/	7.4	- 41.0	98.5
June	49.5	22.3	1.8	2.4	60.6	136.6	51.8 a/	14.9	- 36.9	99.7

a/ Between March and May the outstanding balances against Egypt on the payment agreement accounts with West Germany and Greece of respectively £E 4.4 million and £E 5.9 million were funded. They are therefore included in the figures on the Egyptian region's external debt and should in order to avoid double counting be deducted in this table as short term foreign liabilities although the NBE still counts them as such. For this reason the relevant NBE figures as from June 1958 have been reduced by £E 10.3 million.

Source: Information provided by NBE and — for payments agreements — balance sheets NBE as published in NBE Economic Bulletins.

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Table 6: COMPARISON OF SUPPORT, ALEXANDRIA SPOT MARKET AND WORLD MARKET PRICES FOR KARNAK G/FG

	E.C.C. Support price		Alexandria Spot price		Liverpool price ¢ per lb.		Discount[b] needed to meet world market price (4)-(6) x 100 / (4)
	Tallaris per cantar	¢ per lb.	Tallaris per cantar	¢ per lb.	c.i.f. F/G	adjusted[a]	
	(1)	(2)	(3)	(4)	(5)	(6)	
1955/56	69.00	39.63	97.34	55.91	64.65	56.4	-
1956/57 Jan	104.325	59.92	125.02	71.81	81.98	72.1	-
June	104.325	59.92	110.01	63.18	60.48	52.6	16.7%
1957/58 Jan	76.00	43.65	83.94	48.22	51.99	44.8	7.1%
April	76.00	43.65	76.28	43.81	45.16	38.6	11.9%
July	76.00	43.65	75.05	43.11	43.03	36.7	14.9%
1958/59 Oct.	69.00	39.63	70.50	40.50	36.41	30.7	24.2%
Feb.	69.00	39.63	72.04	41.40	32.97	27.5	33.6%
March	69.00	39.63	69.98	40.20	31.95	26.6	33.8%
May	69.00	39.63	70.00	40.21	36.22	30.5	24.1%
1959/60 Sept.	69.00	39.63	70.60	40.52	37.50	31.8	21.5%

Note: 1 tallaris = LE 0.2
1 cantar = approx. 100 lbs. of lint cotton

a/ Adjusted for approximate price differential between Good/Fully Good and Fully Good (the latter being some 8-10% above the G/FG level) and for the price differential between f.o.b. Alexandria and c.i.f. Liverpool (2.5-3¢ per pound).

b/ In March 1957 the first official premium on foreign exchange acquired from the export of cotton was granted averaging about 15% and thus allowing cotton exporters to give up to 13% discount on their prices. The premium has since varied frequently (see Table 7).

Source: Compiled from data from "The United Arab Republic Cotton Statistics", Cairo 1959, and data supplied by Egyptian Cotton Commission.

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Table 7: PREMIUM AND DISCOUNT ON COTTON SALES OUTSIDE SOVIET BLOC

	Premium	Discount
March-May 1957	15% a/	13%
May-August 1957	20% b/	17%
September-October 1957	10% c/	9%
November-December 1957	5% c/	5%
January-March 1, 1958	-	-
March 1-March 9, 1958 d/	30%	23%
March 10-June 6, 1958	26.5%	21%
June 6-August 1958	25%	20%
September 1958-April 21, 1959	17.6%	15%
April 21-May 10, 1959	53.8%	35%
May 10, 1959-May 30, 1959	48.2%	32.5%
May 30-August 23, 1959	42.8-53.8%	30-35% e/
August 24-August 30, 1959	40.8%	29%
August 31, 1959-present	29.9%	23%

Note: At times the premium also applied to other exports.

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a/ 7% for Indian Rupees; 10% for Italian Lire; 15% for Deutsche Marks; 20% for U.S. and Canadian Dollars.

b/ 15% for Indian Rupees; 20% for EPU currencies; 25% for U.S. and Canadian Dollars.

c/ With possibility of somewhat higher premium for dollar sales.

d/ At this stage a premium on payments was introduced of 30%, changed to 27% on March 10, 1958, to 17.6% on September 2, 1958, and to 27.5% on April 21, 1959; the latter rate is still valid.

e/ Between the end of May and August 23, 1959, the discount on cotton sales, 1958/59 crops, went down gradually from 35 to 30% (the premium therefore from 53.8-42.8%) whereas the discount on cotton sales, 1959/60 crop, remained steady at 30% (premium 42.8%).

Source: Information obtained from National Bank of Egypt.

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Table 8: DIRECTION OF EXPORTS OF COTTON

(Quantities in 1000 Cantars, value in LE thousands)

		Total	Soviet bloc	Other
1955	Quantity	6,182	1,942	4,240
	% of total	100	31.4	68.6
	Value	107,436	32,949	74,487
	% of total	100	30.7	69.3
1956	Quantity	5,229	2,181	3,048
	% of total	100	41.7	58.3
	Value	98,399	42,690	55,709
	% of total	100	43.4	56.6
1957	Quantity	5,878	3,384	2,494
	% of total	100	57.6	42.4
	Value	124,156	71,747	52,409
	% of total	100	57.8	42.2
1958	Quantity	6,264	3,986	2,278
	% of total	100	63.6	36.4
	Value	109,947	69,002	40,945
	% of total	100	62.8	37.2
1958-1959 1/	Quantity	6,300	4,050	2,250
	% of total	100	64.3	35.7
	Value	101,782	66,055	35,727
	% of total	100	64.9	35.1

1/ Cotton season, starting September 1, 1958 ending August 31, 1959.

Source: Compiled from data supplied by NBE.

Table 9: ESTIMATED CASH DEFICIT OF TREASURY
(LE million)

	End of:						
	Dec '54	June '55	June '56	June '57	June '58	Dec '58	June '59
Assets							
Govt. deposits NBE and commercial banks	16.7	38.6	18.1	15.2	22.3	36.9*/	19.5**/
Liabilities							
Treasury bills a/	38.0	55.0	97.0	147.0	150.0	160.0	165.0
Loans b/	123.0	148.0 c/	158.0 d/	158.0	158.0	162.0 e/	182.0 e/
Total liabilities	161.0	203.0	255.0	305.0	308.0	322.0	347.0
Increase (+) or decrease (-) in net liabilities		- 20.1	- 72.5	- 52.9	+ 4.1	+ 0.6	- 42.4
Adjustment for issue Agricultural Credit Bank bonds f/				- 20.0			
Approximate adjustment for changes in Government holdings of own bonds (increase +) g/		n.a.	+ 14.0	- 10.0	+ 10.7	-	+ 10.0
Estimated overall cash deficit		- 20.1	- 58.5	- 82.9	+ 14.8	+ 0.6	- 32.4

*/ December 25 for NBE; December 31 for commercial banks.
**/ July 2 for NBE; June 30 for commercial banks.

a/ Exclusive of bills issued as note issue cover (Law 57/1951) liquidated in May 1955 (Law 242/1955).

b/ Exclusive of Agrarian Reform bonds (Law No. 330/1952).

c/ Issue of LE25 million Development bonds (LE5 million, 2½% 1959/60; LE10 million, 3% 1964/65; LE10 million 3½% 1969/70) in January 1955.

d/ Issue of LE25 million Development bonds (LE5 million, 2½% 1961 and LE20 million, 3½% 1971/73) and redemption of LE15 million cotton loan 3½% 1954/55) in April 1956

e/ Issue of LE15 million Development bonds 3%, 1965/68 and redemption LE11 million National Loan 2.3/4% 1955/58 in December 1958. Early in 1959 another development loan was issued of LE25 million; at the same time LE5 million 2½% Development Loan 1959/60 was redeemed.

f/ Relates to the issue of a LE20 million loan by the Agricultural Credit Bank, which was taken up entirely by the National Bank under Government guarantee in February 1957.

g/ Figures of government holdings of its own bonds are only available for the end of the year, (see Table 19). It has been assumed for calculation purposes that changes in these holdings took place before the middle of the year concerned.

Source: Compiled from data published in the Economic Bulletin of the NBE, and other information obtained from the NBE.

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Table 10.4: CLASSIFICATION OF ORDINARY BUDGET RECEIPTS AND EXPENDITURES 1955/56 AND 1957/58 [a]

(LE millions)

	Actual 1955/56	% of total	budget 1957/58	% of total
Revenues				
Direct taxes	40.7	15.2	52.3	17.4
of which:				
Land and building taxes	15.4		23.8	
Labour earnings and general income tax [b]	22.4		26.3	
Excess profits tax	1.3		0.1	
Indirect taxes	108.0	40.4	115.1	38.3
of which:				
Customs & excise duties	103.0		108.0	
Tax on transfer of real property	4.1		5.5	
Duties and fees	24.1	9.0	27.3	9.1
of which:				
Stamp duty	6.3		8.0	
Legal and registration duty [c]	3.5		4.0	
State enterprises	57.9	21.6	74.8	24.9
of which:				
State railways	18.7		21.5	
Industries	16.4		25.3 [d]	
Telecommunications	5.6		6.0	
State domain	2.2		2.5	
Ports	2.1		2.4	
Natural resources	2.9		3.3	
Income from sales of supplies	8.8		12.0	
Share in profit of various companies	1.2		1.8	
Others	36.9	13.8	31.1	10.3
of which:				
Proceeds of confiscated properties	-		6.0	
Total	267.5	100.0	300.5	100.0

	Actual 1955/56	% of total	Budget 1957/58	% of total
Expenditures				
Finance and Economics	10.7	3.9)	21.9	7.8
Commerce & Industry[e/]	7.5	2.7)		
Public Works	11.9	4.3	8.1	2.9
Agriculture	4.6	1.7	4.3	1.5
Communications[e/]	23.4	8.5	31.7	11.2
Sub-total	58.1	21.1	66.0	23.4
Education	32.3	11.7	38.6	13.7
Public Health	8.1	2.9	9.7	3.4
Social Affairs & Labor	3.6	1.3	3.0	1.1
Pensions	10.7	3.9	11.6	4.1
High Cost of Living Bonus	29.2	10.6	24.8	8.8
Subsidies towards cost of living	6.3	2.3	2.1	0.8
Sub-total	90.2	32.7	89.8	31.9
War[e/]	85.4	31.0	71.9	25.5
Sub-total	85.4	31.0	71.9	25.5
Foreign Affairs	1.6	0.6	2.1	0.8
Justice	3.5	1.3	3.9	1.4
Municipal Affairs	8.1	2.9	10.0	3.5
Interior	11.1	4.0	12.8	4.5
Public Debt	6.6	2.4	8.0	2.8
Others[f/]	10.9	4.0	17.4	6.2
Sub-total	41.8	15.2	54.2	19.2
General Total	275.6	100.0	281.8[g/]	100.0

Note: Totals may not add exactly due to rounding

a/ This table aims at providing some insight into the structure of Egypt's ordinary budget. The year 1955/56 is the last year for which more detailed actual figures are available; the year 1957/58 is the last year for which an independent Egyptian budget was made. The current (1958/59) budget includes a substantial contribution to the Central UAR budget and also contains some structural changes, in particular the omission of expenditures and revenues from the State Railways and the General Petroleum Authority, for which autonomous budgets have been established. Excluding these revenues and expenditures the 1958/59 budget balances at LE 280.7. On the expenditure side this figure includes a contribution of LE 9.25 million to the Development Projects budget and an allocation of LE 71.4 million to the Central UAR budget. The latter contribution has been offset by transfering the expenditures of the Ministry of Foreign Affairs, the Ministry of War (apart from some 20% of internal Egyptian expenses for purposes such as meteorological service, coast and customs guards, etc.) and smaller items such as the Presidency and the National Assembly to the Central UAR budget.

b/ Includes an unknown, probably small, amount of taxation on movable properties.

c/ Revenues from the Railways, government industries, telecommunications and possibly also from natural resources and ports, are gross earnings. In order to obtain an impression of the net contribution of these items to the budget the relevant items on the expenditure side have to be deducted (see footnote e/)

d/ Including LE 15 millions gross earnings from General Petroleum Authority.

e/ Under the Ministry of Industry the expenditures of the General Petroleum Authority (LE 9.3 million in 1957/58) and of the Gas & Electricity Administration of Cairo (LE 6.2 million in 1957/58) are included. Under the Ministry of Communications the expenditures of the State Railways (LE 23.0 million in 1957/58) and of the Telecommunications Authority (LE 4.0 million in 1957/58) can be found. The Ministry of War budget contains the expenditures of the military and aircraft factories (LE 5.8 in 1957/58)

f/ Includes, apart from relatively small items, for expenses of the Presidency, Civil Service Commission, Ministries of National Guidance & Supply and different other general authorities, some more substantial items such as - in 1957/58 - LE 4.0 million for payment to former British Army workers, LE 3.1 million for the establishment of joint rural centers (the so-called "combined units"), LE 1.7 million for El Azhar University and Religious Institutes and LE 1.25 million for "Promotion of the National Economy".

g/ The estimated surplus in the ordinary budget for 1957/58 of LE 18.7 million has been allocated to the Development Projects budget.

Source: Ministry of the Treasury. Budget reports and other information.

Egyptian Region

Table 10B: CLASSIFICATION OF ORDINARY BUDGET RECEIPTS AND EXPENDITURES 1958/59 and 1959/60

(£E millions)

	Budget 1958/59	% of total	Budget 1959/60	% of total
Revenues				
Direct taxes	60.9	21.7	63.5	19.7
of which:				
Land and building taxes	21.6	-	19.7	-
Labor earnings and general income tax	27.6	-	31.3	-
Excess profits tax	.2	-	.1	-
Indirect taxes	102.6	36.5	112.0	34.9
of which:				
Customs and excise duties	102.6	-	112.0	-
Tax on transfer of real property	4.0	-	4.0	-
Duties and fees	21.8	7.8	25.2	7.9
of which:				
Stamp duty	7.3	-	8.0	-
Legal and registration duty	3.4	-	3.3	-
State Enterprises 1/	36.1	12.9	36.2	11.2
of which:				
Industries	1.7	-	1.7	-
Telecommunications	6.4	-	6.8	-
State domain	1.9	-	1.1	-
Ports	1.8	-	2.1	-
Natural resources	3.0	-	3.6	-
Income from sales of supplies	2.0	-	0.7	-
Share in profit of various companies	2.3	-	2.5	-
Others	58.6	21.0	84.6	26.3
of which:				
Proceeds of confiscated properties	6.0	-	4.0	-
Total	280.8	100.0	321.5	100.0

1/ Exclusive of State Railways and Petroleum Authority (revenues respectively £E 62.1 million and £E 24 million in 1958/59) for which separate budgets have been established.

	Budget 1958/59	% of total	Budget 1959/60	% of total
Expenditures				
Finance and economics	6.3	2.2	6.2	2.2
Commerce and industry	7.8	2.9	1.0	0.3
Public works	8.6	3.2	15.8	5.4
Agriculture	4.8	1.8	3.6	1.2
Communications	11.7	4.3	11.6	3.9
Sub-total	39.2	14.4	38.2	13.0
Education	39.3	14.4	41.4	14.0
Public health	10.1	3.7	10.9	3.7
Social affairs and labor	3.1	1.1	3.1	1.1
Pensions	12.8	4.7	15.2	5.3
High cost of living bonus	21.4	7.9	20.7	7.0
Subsidies towards cost of living	7.3	2.8	9.5	3.2
Sub-total	94.0	34.6	100.8	34.3
War	13.9	5.1	-	-
Sub-total	13.9	5.1	-	-
Contribution to the unified budget	71.3	26.2	95.8	32.7
Sub-total	71.3	26.2	95.8	32.7
Justice	4.0	1.5	4.3	1.5
Municipal affairs	10.2	3.8	9.9	3.3
Interior	13.2	4.9	13.5	4.6
Public debt	10.5	3.9	10.8	3.7
Others	15.2	5.6	20.5	6.9
Sub-total	53.1	19.7	59.0	20.0
General total	271.5	100.0	293.8	100.0

Source: Central Ministry of Economy, Cairo.

Egyptian Region

Table 11: MONEY SUPPLY AND ITS COUNTERPART
(£E million)

Supply	Dec. 31, 1954	Dec. 31, 1955	Dec. 31, 1956	Dec. 31, 1957	Dec. 31, 1958	June 30, 1959
Net currency circulation outside banks	186.9	185.4	226.5	213.0	206.9	178.6
Private demand deposits with comm'l banks	117.7	123.9	135.0	162.1	154.4	155.6
Private demand deposits with NBE b/	50.6	56.7	56.6	44.4	39.4	47.0 (est.)
Total	355.2	366.0	418.1	419.5	400.7	381.2
Increase or decrease		+ 10.8	+ 52.1	+ 25.2 a/	- 18.8	- 19.5
Counterpart						
Credit to private sector						
(a) Commercial banks	151.1	154.2	171.3	187.5	209.9	174.5
(b) NBE	9.3	16.5	24.4	33.3	37.1	45.2
	160.4	170.7	195.7	220.8	247.0	219.7
Increase		+ 10.3	+ 25.0	+ 25.1	+ 26.2	- 27.3
Net credit of banking system to govt.						
Govt. debt to NBE	46.4	87.3	155.3	189.9 c/	204.0 c/	202.2 c/
Govt. debt to comm'l banks	9.6	10.3	23.8	21.8	25.7	32.6
Govt. deposits with NBE and comm'l banks	16.7	11.7	16.7	22.3	36.9	19.5
Balance	39.3	85.9	162.4	189.4	192.8	215.3
Increase		+ 46.6	+ 76.5	+ 27.0	+ 3.4	+ 22.5
Net Foreign Assets d/	251.3	219.2	177.0	129.5	125.5	112.7
Decrease		- 32.1	- 47.4 e/	- 23.8 f/	- 4.0	- 12.8
Time & Savings Deposits						
with Comm'l banks and NBE	49.0	50.5	47.4	46.9	67.8	70.8 (est.)
Increase (-) or decrease (+)		- 1.5	+ 3.1	+ 0.5	- 20.9	- 3.0

Consolidated Statement (£E million)

Money Supply	End of 1955	1956	1957	1958	June 1959
Increase or decrease	+ 10.8	+ 52.1	+ 25.2	- 18.8	- 19.5
Resulting from changes in:					
Bank credits to private sector	+ 10.3	+ 25.0	+ 25.1	+ 26.2	- 27.3
Net credit of banking system to govt.	+ 46.6	+ 76.5	+ 27.0	+ 3.4	+ 22.3
Net foreign assets	- 32.1	- 47.4	- 23.8	- 29.2 g/	- 12.8
Time & Savings deposits (increase -)	- 1.5	+ 3.1	+ 0.5	- 20.9	- 3.0
Errors and omissions	- 12.5	- 5.1	- 3.6	+ 1.7	+ 1.3

Footnotes:

a/ £E 1.4 million / £E 23.8 million currency withdrawn from the Sudan in 1957.

b/ Excluding IMF deposits with N.B.E.

c/ Including £E 20 million government guaranteed securities issued in 1957 by the Agricultural Credit Bank.

d/ Net foreign assets as given in this connection by NBE give securities at book value and include net foreign currency and Egyptian Pounds holdings on clearing and payments accounts.

e/ £E 42.2 million / £E 5.2 million IMF drawing in 1956.

f/ £E 47.5 million minus £E 28.9 million resulting from settlement with the Sudan regarding currency withdrawal plus £E 5.2 million IMF drawing in 1957.

g/ According to the figures that the NBE uses in its presentation of the money supply counterpart the decrease in net foreign assets during 1958 was only £E 4.0 million. There must be some mistake here, because the NBE data on "Net Foreign Assets" (Table 5) show a much higher decrease (£E 29.2 million), which is more consistent with the other monetary data for 1958. The latter figure has, therefore, been used in the above table.

Source: Statistical information supplied by N.B.E.

Egyptian Region

Table 12 : AGRICULTURAL PRODUCTION

Crop	Area ('000 feddans) 1950-54	1954	1955	1956	1957	1958	Unit	Production ('000s) 1950-54	1954	1955	1956	1957	1958
Cotton	1,811	1,580	1,816	1,653	1,819	1,906	Cantar = 45 kg. a/	8,395	7,750	7,440	7,230	9,020	9,838
Cereals													
Wheat	1,518	1,795	1,523	1,570	1,514	1,425	Ardab = 150 kg.	8,104	11,530	9,676	10,316	9,781	9,414
Barley	122	122	136	132	133	136	Ardab = 120 kg.	857	963	1,055	1,065	1,088	1,120
Maize	1,707	1,904	1,833	1,836	1,769	1,955	Ardab = 140 kg.	10,869	12,520	12,242	11,803	10,680	12,475
Millet	437	457	437	479	448	423	Ardab = 140 kg.	3,908	3,920	3,836	4,241	4,044	3,879
Rice	497	610	600	690	731	518	Ardab = 200 kg. b/	2,526	3,717	4,435	5,328	5,498	3,478
Pulses													
Beans	333	310	358	337	355	360	Ardab = 155 kg.	1,435	1,516	1,693	1,328	1,637	1,678
Lentils	71	87	81	82	83	73	Ardab = 120 kg.	277	376	307	298	331	265
Chick peas	13	9	13	12	11	10	Ardab = 150 kg.	54	43	55	48	44	40
Fenugreek	53	51	61	67	65	58	Ardab = 155 kg.	205	213	252	256	277	243
Lapine	12	13	15	17	17	17	Ardab = 150 kg.	47	52	63	61	72	72
Groundnuts	28	32	34	35	36	38	Ardab = 78 kg.	282	327	378	387	417	438
Potatoes	27	32	28	33	36	34	Metric tons	180	225	182	235	240	232
Onions	30	45	50	46	50	n.a.	Cantar = 45 kg.	6,289	8,440	9,232	8,959	10,717	n.a.
Berseem	2,165	2,275	2,350	2,318	2,363	n.a.	Ardab = 157 kg.	-	242	239	226	244	n.a.
Sugar cane	91	115	111	110	109	n.a.	Metric tons c/	240	319	312	299	305	300 (est.)
Vegetables d/	-	-	-	-	383	412	Metric tons	-	-	-	-	2,540	2,803
Fruits e/	-	101	109	107	111	n.a.	Metric tons f/	-	978	960	931	964	987

a/ Lint; b/ White rice; c/ Sugar (product); d/ Includes potatoes; e/ Excluding palm trees; f/ Includes dates.

Source: NBE, Economic Bulletin and Monthly Bulletin of Agricultural Economic Statistics and Legislation, 1958; Ministry of Agriculture, Egypt.

Table 13: CHANGES IN AREA AND OUTPUT OF MAIN AGRICULTURAL PRODUCTS

Area ('000 feddans)

Crop	1950-54		1955		1956		1957		1958	
Cotton	1,811	100	1,816	100	1,653	91	1,819	100	1,906	105
Wheat	1,518	100	1,523	100	1,570	102	1,514	100	1,425	94
Maize	1,707	100	1,833	107	1,836	107	1,769	103	1,955	115
Beans	333	100	358	108	337	101	355	107	360	108
Onions	30	100	50	166	46	153	50	166	n.a.	-
Potatoes	27	100	28	104	33	123	36	133	34	126
Others	3,890	100	3,947	99	4,049	104	4,490	111	4,268	109
Total	9,316	100	9,555	102	9,524	102	10,033	107	9,998	107

Production ('000s)

Unit	1950-54		1955		1956		1957		1958	
Cantar = 45 Kg. a/	8,395	100	7,440	88	7,230	86	9,020	107	9,838	117
Ardab = 150 Kg.	8,104	100	9,676	119	10,316	127	9,781	121	9,414	116
Ardab = 140 Kg.	10,869	100	12,242	112	11,803	109	10,680	98	12,475	114
Ardab = 155 Kg.	1,435	100	1,693	121	1,328	95	1,637	117	1,670	119
Cantar = 45 Kg.	6,289	100	9,232	146	8,959	142	10,717	170	n.a.	-
Metric tons	180	100	182	101	235	131	240	133	232	128

a/ Lint.

Source: NBE, Economic Bulletin and Monthly Bulletin of Agricultural Economic Statistics and Legislation, 1958; Ministry of Agriculture, Egypt.

Egyptian Region

Table 14 : AREA, CROP AND YIELD OF COTTON BY VARIETIES

	1954-55	1955-56	1956-57	1957-58	1958-59
Karnak					
Area (Feddans 000's)	559	786	608	608	521
Crop (Cantars 000's)	2,352	2,367	2,132	2,119	2,249
Yield (Cantars per feddan)	4.21	3.01	3.51	3.48	4.31
Menoufi					
Area (Feddans 000's)	35	53	159	316	610
Crop (Cantars 000's)	211	299	828	1,966	3,550
Yield (Cantars per feddan)	5.95	5.64	5.19	6.22	5.82
Guiza 30					
Area (Feddans 000's)	443	327	331	234	50
Crop (Cantars 000's)	1,970	1,369	1,231	837	193
Yield (Cantars per feddan)	4.44	4.19	3.72	3.58	3.88
Ashmouni					
Area (Feddan 000's)	540	644	537	602	609
Crop (Cantars 000's)	3,024	3,188	2,780	3,592	3,099
Yield (Cantars per feddan)	5.60	4.95	5.18	5.97	5.09
Scarto and Others					
Area (Feddan 000's)	2	6	18	60	115
Crop (Cantars 000's)	189	214	259	507	834
Total					
Area (Feddan 000's)	1,579	1,816	1,653	1,820	1,905
Crop (Cantars 000's)	7,746	7,437	7,230	9,021	9,925

Source: The United Arab Republic Cotton Statistics, Cairo, 1959.

Egyptian Region

Table 15: STATISTICAL POSITION OF MAIN VARIETIES OF COTTON

1,000 Cantars

	Karnak	Menoufi	Guiza 30	Ashmouni
1955-56				
Carry-over 31/8/55	662	82	578	604
Govt. stocks 1/9/55	378	49	41	150
Crop	2,367	298	1,369	3,187
Supply at 1/9/55	3,029	380	1,947	3,791
Exports	2,613	311	1,483	2,020
Local Consumption	70	3	176	1,489
1956-57				
Carry-over 31/8/56	270	58	215	227
Govt. stocks 1/9/56	214	30	109	13
Crop	2,122	828	1,231	2,781
Supply at 1/9/56	2,468	894	1,519	3,063
Exports	2,002	733	1,031	1,334
Local consumption	86	41	233	1,337
1957-58				
Carry-over 31/8/57	275	93	117	313
Govt. stocks 1/9/57	103	24	23	13
Crop	2,119	1,966	837	3,592
Supply on 1/9/57	2,499	2,086	1,092	3,984
Exports	1,400	1,451	507	2,121
Local consumption	126	104	279	1,412
1958-59				
Carry-over 31/8/58	853	429	194	364
Govt. stocks 1/9/58	384	153	67	55
Crop	2,249	3,550	193	3,099
Supply on 1/9/58	3,102	3,979	387	3,463
Export commitments 15/4/59	979	2,950	184	1,280
Local consumption until 15/4/59	71	150	78	1,009
Govt. stocks on 15/4/59	1,445	522	56	28
Carry-over 15/4/59	607	357	69	1,146

Source: Bulletin of Agricultural Economics, Statistics and Legislation, 1958, Cairo, Ministry of Agriculture, Egypt.

Egyptian Region

Table 16: PRODUCTION OF CRUDE OIL AND CONSUMPTION AND IMPORTS OF PETROLEUM PRODUCTS a/
(1,000 metric tons)

Year	Production (Crude)	Consumption (Petroleum Products)	Imports (Petroleum Products)
1954	1,989	3,441	1,530
1955	1,818	3,775	1,808
1956	1,712	3,928	1,215
1957	2,368	3,787	1,632
1958	3,184	4,154	1,474

a/ Export figures are available only for 1958; export of crude oil was 1.15 million tons and that of petroleum products only 8,000 tons.

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PRODUCTION AND CONSUMPTION OF PETROLEUM PRODUCTS
(1,000 metric tons)

	1954		1955		1956		1957		1958	
	Prod.	Cons.	Prod.	Cons.	Prod.	Cons.	Prod.	Cons.	Prod.	Cons.
Gasoline	-	262.8	-	288.3	262.1	293.4	289.0	255.0	331.1	246.0
Kerosene	-	770.3	-	798.2	236.1	859.6	277.1	668.0	295.3	654.0
Mazout	-	1901.1	-	2083.2	1718.3	2077.0	2075.4	2166.6	2009.2	2484.0
Solar and Diesel	-	369.8	-	421.5	270.0	475.4	353.1	574.0	382.4	640.0
Bitumen	-	45.0	-	72.1	113.6	89.8	100.5	115.0	113.3	120.0
Butagus	-	5.2	-	6.8	8.3	8.2	9.4	8.4	12.3	10.0
Aviation Gasoline	-	45.8	-	60.4	-	70.8	-	-	-	-
Lubrication	-	41.1	-	44.8	-	53.8	-	-	-	-
Total		3441.1	-	3775.3	2608.4	3928.0	3104.5	3782.0	3143.6	4154.0

Source: Petroleum Authority (Egyptian) and Economic Development Organization, Cairo.

Table 17: INDUSTRIAL PRODUCTION

Industry	Unit	Average 1952-54	1955	1956	1957	1958
Textile Industry						
Cotton yarn	Tons (000's)	60	73	75	81	87
Cotton fabrics	Meters (million)	331	380	411	456	208 (first 6 mos).
Wool yarn	Tons (000's)	3	4	4	5	2.7 (" " ").
Wool fabrics	Tons (000's)	1.7	2.0	2.0	2.0	1.1 (" " ").
Rayon yarn	Tons (000's)	3	4	6	5	2.4 (" " ").
Staple fibre yarn	Tons (000's)	3	4	3	3	1.6 (" " ").
Rayon fabrics	Meters (million)	55	65	68	63	34.5 (" " ").
Jute cloth	Tons (000's)	2	2	2	2	n.a.
Food Industry						
Sugar	Tons (000's)	229	319	312	299	n.a.
Glucose	Tons (000's)	9	15	18	22	n.a.
Starch	Tons (000's)	5	6	8	7	n.a.
Wines 1/	Liters (million)	1.3	1.6	1.5	1.5	n.a.
Beer	Liters (million)	9	12	1	10	n.a.
Chemical Industry						
Cottonseed oil	Tons (000's)	98	85	85	86	93
Soap	Tons (000's)	66	90	72	84	n.a.
Fertilizers	Tons (000's)	215	328	329	378	n.a.
Alcohol	Liters (million)	13	12	13	16	18
Caustic Soda	Tons (000's)	2	2	2	3	n.a.
Other Industries						
Iron bars	Tons (000's)	61	89	95	100	n.a.
Paper & Cardboard	Tons (000's)	21	29	32	35	n.a.
Rubber tires	Units (000's)	-	-	64	156	n.a.
Electric Refrigerators	Units (000's)	-	3.1	4.3	8.0	n.a.
Building Materials						
Cement	Tons (000's)	1,094	1,371	1,351	1,466	1,517
Glass, crystal and bottles	Tons (000's)	11	11	21	17	n.a.
Petroleum Refining						
Gasoline	Tons (000's)	199	259	256	289	331
Kerosene	Tons (000's)	221	253	242	277	295
Diesel & solar oil	Tons (000's)	159	409	264	353	382
Furnace oil	Tons (000's)	1,335	1,563	1,597	1,941	2,009
Electric Power (Public Utilities)	KWH (million)	1,023	1,411	1,545	1,693	n.a.
Extractive Industries						
Crude oil	Tons (000's)	2,224	1,808	1,729	2,337	3,184
Phosphates	Tons (000's)	485	626	615	568	287 (first 6 mos).
Manganese	Tons (000's)	221	220	200	76	71 (" " ").
Salt	Tons (000's)	327	402	386	384	115 (" " ").
Iron ores	Tons (000's)	-	-	131	254	n.a.

1/ Includes small amounts of spirits.

Source: NBE Economic Bulletins and additional data obtained from NBE.

Egyptian Region

Table 18: DEVELOPMENT PROJECTS BUDGET a/

(LE million)

A. TOTAL EXPENDITURES

Total budgeted from 1952/53-1957/58	213.2
Actually spent from 1952/53-1957/58	153.4
of which for:	
Public Works (primarily irrigation and water control)	57.6
Development of oil and mineral resources	22.1
Agriculture and livestock improvement	8.8
Roads and communications	34.4
Projects undertaken by independent organizations b/	18.9
Finished projects	11.6

	Budget	Actual
1952/53	0.3	0.2
1953/54	42.6	27.4
1954/55	42.0	29.0
1955/56	54.2	39.4
1956/57	45.8)	
	)	57.4
1957/58	28.3)	
1958/59	46.0	
1959/60	98.0	

B. SPECIFICATION OF EXPENDITURES FOR 1958/59 and 1959/60

	1958/59	1959/60
Public works	12.0	14.2
Oil and minerals	4.2	1.5
Agriculture and livestock	0.4	2.5
Roads and communications	10.0	11.2
Expansion cultivable area	3.8	6.8
Five-year industrial plan	12.0	45.5
High Aswan dam	2.6	13.2
Other development projects (Fayoum and Behera province, Natrum Valley and desert development)	1.0	3.2
	46.0	98.1

C. PROPOSED APPROXIMATE WAY OF FINANCING 1959/60 BUDGET

Surplus ordinary budget	27.6	
Drawings on foreign credits	20.0	
Use of counterpart funds of P.L. 480 imports	20.0	(minimum estimate)
Additional surplus ordinary budget as a result of special economy measures	6.0	
Issue of domestic bonds	25.0	
	98.6	

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a/ The special budget for "National Production Development", as the Development Projects Budget is also called, is not the only source for development expenditures. It was not possible, however, to get a consolidated statement of development expenditures in the ordinary budget or in annexed or autonomous budgets.

b/ The projects undertaken by independent organizations include land reclamation in Beheira and Fayoum provinces, development of Natrum Valley, High Dam project; the Permanent Organization for Land Reclamation and the Liberation (Tahrir) province.

Source: NBE Economic Bulletins and data received from Ministry of the Treasury and Central Ministry of Economy, Cairo.

Egyptian Region

Table 19: OWNERSHIP OF EGYPTIAN PUBLIC DEBT

(LE million)

	End of:			
	1955	1956	1957	1958
Egyptian Government Securities held by:				
National Bank	17.6	17.8	26.7	26.5
Other Banks	9.0	15.3	15.0	23.2
Postal Savings Bank	19.8	24.8	27.7	24.6
Government	11.3	25.3	15.3[a]	26.0
Other holders	75.3	74.8	73.3	61.7
Total	133.0	158.0	158.0	162.0
Egyptian Government Treasury Bills				
National Bank	69.7	137.5	143.2	157.5
Other Banks	1.3	8.5	6.8	2.5
	71.0	146.0	150.0	160.0

a/ As at September 1957

Source: Data obtained from NBE; 1958 figures adjusted according to information received from the Department of Public Debt of the Ministry of the Treasury (Egypt)

Syrian Region

Table 20: PRODUCTION

(Thousand tons)

	1954	1955	1956	1957	1958
Raw cotton	221	233	253	291	250
Wheat	965	438	1,051	1,354	562
Barley	635	137	462	721	228
Sheep and lambs slaughtered (thousands)	569	747	750	763	
Tobacco manufactures	2.9	3.0	3.1	2.9	
Sugar	36	45	50	44.6	
Cement	249	264	326	315	
Electricity generated (million KWH)	129	147	156	172	
Industrial use (million KWH)	42	47	46	53	

Source: Directorate of Statistics, Ministry of National Planning, Syrian Region.

Syrian Region

Table 21A: ORDINARY BUDGET RECEIPTS AND EXPENDITURES

(LS million)

	Actual				Budget	
	1955	1956	1957	1958a/	1958/59	1959/60
Revenue						
Direct taxes	50.8	60.3	71.8		89.5	95.1
Indirect taxes	180.1	191.6	204.0		215.6	210.3
Revenue from public services	36.5	24.2	26.0		22.7	80.1
Petroleum revenues	10.6	56.8	32.8		85.7	96.0
Other	1.4	1.5	1.6		1.6	11.9
Grant from Egyptian Region	-	-	-		25.0	-
Total Revenue	279.4	334.5	336.2	181.4	440.1	493.4
Expenditure						
Defense	81.5	160.9	198.4	130.1	234.0	239.0
Security	23.3	28.0	26.2	12.8	31.7	40.0
Education	49.5	52.7	59.4	28.4	64.0	77.3
Public Works, Communications and Agriculture	31.0	24.3	20.5	8.7	33.2	40.4
Other	63.8	102.5	82.3	32.9	98.2	96.7
Total Expenditure	249.1	368.4	386.8	212.9	461.1	493.4
Budget Surplus or Deficit (-)	30.3	-33.9	-50.6	-31.5	-21.0	-

a/ First six months.

Source: Budget Statement by Minister of Treasury, Syrian Region, September 1958.

Syrian Region

Table 21B: DEVELOPMENT PROJECTS BUDGET 1959/60

(£S million)

REVENUE		
Revenue from public services:		50.5
Profits from petroleum refinery	8.0	
Profits from petroleum organization (part)	4.0	
Hiring of petroleum depots	3.0	
Arrears of petroleum revenue	25.0	40.0
Public debt and loan from Central Bank		50.0
Foreign credit facilities		45.0
		185.5
EXPENDITURE		
Projects of the Ministry of Industry and the Five-Years Plan Organization		60.3
Projects of the Ministry of Communications		27.5
Projects of the Ministry of Agriculture		1.5
Projects of land & irrigation improvement		70.3
Projects for tourism and drinking water		12.8
Projects for improving Tartousse Harbor		1.5
Projects for frontiers development		3.5
Trade and technical education		2.0
Others and reserve		6.1
		185.5

Syrian Region

Table 22: POSITION OF PUBLIC SECTOR

(LS million)

	Dec. 1954	Dec. 1955	Dec. 1956	Dec. 1957	Dec. 1958
Monetary System					
Claims on Public Sector					
Government debt					
Commercial banks	40	17	-	-	8
Monetary authorities	146	152	287	289	330
Other claims					
Monetary authorities	88	103	30	43	35
Total	274	272	314	332	373
Liabilities to Public Sector					
Notes and coins	7	10	7	5	4
Current deposits					
Commercial banks	148	138	33	26	34
Monetary authorities	1	35	161	118	119
Time deposits					
Commercial banks	49	39	3	4	4
Capital & other monetary authorities	46	48	64	89	79
Total	251	271	269	242	240
Net Position	-23	-1	-45	-90	-133
Change during:		1955	1956	1957	1958
		22	-44	-45	-43
Foreign Sector					
Loan from Saudi Arabia		-14	-21	-	
Grant from Egypt					-9
Surplus or deficit in operations of public sector		8	-65	-45	-52

Source: Compilation based on Syria's monetary accounts.

Syrian Region

Table 23: MONETARY IMPACT OF FOREIGN SECTOR

(LS million)

	Dec. 1954	Dec. 1955	Dec. 1956	Dec. 1957	Dec. 1958
Monetary System					
Claims on non-residents					
Commercial banks	57	76	60	53	48
Monetary authorities	161	163	228	216	158
	219	239	288	269	206
Liabilities to non-residents					
Current deposits					
Commercial banks	4	3	4	4	1
Monetary authorities	-	-	7	4	7
				8	8
Non-monetary liabilities					
Borrowing, commercial banks	115	91	95	84	48
Other, commercial banks	42	57	64	58	62
Monetary authorities	-	-	10	-	-
	161	151	179	150	118
Net position	58	88	109	119	88
Change during:		1955	1956	1957	1958
		30	21	10	-31
External borrowing					
Loan from Saudi Arabia		-14	-21	-	
Grant from Egypt					-9
Total Impact		16	-	10	-40

Source: Compilation based on Syria's monetary accounts.

Syrian Region

Table 24: CHANGES IN MONEY SUPPLY

(£S million)

	Dec. 1954	Dec. 1955	Dec. 1956	Dec. 1957	Dec. 1958
Money Supply					
Notes and coins	335	316	410	462	421
Private current deposits in £S	100	105	109	131	138
	435	421	518	593	559
Quasi-money	57	91	102	96	121
Total including quasi-money	492	512	620	689	680
Change during:		1955	1956	1957	1958
		20	108	69	-9
Factors accounting for change					
Increase in claims on private sector		10	24	31	-7
Surplus (-) or deficit of public sector		-8	65	45	52
Surplus (+) or deficit of foreign sector		16	-	10	-40
Adjustment		2	19	-17	-14
Total		20	108	69	-9

Source: Compilation based on Syria's monetary accounts.

Syrian Region

Table 25: MONETARY ACCOUNTS, MONETARY SYSTEM

(£S million)

	Dec. 1954	Dec. 1955	Dec. 1956	Dec. 1957	Dec. 1958
Assets					
Claims on non-residents	219	239	288	269	206
Claims on private sector	421	431	455	486	479
Credit extended	397	409	435		
Other	24	22	20		
Claims on public sector	274	272	314	334	365
Debt of Government	163	153	284		
Other claims	111	119	30		
Adjustments	-	2	10	-	-
Total	914	945	1,068	1,089	1,050
Liabilities					
Money supply	435	421	518	593	559
Notes and coins	335	316	410	462	421
Current deposits, private	100	105	109	131	138
Quasi-money	64	99	102	96	121
Time deposits, private	57	91	95	87	107
Private deposits in foreign exchange	7	8	7	9	14
Government deposits, current	156	184	202	149	157
In Syrian pounds	155	148	201	149	157
In foreign exchange	1	36	1	-	-
Liabilities to non-residents, current	4	3	11	8	8
In Syrian pounds	2	3	11	8	8
In foreign exchange	2	-	-	-	-
Non-monetary liabilities to foreigners	157	148	168	156	110
Capital and other	95	91	72	87	95
Total	914	945	1,068	1,089	1,050

Source: Compilation based on data furnished by the Central Bank of Syria.

Syrian Region

Table 26: MAIN EXPORTS

(£S million)

	1953	1954	1955	1956	1957	1958
Cotton (raw, yarn & textiles)	138.6	128.8	237.6	154.0	196.9	178.1
Other textile goods	52.9	54.5	68.4	73.1	72.5	63.1
Cereals	81.8	161.2	22.8	127.3	143.8	62.1
Vegetables, fruits & others	36.1	47.1	42.6	44.7	53.1	30.5
Precious metals	4.0	7.1	16.6	15.8	7.1	7.6
Tinned and preserved foods, drink and tobacco	9.0	11.1	12.7	14.3	13.0	13.4
Living animals	23.0	39.1	36.7	32.7	24.2	11.9
Dairy products	10.0	9.2	10.1	11.8	14.9	12.4
Others	20.4	7.6	26.0	42.2	22.5	52.7
Total	375.8	465.7	473.5	515.9	548.0	431.8

Source: National Bank of Egypt.

Syrian Region

Table 27: FOREIGN TRADE

(£S thousands)

Years	Imports		Exports		Trade balance
	Quantity Tons 000's	Value £S m.	Quantity Tons 000's	Value £S m.	£S m.
1950	458	197.7*	435	207.8	+ 10.1
1951	727	418.0	212	293.0	-125.0
1952	805	444.0	491	337.0	-107.0
1953	773	484.0	718	408.0	- 76.0
1954	991	633.8	1,057	465.7	-168.1
1955	1,118	676.9	465	473.5	-203.4
1956	1,206	690.0	874	515.9	-174.1
1957	1,190	616.0	1,140	548.0	- 68.0
1958	1,415	739.0	689	431.8	-308.0

*Imports at official rate of exchange.

Source: National Bank of Egypt.

Syrian Region

Table 28 : BALANCE OF PAYMENTS

(US $ millions)

	1953	1954	1955	1956	1957
Goods and Services	-10.5	-31.1	-34.3	-15.6	2.6
Exports, f.o.b.	119.6	167.5	152.1	155.4	163.0
Imports, c.i.f.	-136.2	-197.2	-202.4	-210.4	-185.0
Non-monetary gold	-8.5	-5.4	-7.0	-4.3	5.1
Government's receipts from oil companies	3.4	2.1	3.0	21.9	9.2
Other services (net)	11.2	1.9	20.0	21.8	10.3
Private Donations	2.8	2.8	2.8	2.8	2.8
Private Capital	5.6	6.2	24.2	-1.4	-4.2
Official Donations	2.8	1.3	1.1	1.5	1.5
Official and Bank Capital	-4.1	10.9	-7.9	1.7	6.1
Long-term capital:					
Loans received from Saudi Arabia	-	-	4.0	6.0	-
Payments for nationalized companies	-	-	-3.0	-1.4	-
Short-term capital:					
Net IMF position	-1.0	-	-	-	-
Other liabilities	3.6	14.2	-2.8	7.8	-4.2
Other foreign assets (increase -)					
Central Bank	-15.3	.1	.9	-13.7	13.2
Commercial banks	8.5	-1.2	-4.9	3.0	2.2
Monetary gold (increase -)	.1	-2.2	-2.1	-	-5.1
Net Errors and Omissions	3.4	9.9	14.1	11.0	-8.8

Source: "International Financial Statistics"

Syrian Region

Table 29: GEOGRAPHICAL DISTRIBUTION OF TRADE

(£S million)

A. Exports to:

	1953	1954	1955	1956	1957	1958
Arab countries	150.7	184.4	168.3	207.7	203.3	139.3
United Kingdom	46.3	29.5	40.4	11.0	6.1	10.6
U.S.A.	20.8	19.2	21.3	21.2	20.8	14.5
Eastern Europe	-	-	7.4	42.0	68.0	111.1
Western Europe	145.4	215.4	195.6	193.4	197.3	103.5
Japan	1.1	2.0	14.3	6.2	7.5	6.2
China	-	2.1	0.6	5.6	35.8	24.1
Other countries	11.5	13.1	25.6	28.8	9.2	22.5
Total	375.8	465.7	473.5	515.9	548.0	431.8

B. Imports from:

	1953	1954	1955	1956	1957	1958
Arab countries	62.7	73.4	83.0	109.2	121.4	99.7
United Kingdom	33.3	48.8	55.0	52.9	47.5	82.7
U.S.A.	37.7	49.2	47.3	47.7	69.1	62.4
Eastern Europe	11.2	22.3	17.2	21.7	66.1	108.0
Western Europe	124.6	162.7	149.5	147.8	223.9	273.3
Japan	1.2	6.0	10.7	10.3	21.1	28.0
China	2.2	0.5	-	-	1.8	4.2
India	6.7	10.0	7.2	7.2	10.8	13.5
Cuba	2.7	2.2	8.1	10.4	12.4	8.2
Other countries	24.7	33.0	52.5	52.0	41.9	59.8
Total	307.0	408.1	430.5	449.2	616.0	739.8

Source: National Bank of Egypt.

United Arab Republic

Table 30: EXCHANGE OF TRADE BETWEEN THE EGYPTIAN AND SYRIAN REGIONS

(LE thousands)

Year	From the Egyptian Region to the Syrian Region	From the Syrian Region to the Egyptian Region	Balance of Egypt's Trade with Syria
1948	497	326	+ 171
1949	234	309	- 75
1950	726	487	+ 239
1951	648	1069	- 421
1952	182	480	- 298
1953	164	616	- 452
1954	849	652	+ 197
1955	961	908	+ 53
1956	1337	1417	- 80
1957	1440	3465	-2025
Total	7038	9729	-2691
Average 1948/57	704	973	- 269
1958	2521	1923	+ 608
First half year 1959	2528	3308	- 780

Source: Central Ministry of Economy, Cairo.

Table 31: UNITED ARAB REPUBLIC - ESTIMATED EXTERNAL PUBLIC DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959

(In thousands)

Item	Estimated debt outstanding December 31, 1958		Major reported additions January 1 - June 5, 1959	
	In currency of payment	In U.S. dollar equivalents	In currency of payment	In U.S.dollar equivalents
TOTAL EXTERNAL PUBLIC DEBT		720,362 /1		62,419 /1
Of which undisbursed:		538,612		
DEBT PAYABLE IN CONVERTIBLE CURRENCIES		249,161		62,419
Of which undisbursed:		109,154		
DEBT PAYABLE IN LOCAL CURRENCY AND GOODS		471,201		
Of which undisbursed:		429,458		
TOTAL DEBT FROM WESTERN COUNTRIES		237,988		62,419
Of which undisbursed:		109,154		
Debt payable in convertible currencies		237,988		62,419
Publicly-issued bonds				
£ 512,800 City of Alexandria 4%, 1902-1963 /2	£ 103	290		
Privately-placed debt		67,547		8,503
$1,500,000 First National City Bank of N.Y. loan to Soc.Egyptienne d 'Engrais et d'Industries Chimiques 5%, 1958-1961 /3	$ 1,500	1,500 /4		
LE 23,000,000 U.A.R. (Egypt) debt to Suez Financial Co., 1958-1964 /5	n.a.	66,047		
SwF 25,000,000 Swiss banks consortium loan to U.A.R.(Egypt) 5%, 1959-1964			SwF 25,000	5,803
$2,700,000 Italian company loan to U.A.R. (Egypt) 1959-1965 /6			$ 2,700	2,700 /6
U.S.Government loan (Export-Import Bank)				
$3,500,000 loan to Soc.Egyptienne d'Engrais et d'Industries Chimiques 5½%, 1958-1965 /3	$ 3,500	3,500 /4		

See footnotes at end of table.

Table 21: UNITED ARAB REPUBLIC - ESTIMATED EXTERNAL PUBLIC DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959 (CONT.)
(In thousands)

Item	Estimated debt outstanding December 31, 1958		Major reported additions January 1 - June 5, 1959	
	In currency of payment	In U.S. dollar equivalents	In currency of payment	In U.S. dollar equivalents
TOTAL DEBT FROM WESTERN COUNTRIES (CONT.)				
Debt payable in convertible currencies (Cont.)				
Other intergovernment debts		166,651		53,916
Payments settlements		29,743		12,061
LE 5,946,650 U.A.R.(Egypt) debt to Greece 3%, 1958-1962 /7	n.a.	17,076		
LE 4,411,080 U.A.R.(Egypt) debt to Western Germany, 1958-1961 /8	n.a.	12,667		
LE 4,200,000 U.A.R.(Egypt) debt to Italy, 1959-1968 /9			n.a.	12,061
Loans		136,908		41,855
LE 10,500,000 Japanese Govt. loan to U.A.R. (Egypt) 4½%, 1958, 10 years /10	n.a.	11,022 /11		
LE 44,000,000 Western Germany loan to U.A.R. (Egypt), 1958 /12	n.a.	125,886 /13		
LE 14,575,402 Italian Govt. loan to U.A.R. (Egypt), 1959-1968 /14			n.a.	41,855
TOTAL DEBT FROM EASTERN COUNTRIES (including Yugoslavia)		482,374		
Of which undisbursed:		429,458		
Debt payable in convertible currencies		11,173		
Intergovernment loan				
LS 56,000,000 Czechoslovakian Govt. loan to Syria 3%, 1957-1966 /15	£ 3,990	11,173		
Debt payable in local currency or goods		471,201		
Intergovernment loans				
LS 535,500,000 U.S.S.R. loan to Syria 2½%, 1957, 12 years /16	LS 535,500	149,581 /17		

See footnotes at end of table.

TABLE 31: UNITED ARAB REPUBLIC - ESTIMATED EXTERNAL PUBLIC DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959 (CONT.)

(In thousands)

Item	Estimated debt outstanding December 31, 1958		Major reported additions January 1 - June 5, 1959	
	In currency of payment	In U.S. dollar equivalents	In currency of payment	In U.S. dollar equivalents
TOTAL DEBT FROM EASTERN COUNTRIES (including Yugoslavia) (Cont.)				
Debt payable in local currency or goods (Cont.)				
Intergovernment loans (Cont.)				
LE 61,000,000 U.S.S.R. loan to Egypt 2½%, 1958, 12 years /18	LE 61,000	175,168 /19		
LE 40,000,000 U.S.S.R. loan to U.A.R.(Egypt) 2½%, 1958 /20	LE 40,000	114,864 / 4		
LE 3,500,000 Yugoslavia loan to U.A.R.(Egypt) 3%, 1958, 5 years	LE 3,500	10,051 /4		
LE 7,500,000 Eastern Germany loan to U.A.R. (Egypt) 2½%, 1958, 13 years	LE 7,500	21,537 /21		

Exchange rates - The following exchange rates have been used:
Par values: £ 1 = $2.80; LE 1 = $2.8716
Current market rate: SwF 1 = $0.23213 as of December 31, 1958
Other rate: LS 1 = $0.27933

n.a. - Not available.

/1 Does not include the following:

a. Obligations due to France under the French - U.A.R. Financial Agreement of August 22, 1958 consisting of
   1. a "swing" in favor of France on the Payments Agreement account of a maximum of F 6-7 billion. If utilized it is to be repaid in French francs or other convertible currencies in four annual instalments beginning eight years after the debt is incurred.
   2. a credit of F 3-5 billion to assist in transfer of capital (under LE 5,000 per person) of former French residents in Egypt who left after the Suez incident. Negotiations about repayment have not yet taken place.
   3. a short-term export credit of about F 12 billion repayable in two to five years after the debt is incurred. The Egyptian authorities do not expect that this credit will be utilized.
   4. compensation for Egyptianized properties belonging to French citizens (claims over LE 5,000 per person), the total amount of which is still under negotiation.

b. A loan, reported in the press, of LS 600,000,000 to Syria from Czechoslovakia dated December 30, 1957. It is not known, at this time, whether or not this debt was actually contracted.

Table 31: UNITED ARAB REPUBLIC - ESTIMATED EXTERNAL PUBLIC DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959 (CONT.)

/1 (Continued)

c. Equivalent of $1,800,000 down-payment, payable in cotton, on the loan to the U.A.R. granted by an Italian firm June 4, 1959.

d. The equivalent of $17,284,519 undisbursed portion of the LE 10,500,000 Japanese Govt. loan 4½%, 1958. Upon agreement, this unutilized portion can be used for new projects.

e. $16,000,000 Saudi Arabian loan to Syria, no interest, 1952/1955-1958. Repayment terms have not yet been settled. It is possible that eventually this obligation may be considered a grant.

f. LE 8,100,000 balance due to the Sudan following withdrawal of Egyptian bank notes from circulation in Sudan. Payment will be settled in commodities by mutual agreement.

g. £ 27,500,000 compensation for British property seized or damaged by the U.A.R. £ 3,500,000 was paid February 28, 1959 and the balance of £ 24,000,000 is due February 29, 1960.

h. Military debts, information on which has been disclosed to the Bank management on a confidential basis.

/2 Service on this obligation is guaranteed by the Egyptian Government. Service in foreign exchange was suspended in 1956 although continued in Egyptian pounds. (Transfer of accumulated service in Egyptian pounds into foreign exchange has now been authorized as has the resumption of current service in foreign exchange).

/3 This obligation is part of a loan extended by First National City Bank and Export-Import Bank. The debtor is a private company, but the U.A.R. guarantees transfer of exchange.

/4 All undisbursed as of December 31, 1958.

/5 Payable in sterling or French francs. The compensation agreement provided for payments of the equivalents of LE 4 million in January 1959 (this payment has been made), LE 4 million yearly through 1963 and the balance of LE 3 million in 1964. An agreement to modify future repayment terms has been reached by the U.A.R. and the management of the former Suez Canal Co. The agreement provides for payment of LE 7 million in 1960 and LE4 million annually thereafter through 1963. This agreement has not yet been ratified by the shareholders.

/6 Does not include $1,800,000 down-payment. See footnote 1-c.

/7 Payable in drachmas or convertible currencies.

/8 Payable in deutsche marks or convertible currencies.

/9 Payable in Italian lire.

/10 Payable in pounds sterling or convertible currencies.

/11 Does not include the equivalent of $17,284,519 which has not yet been disbursed. See footnote 1-e.

Table 31: UNITED ARAB REPUBLIC - ESTIMATED EXTERNAL PUBLIC DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959 (CONT.)

/12 Repayment terms under this line of credit vary with the individual projects.

/13 Of this amount, the equivalent of $21,732,444 was disbursed and still outstanding and $104,153,839 was undisbursed.

/14 Payable in Italian lire.

/15 Payable in pounds sterling.

/16 Under the original agreement, 40% of the payments were to be made in pounds sterling and 60% in Syrian pounds (available for purchase of Syrian exports). It has been assumed that the whole loan will be repaid in Syrian pounds or goods.

/17 Very little of this credit has been utilized. The exact amount utilized is not available at this time. For the purposes of this table, it has been assumed that the equivalent of $9,581,000 was disbursed and $140,000,000 undisbursed.

/18 This credit is denominated in Russian rubles, but is repayable in Egyptian pounds. Calculation of the Egyptian pound amount due will be based on the gold parity of the ruble and the Egyptian pound on the payment date.

/19 Of this amount, the equivalent of $24,982,920 was disbursed and still outstanding and $150,184,680 was undisbursed.

/20 This credit is denominated in Russian rubles, but is repayable in Egyptian pounds. Under the contract the value of one ruble is determined to be 0.222168 grammes of fine gold and that of one Egyptian pound to be 2.55187 grammes of fine gold. Both governments are required to maintain the above values of their currencies. Repayment terms are not available at this time.

/21 Of this amount, the equivalent of $7,179,000 was disbursed and still outstanding and $14,358,000 was undisbursed.

IBRD - Economic Staff
July 1, 1959

Table 32: UNITED ARAB REPUBLIC - INTEREST AND AMORTIZATION PAYMENTS ON EXTERNAL PUBLIC DEBT; ESTIMATED CONTRACTUAL PAYMENTS 1959-1973 ON DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959

(In thousands of U.S. dollar equivalents)

Year as of Jan. 1	Egypt											
	Grand total /1 /2				Total debt /2				Debt in convertible currencies /2			
	Debt outstanding & undisbursed	Payments during year			Debt outstanding & undisbursed	Payments during year			Debt outstanding & undisbursed	Payments during year		
		Amortization	Interest	Total		Amortization	Interest	Total		Amortization	Interest	Total
1959	720,072	34,241	10,498	44,739	559,318	31,959	6,423	38,382	237,698	29,877	755	30,632
1960	748,250	53,294	11,608	64,902	589,778	49,345	7,597	56,942	270,240	41,861	994	42,855
1961	694,956	59,570	12,779	72,349	540,433	50,621	8,875	59,496	228,329	36,735	1,028	37,763
1962	635,386	69,659	12,048	81,707	489,812	55,710	8,375	64,085	191,644	37,308	884	38,192
1963	565,727	76,758	11,077	87,835	434,102	62,808	7,760	70,568	154,336	34,833	739	35,572
1964	488,969	66,282	9,858	76,140	371,294	52,332	6,897	59,229	119,503	24,358	586	24,944
1965	422,687	62,815	8,643	71,458	318,962	48,865	6,039	54,904	95,145	21,694	438	22,132
1966	359,872	59,936	7,493	67,429	270,097	46,688	5,245	51,933	73,451	20,724	329	21,053
1967	299,936	60,704	6,418	67,122	223,409	48,238	4,505	52,743	52,727	22,273	239	22,512
1968	239,232	57,507	5,381	62,888	175,171	45,042	3,779	48,821	30,454	19,078	162	19,240
1969	181,725	45,921	4,346	50,267	130,129	33,456	3,056	36,512	11,376	7,492	86	7,578
1970	135,804	42,312	3,331	45,643	96,673	29,847	2,353	32,200	3,884	3,884	32	3,916
1971	93,492	35,549	2,308	37,857	66,826	23,883	1,641	25,524	-	-	-	-
1972	57,943	29,284	1,449	30,733	42,943	19,284	1,074	20,358	-	-	-	-
1973	28,659	19,087	717	19,804	23,659	14,087	592	14,679	-	-	-	-

See footnotes at end of table.

Table 32: UNITED ARAB REPUBLIC - INTEREST AND AMORTIZATION PAYMENTS ON EXTERNAL PUBLIC DEBT; ESTIMATED CONTRACTUAL PAYMENTS 1959-1973 ON DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959 (CONT.)

(In thousands of U.S. dollar equivalents)

Year as of Jan. 1	Egypt				Syria							
	Total in local currency and goods				Total debt				Total debt in convertible currencies			
	Debt outstanding & undisbursed	Payments during year			Debt outstanding & undisbursed	Payments during year			Debt outstanding & undisbursed	Payments during year		
		Amortization	Interest	Total		Amortization	Interest	Total		Amortization	Interest	Total
1959	321,620	2,082	5,668	7,750	160,754	2,282	4,075	6,357	11,173	1,484	335	1,819
1960	319,538	7,484	6,603	14,087	158,472	3,949	4,011	7,960	9,689	1,484	291	1,775
1961	312,054	13,886	7,847	21,733	154,523	8,949	3,904	12,853	8,205	1,484	246	1,730
1962	298,168	18,402	7,491	25,893	145,574	13,949	3,673	17,622	6,721	1,484	202	1,686
1963	279,766	27,975	7,021	34,996	131,625	13,950	3,317	17,267	5,237	1,485	157	1,642
1964	251,791	27,974	6,311	34,285	117,675	13,950	2,961	16,911	3,752	1,485	113	1,598
1965	223,817	27,171	5,601	32,772	103,725	13,950	2,604	16,554	2,267	1,485	68	1,553
1966	196,646	25,964	4,916	30,880	89,775	13,248	2,248	15,496	782	782	23	805
1967	170,682	25,965	4,266	30,231	76,527	12,466	1,913	14,379	-	-	-	-
1968	144,717	25,964	3,617	29,581	64,061	12,465	1,602	14,067	-	-	-	-
1969	118,753	25,964	2,970	28,934	51,596	12,465	1,290	13,755	-	-	-	-
1970	92,789	25,963	2,321	28,284	39,131	12,465	978	13,443	-	-	-	-
1971	66,826	23,883	1,641	25,524	26,666	11,666	667	12,333	-	-	-	-
1972	42,943	19,284	1,074	20,358	15,000	10,000	375	10,375	-	-	-	-
1973	23,659	14,087	592	14,679	5,000	5,000	125	5,125	-	-	-	-

See footnotes at end of table.

Table 32: UNITED ARAB REPUBLIC - INTEREST AND AMORTIZATION PAYMENTS ON EXTERNAL PUBLIC DEBT; ESTIMATED CONTRACTUAL PAYMENTS 1959-1973 ON DEBT OUTSTANDING AND UNDISBURSED DECEMBER 31, 1958 WITH MAJOR REPORTED ADDITIONS THROUGH JUNE 5, 1959 (CONT.)

(In thousands of U.S. dollar equivalents)

Year as of Jan. 1	Syria: Total debt in local currency & goods — Debt outstanding & undisbursed	Payments during year — Amortization	Interest	Total
1959	149,581	798	3,740	4,538
1960	148,783	2,465	3,720	6,185
1961	146,318	7,465	3,658	11,123
1962	138,853	12,465	3,471	15,936
1963	126,388	12,465	3,160	15,625
1964	113,923	12,465	2,848	15,313
1965	101,458	12,465	2,536	15,001
1966	88,993	12,466	2,225	14,691
1967	76,527	12,466	1,913	14,379
1968	64,061	12,465	1,602	14,067
1969	51,596	12,465	1,290	13,755
1970	39,131	12,465	978	13,443
1971	26,666	11,666	667	12,333
1972	15,000	10,000	375	10,375
1973	5,000	5,000	125	5,125

/1 Includes all the debts listed on the Table 1a prepared on June 18, 1959 except the City of Alexandria bonds 4%, 1902-1963 (equivalent of $290,000 outstanding December 31, 1958).

/2 For the purposes of this table it was assumed that the debt to the Suez Financial Co. would be repaid according to the terms of the modified agreement (see footnote five, Table 30).

IBRD - Economic Staff
July 1, 1959

RESTRICTED

Report No.P-211

FILE COPY

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

REPORT AND RECOMMENDATIONS

OF THE

PRESIDENT

TO THE

EXECUTIVE DIRECTORS

ON

A PROPOSED LOAN TO THE SUEZ CANAL AUTHORITY

December 8, 1959

INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT

REPORT AND RECOMMENDATIONS OF THE PRESIDENT TO THE EXECUTIVE DIRECTORS CONCERNING A PROPOSED LOAN TO THE SUEZ CANAL AUTHORITY

1. I submit herewith the following report and recommendations on a proposed loan in various currencies equivalent to $56.5 million to the Suez Canal Authority for the development of the Suez Canal.

PART I - HISTORICAL

2. Egypt was an original member of the Bank and Syria joined in 1947. After the two countries united on February 22, 1958 the Egyptian and Syrian memberships were merged into that of the United Arab Republic.

3. The Bank has had extensive discussions at various times regarding the financing of projects in both Egypt and Syria, but no loan has been made.

4. In 1958 the Government of the United Arab Republic asked the Bank to study the plans prepared by the Suez Canal Authority for improving the Canal to meet future needs. In January 1959 the Government formally asked the Bank to consider a loan for this purpose.

5. An economic mission visited the U.A.R. during April and May, 1959 and was followed in July 1959 by a technical mission to appraise the Suez Canal project. Subsequently discussions took place in Cairo and in Washington on various aspects of the proposed loan and negotiations were completed early in December 1959.

PART II - DESCRIPTION OF THE PROPOSED LOAN

6. The main features of the loan are:

Borrower:	The Suez Canal Authority
Guarantor:	The United Arab Republic
Amount:	Equivalent of $56.5 million in various currencies.
Purpose:	The proceeds of the Loan would be used to meet the foreign exchange costs of widening and deepening various sections of the Canal, improving port facilities at Port Said, providing buildings and other facilities, and purchasing construction, operating and maintenance equipment for the Authority.
Amortization:	26 semi-annual instalments beginning March 15, 1962 and ending September 15, 1974.
Interest Rate:	6% per annum, including 1% commission.
Commitment Charge:	3/4 of 1% per annum.
Special Payment Arrangements:	Arrangements will be made for payment of debt service from the Borrower's current revenues as described in paragraph 8 below.

PART III - LEGAL INSTRUMENTS AND LEGAL AUTHORITY

7. Attached are drafts of a Loan Agreement (No. 1) and of a Guarantee Agreement (No. 2), and the report of the Committee provided for in Article III, Section 4 (iii) of the Articles of Agreement (No. 3) in respect of the proposed loan.

8. The draft Loan and Guarantee Agreements follow the forms generally used by the Bank with the following additions:

(a) Section 5.07 (a) and (b) of the Loan Agreement provide for the payment into a reserve, from the Borrower's local currency receipts during each semi-annual period, of amounts sufficient to pay debt service on the Loan during such period,

pursuant to arrangements satisfactory to the Bank, and for the making of arrangements, also satisfactory to the Bank, for the conversion of local currency into the currencies required for such debt service payments. The making of these arrangements would be a condition of effectiveness of the Loan Agreement under Sections 7.01 and 7.02 of the draft Loan Agreement. Drafts of letters which would effect the above arrangements are attached (Numbers 4, 5 and 6).

(b) Paragraph (b) of Schedule 3 to the Loan Agreement makes it an event of default if the amounts subject to the above arrangements become insufficient for the payment of debt service.

(c) The above arrangements would not in any way diminish the general obligations of the Borrower to pay debt service on the Loan (see Section 2.08 of the Loan Agreement).

(d) Paragraph (b) of Schedule 3 also makes an event of default the disapproval by the National Assembly of the Guarantor, pursuant to the Provisional Constitution, of either (i) the amendment of the Public Organizations Law specifically authorizing, inter alia, borrowing from international organizations, or (ii) the decision of the President of the Guarantor granting legislative approval to the Guarantee Agreement. The Provisional Constitution provides for such action by the President in the absence of the National Assembly, subject to its disapproval by a two-thirds vote when it next meets, but provides that such disapproval shall not have retroactive effect. The Bank has received satisfactory assurances that in the event of such disapproval both the Borrower and the Guarantor would remain fully bound by the Loan and Guarantee Agreements with respect to amounts theretofore disbursed.

PART IV - APPRAISAL OF THE PROPOSED LOAN

9. A detailed appraisal of the Suez Canal development project (TO.232a, dated December 8, 1959) is attached (No. 7).

Justification of the Project

10. The Suez Canal was completed in 1869 by a private company, Compagnie Universelle du Canal Maritime de Suez, which operated it until 1956 when the Egyptian Government took over the Canal and set up a public body, the Suez Canal Authority, to manage, operate and maintain the Canal. In 1957 the Authority was constituted as a public organization under the Public Organizations Law, with its Board of Directors and principal officers

appointed by the President of the Republic. The Authority collects Canal tolls and charges for other services it renders. The management of the Authority has demonstrated its ability to conduct its operations efficiently.

11. The Canal provides a permanent passage for ocean-going vessels between the Red Sea and the Mediterranean, shortening the sea voyage between Asia and Western Europe by about 5,000 miles. Throughout the ninety years of its existence the traffic has increased steadily. During the period 1910-58 the number of ships passing through in a year increased almost fourfold to about 18,000 and the cargo tonnage sixfold to nearly 140 million tons. With the expansion of Middle East oil production, particularly since the war, the volume of tanker traffic has become increasingly important and now comprises about 70% of total tonnage.

12. Originally built to accommodate ships of 24.6 feet draft, the Canal has been progressively widened, deepened and otherwise improved as the size and number of vessels passing through it have increased, until today ships having a maximum draft of 35 feet can pass. In 1958 more than one third of all ocean-going vessels and three fifths of all tankers exceeding 4,000 gross tons made at least one trip through the Canal.

13. The discovery of new oil fields outside the Middle East and notably in the Sahara may modify the trend of traffic somewhat in the coming years. Dry cargo tonnage should continue to increase as it has done in the past but the growth of petroleum shipments may well be slowed. But as history has shown, the need to enlarge the Canal stems not only from rising traffic but also from the increase in the average size of ships seeking transit. Should the present draft limit of the Canal remain at 35 feet many of the tankers now coming into service could not use it, or could pass only partially loaded. In these circumstances the Authority would not be able to offer adequate service and its financial position would be adversely affected.

14. To cope with prospective traffic developments, a series of improvements known as the "Eighth Program" were in progress or planned at the time of nationalization. The Authority has continued work on this program, has modified it in certain respects, and has drawn up an additional "Nasser Program" for further development to follow the Eighth Program.

15. The project presented to the Bank for financing involves completing the modified Eighth Program and carrying out parts of the Nasser Program. It is scheduled to be completed by the end of 1961 and consists of widening and deepening various sections of the Canal by dredging and other civil works so as to permit the passage of vessels having a maximum draft of 37 feet, providing various buildings and other facilities in the Canal such as berths for the Authority tugs and other vessels, improving port facilities at Port Said so as to reduce congestion and increase capacity, and purchasing construction, operation and maintenance equipment to replace obsolescent

equipment and to meet future needs. These improvements are soundly conceived and are urgently required not only to provide for increased traffic but to enable the Canal to keep abreast of ship design and so retain much of the Persian Gulf oil traffic which now uses it. The remainder of the Nasser Program is not scheduled to be put in hand until 1962. The Authority does not intend to undertake these works unless expectations as to future traffic increases justify them.

16. The Suez Canal, which is an important foreign exchange earner for the United Arab Republic, has regularly been operated at a profit and the financial position of the Authority is sound. On very conservative assumptions its earnings should be amply sufficient to carry out the project and service the proposed loan.

17. On April 24, 1957 the Government of Egypt made, and deposited with the Secretariat of the United Nations, a declaration on the Suez Canal which stated in Paragraph 5 (c) that the Suez Canal Authority would establish a special Suez Canal Capital and Development Fund into which would be paid 25% of all gross receipts. The objective of setting up this Fund was to assure that adequate resources would be available to the Authority to meet its needs of development and capital expenditure. Since the proposed Bank loan for the Suez Canal Development Project would also provide funds for this purpose, the Government of the U.A.R. will, after the proposed Loan is approved by the Executive Directors, but before it has been signed, deposit with the Secretariat of the United Nations a supplementary declaration in the form attached temporarily suspending the operation of Paragraph 5 (c) of the Declaration of April 24, 1957. (No. 8)

Procurement

18. The purchase of goods and services required for the project will be generally on the basis of international competitive bidding.

Economic Situation

19. A report on the present economic position and prospects of the United Arab Republic was circulated to the Executive Directors on December 4, 1959 (R 59-95). It discusses the Syrian and Egyptian regions of the United Arab Republic separately because the economic integration of the two regions undertaken recently has not yet been completed.

20. The Egyptian Region's basic long-term problems stem from the pressure of population on limited resources. Construction of the High Aswan Dam is just starting - with Soviet aid - and its completion should ultimately add over one third to Egypt's cropped area and generally improve irrigation conditions in the Nile delta; there are some other possibilities of expanding agricultural output and employment but these are limited. And although the Government is seeking vigorously to open up new employment opportunities in industry, it will be difficult to keep pace with the growing population.

21. Within this framework, however, the Egyptian authorities have managed their economic and financial affairs quite effectively, at the same time intensifying their efforts toward economic development. In recent years the economy has adjusted without too much strain to the adverse effects both of the Suez crisis and, subsequently, of the steep drop in world prices for long staple cotton.

22. The impact of these developments was absorbed partially by the gold and foreign exchange reserves which fell from £E 237 million to £E 137 million or about seven months imports between the end of 1955 and the middle of 1959. In addition, the net balance against Egypt on payments agreement accounts rose by £E 26 million, and £E 23.4 million was pledged to meet the payment due in 1960 under the terms of the financial agreement reached with the United Kingdom in 1959. To ease the strain on the reserves, the Government introduced various changes in the exchange system (imports now pay a premium of 27.5%). As a result of a rapprochement between Egypt and the Soviet bloc a substantial portion of the country's foreign trade shifted toward that area. Internally, fiscal policies were readjusted so as to avoid serious inflation. The substantial treasury cash deficit of 1956-57 was changed to a surplus in the next fiscal year; a deficit occurred in the first half of 1959, but was largely due to temporary financing of government cotton stocks which are slowly being liquidated. Because of surplus production of long staple cotton, the Government has reduced the area planted with long staple varieties by 17% this year.

23. Egypt's medium term balance of payments prospects are reasonably favorable. The next 8 years or so may witness an increase of something like 25% in total foreign exchange earnings, provided that internal monetary stability is maintained. Since there will almost inevitably be continued pressure to increase development expenditures, this will need careful management, in particular now that foreign exchange reserves have diminished considerably. On the other side, the resumption of substantial American aid to the Egyptian region - including, over the past year, transfers of surplus agricultural commodities to the value of $106 million and two Export-Import Bank loans totalling $17 million - is a favorable factor as are the recent new oil strikes, especially in the Sinai peninsula, which give ground for hope that Egypt may soon become self-sufficient in petroleum.

24. The possibilities for economic growth in the Syrian Region are quite favorable particularly in agriculture, and consequently its position is inherently less difficult than that of the Egyptian Region. However, Syria has serious immediate economic and financial problems. Inflation resulting from several years of deficit financing by the Government, combined with a poor grain crop, led to a substantial loss of foreign exchange reserves in 1958. Since the economic report was written the situation does not appear to have improved. Deficient rainfall last winter brought another sub-normal cereals crop in 1959, while the indications are that in the first seven months of the year the treasury deficit was larger than in the same period of 1958. At the same time, U.S. aid to Syria has only just started and is still on a small scale. Foreign exchange reserves do not show much change in the first half of 1959.

25. Given the Region's favorable development prospects, Syria should be able to manage its balance of payments problems when agricultural production returns to normal. Very much will depend, however, on careful management of internal and external resources.

Prospects of Fulfillment of Obligations

26. The disbursed and outstanding external debt of the United Arab Republic - exclusive of debt for military purposes - amounts to about $224 million equivalent, upon which the service reaches a peak of $43 million in 1960 and falls to $27 million by 1963. In addition, the Republic has unutilized external credits amounting to $547 million equivalent. If these lines of credit were fully used by their respective closing dates, service payments on the Republic's non-military debt would reach a peak of about $90 million in 1963, about 10% of current foreign exchange earnings of the Republic, and would fall off rapidly after 1967. Of these amounts more than half is payable in kind and not in convertible currencies. There is in addition a financial obligation resulting from the new Nile Waters agreement, which calls for payments from the Republic to the Sudan of £E 15 million ($43 million) between 1960 and 1963, which would raise the Republic's total service payments to a peak of about $103 million equivalent in 1963, or about 12% of total current foreign exchange receipts. If, as seems possible, some of the credits, particularly those from Soviet-bloc countries, should be drawn down more slowly than originally contemplated or allowed to lapse, peak service payments would, of course, be lower.

27. The United Arab Republic's total service payments on external debt - including debt for military purposes the amount and terms of which have been communicated to me in confidence - will in any case be heavy in the early 1960's and the authorities should take great care in assuming additional debt which would substantially increase the service burden during these critical years. However, I am satisfied that taking account of the country's balance of payments prospects, and also of the special arrangements to pay debt service on the proposed loan, a loan in the amount under consideration for the development of the Suez Canal - peak service on which would be about $7 million per year - would be within the Republic's capacity to pay.

PART V - COMPLIANCE WITH THE ARTICLES OF AGREEMENT

28. I am satisfied that the proposed loan complies with the Articles of Agreement of the Bank.

PART VI - RECOMMENDATIONS

29. I recommend that the Bank make a loan to the Suez Canal Authority guaranteed by the United Arab Republic, of the equivalent in various currencies of $56.5 million for a total term of 15 years, with interest (including commission) at 6% per annum and on such other terms as are specified in the attached draft Loan and Guarantee Agreements, and that the Executive Directors adopt a resolution to that effect in the form attached (No. 9).

Eugene R. Black

Attachments

Washington, D.C.
December 8, 1959

RESTRICTED

Report No.T.O. 232a

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

UNITED ARAB REPUBLIC

APPRAISAL OF THE SUEZ CANAL

DEVELOPMENT PROJECT

December 8, 1959

Department of Technical Operations

CURRENCY EQUIVALENTS

1 Egyptian Pound	-	2.87 U. S. Dollars
1 U. S. Dollar	-	.3482 Egyptian Pound
£E 100,000	-	U.S.$ 287,156
U.S.$ 100,000	-	£E 34,824

Suez Canal Authority's Fiscal Year
July 1 to June 30.

The volume of cargo traffic is stated
in metric tons.

Table of Contents

APPRAISAL OF THE SUEZ CANAL DEVELOPMENT PROJECT

Summary

i. The Bank has been asked to help finance a continuing development program of the Suez Canal Authority. The program was started in 1957 and extends through 1963. This report covers the appraisal of that part of the program for which expenditures were made on or after January 1, 1958, and which extends through 1961.

ii. The estimated cost of the Project is £E 37.6 million, including £E 19.7 million (US$56.5 million) in foreign exchange. A loan has been requested to meet the foreign exchange cost.

iii. The Suez Canal Authority is a public organization and has the power to borrow. Its Board of Directors and Managing Director are appointed by the President of the United Arab Republic. It operates, maintains and develops the Suez Canal under an independent budget which must be approved by the President.

iv. Management of the Suez Canal is efficient. Operations and maintenance are well conducted.

v. Traffic has been increasing consistently in the postwar period, particularly with respect to northbound petroleum traffic originating in the Middle East. Petroleum traffic has risen from 20 percent of total traffic in 1935 to about 70 percent in 1958.

vi. Recent developments in petroleum production, especially in North Africa will probably retard the rapid rise of Suez Canal traffic, but to a degree as yet uncertain. Nevertheless, a definite trend toward larger tankers and the desirability of maintaining a high-level of operating efficiency requires the completion of the Development Project if the Suez Canal Authority is to keep abreast of changing conditions and maintain its traffic volume in the face of competitive traffic routes.

vii. The Project consists of widening and deepening various sections of the Canal by dredging and other civil works, in order to achieve a depth which will permit vessels having a maximum draft at rest of 37 feet to transit the Canal; improvements to Port Said Harbor to diminish congestion; construction of buildings including a research laboratory; and providing floating and other equipment in order to replace obsolescent equipment and to meet future requirements.

viii. Earnings of the Authority have been good and operating ratios have been very favorable. The Authority has invested large sums from earnings in plant and equipment. It has no working capital problems or long-term debt. The financial position is sound. Even if no increase in traffic or revenues were experienced after 1959/60, the Authority would

easily be able to meet the local currency costs of the Project and to service the proposed Bank loan.

ix. The Project is suitable for a Bank loan of about $56.5 million equivalent which would cover its foreign exchange costs. An appropriate term would be 15 years including a grace period of two years. The Suez Canal Authority would be the borrower.

SUEZ CANAL DEVELOPMENT PROJECT

I. INTRODUCTION

1. The Suez Canal Authority has been engaged in a continuing development program extending to 1963. The Bank has been requested to assist in financing the first part of the plan extending to the end of 1961, which is hereinafter referred to as the Project.

2. The Project is largely for widening and deepening of the Canal, miscellaneous building construction and the acquisition of operating and maintenance equipment. The cost of the Project is estimated at £E 37.6 million, of which the foreign exchange amounts to £E 19.7 million. The Bank has been requested to lend £E 19.7 million - US$ 56.5 million equivalent. The loan would be guaranteed by the Government of the United Arab Republic.

3. This report is based on an appraisal made by a Technical Operations Department mission which visited the Egyptian Region of the United Arab Republic during July and August 1959.

II. GENERAL (MAPS 1 AND 2)

4. The Suez Canal is one of the most important international waterways in the world. It shortens the sea voyage between Asia and Western Europe by about 5,000 sea miles and is the principal route by which oil produced in the Middle East is transported to its markets. During 1958, 35% of all ocean-going ships and 60% of all tankers, with a gross tonnage exceeding 4,000 tons, passed through the Canal at least once.

5. Small canals linking the Red Sea to branches of the Nile existed during the ancient Egyptian era, but it was not until the construction of the present Canal in 1859-1869 that a permanent means for the passage of sea-going vessels between the Red Sea and the Mediterranean was provided. The Canal was constructed and operated by Compagnie Universelle du Canal Maritime de Suez, shares in which were held internationally. When first completed it was 160 km long and had a depth of eight meters, permitting the passage of vessels having a draft of 7.5 meters (24.6 feet). Since then the size and number of transiting vessels increased substantially. The maximum dead weight tonnage rose from approximately 6,500 tons in 1870 to about 36,000 tons in 1955, and the daily average number of ships rose from 1.33 to 40. By 1955, the Canal had been widened, the depth increased to 14 meters and the maximum permissible vessel draft extended to 10.67 meters (35 feet). Although additional passing places had been provided the Canal remained a one-way waterway.

6. The Canal was developed and operated by the company until July 26, 1956, when it was taken over by the Egyptian Government and an autonomous body, the Suez Canal Authority, was set up to operate it.

III. THE PRESENT CANAL (MAPS 2 AND 3)

7. The Canal is a sea-level canal without locks. It is 162 km long, including dredged channels in Lake Timsah and Great Bitter Lake with lengths of four and 36 km, respectively. There are, in addition, dredged approach channels nine km long from the Mediterranean Sea and four km long from the Red Sea.

8. Port Said lies on the African side of the Canal at its northern end. Suez, with the adjoining Port Tewfik, lies on the same side at the southern end. Opposite Port Said is Port Fuad, where the Canal Authority has its principal repair facilities. The Authority's headquarters is at Ismailia (population 70,000), 80 km south of Port Said. Both Port Said - Port Fuad (population 250,000) and Suez-Port Tewfik (population 180,000) are ports with an appreciable traffic, mainly of a general and transshipment nature, and centers of commercial interests associated with the Canal.

9. There are passing places at Ballah and in the Bitter Lakes beginning at distances of approximately 51 km and 101 km from Port Said, respectively. Vessels can anchor at Port Said, in the Bitter Lakes and at Suez and there are a number of lay-by stations where ships can draw to the side of the canal to permit the passage of other vessels if required. At the commencement of the Project, the typical cross-sectional area below water level of the Canal cuts was 1,250 square meters. In the Canal cuts the typical depth was 14 meters, permitting the passage of a vessel of 10.67 meters (35 feet) draft, and the width at 11 meters depth approximately 60 meters. The depth in the lakes and canal approaches was somewhat less than in the cuts because of the lesser allowance required for the "squat" of the vessel, but permitted the passage of ships of the same draft. The sides, the slopes of which vary between 4.5 to 1 and 2.5 to 1, are revetted one meter below water level with various types of revetment. The most recently developed type comprises steel sheet piles surmounted by interlocking concrete blocks and this has now been adopted as a standard.

10. The soil through which the Canal runs varies in nature, but in general is favorable to Canal construction. At the northern end of the Canal (km 0 to Km 45), alluvium originally brought down by the Nile is found, in the central portion fine sand with some clay, and in the southern section (km 134 to km 162), hard strata, varying between soft sandstone and hard rock are met with. Maintenance and improvement of the Canal is normally carried out by floating dredging equipment, but large drag line excavators working on land have recently been used for removing hard material in the southern section.

11. The tidal range at Port Said is small. There is no appreciable tidal flow in the Port Said-Bitter Lakes section of the Canal, but in the southern section a maximum tidal current of between 3 and 5 km per hour results from the 1.2 to 2.1 meters tidal range at Suez.

12. A bituminous surfaced road controlled and maintained by the Authority and a standard gauge railway operated by the Egyptian State Railways, run parallel to the Canal on the African side, linking Port Said

with Suez. At Ismailia the railway is joined by a connecting line from Cairo, and on the Asiatic side railways link El Kantara to Gaza in Palestine and to Port Tewfik. At El Ferdan (65 km) a swing bridge carries the railway across the Canal; at Port Said, El Kantara, Ismailia and Port Tewfik there are road vehicle ferries and at El Kantara a rail ferry. Fresh water is brought from the Nile at Cairo to Ismailia by a canal known as the "sweet water canal", which by branches running north and south parallel to the Canal also supplies Port Said and Suez. The sweet water canal is maintained by the Irrigation Department of the Government.

13. The main workshops and repair facilities of the Authority are situated at Port Fuad, and there are auxiliary workshops at Port Said, Ismailia, and Port Tewfik where maintenance of the Authority's floating equipment (see Appendix 1) and repairs to transiting ships are carried out. The Authority operates water purification plants at Port Said, Ismailia and Port Tewfik and an electrical generating station at Port Fuad.

IV. THE SYSTEM OF OPERATION

14. Navigation in the Canal is under the direct control of the Authority, which employs all the pilots, and operates all the tugs, navigational aids, etc. involved. The traffic is organized in a carefully planned system of convoys requiring expert hour to hour supervision. The convoys traverse the Canal by night as well as day being guided at night by light buoys and structures as well as by the powerful searchlights which the vessels are required to carry.

15. There are at present three convoys daily, two southbound and one northbound. The southbound convoys assemble in Port Said Harbor and consist of all classes of ships, principally tankers in ballast and laden dry-cargo ships. The northbound convoy, mainly laden tankers and dry-cargo vessels, assembles in Suez Bay. It is in two parts, the first comprising the laden tankers, the second the other vessels. The northbound convoy passes the first southbound convoy in the Bitter Lakes, where the latter has anchored for the purpose, and passes the second southbound, similarly moored at the Ballah bypass. The stipulated speed through the Canal is 13 km per hour for laden tankers and 14 km per hour for dry-cargo vessels or tankers in ballast. The approximate transit time is 13½ hours for a vessel in the northbound convoy, 17 - 18 hours for one southbound.

16. The Authority has found that the convoy system described above, further information regarding which is given in Appendix 2, secures the maximum possible transit capacity through the Canal as existing. It estimates that using this system, the present annual daily average transit capacity of the Canal is between 55 and 60 transits per day. By "annual daily average capacity" is meant the figure arrived at after deducting from the theoretical daily maximum capacity, allowances covering the irregular arrival of ships and delays because of accidents and bad weather. From the "annual daily average capacity" thus obtained, the total annual transit capacity of the Canal can be computed.

17. The Authority provides tugs to tow vessels which through breakdown of machinery or other reason might interrupt the convoy system. Signal stations sited at about 10 km intervals along the Canal keep contact with the transiting vessels to give them instructions regarding navigation, the whole operation being co-ordinated by the Authority's staff in a central control room at Ismailia, which is in constant touch with the vessels and signal stations by wireless telegraphy.

V. ORGANIZATION AND MANAGEMENT

18. The Suez Canal Authority was initially set up by Law No. 285 of July 26, 1956. In its present form the Authority was established by Decree Law No. 146 of July 13, 1957, the principal provisions of which were as follows.

19. The Authority is defined as a public organization, with independent juristic personality. Its Board of Directors and principal officers are appointed by the President of the Republic. Its budget is separate from the National Budget but is subject to approval by the President. It is responsible for the management, operation, and maintenance of the Canal including Port Said Harbor, and for the control of navigation therein. It is empowered to impose and collect tolls for passage through the Canal and charges for other services which it performs. It can own, appropriate, let or hire property necessary for its functions. The law concerning public organizationshas been amended to give them specific powers to borrow.

20. At present the board of the Canal Authority comprises eight members presided over by a Chairman, who is also Managing Director. The members, appointed by the President of the Republic as explained above, serve for an indefinite period. They include civil servants, engineers, economists and lawyers, many of whom have held important positions in Egyptian business and public life.

21. Internally the Authority is organized in accordance with usual practice the principal executives being a Secretary General and a Chief Engineer. Under these function Administrative, Works, Transit (Operating) and Procurement Departments with their respective Heads. The total permanent personnel employed by the Authority, including its pilotage service, control services and operating and maintenance staff, numbers about 5,500.

22. The users of the Canal express satisfaction with the services which they receive from the Authority and with the manner in which shipping movements through the Canal are conducted. A minor exception has been the lack of control of shipping movements in Suez Bay, an area hitherto outside the jurisdiction of the Authority. To rectify the position a law was recently enacted giving the Authority powers of compulsory pilotage in the Bay so that it will now be possible to eliminate these difficulties.

VI. PAST AND PRESENT TRAFFIC

23. Traffic through the Canal has shown a consistently upward trend since its inception except for the interruptions caused by the two World

Wars. During the period 1910-58 the annual tonnage of goods rose from 22.5 millions to 139.4 millions and the number of transits from 4,533 to 17,842, as shown below. (For further details of traffic 1949-58, see Appendix 3).

Tonnage of Cargo Passing Through Canal
(Millions tons)

Year	Tonnage of Dry Cargo	Tonnage of Liquid Cargo	Total Tonnage
1910	22.1	0.4	22.5
1915	n.a.	n.a.	15.1
1920	16.0	1.0	17.0
1925	23.6	3.0	26.6
1930	24.0	4.5	28.5
1935	21.3	5.0	26.3
1940	n.a.	n.a.	n.a.
1945	n.a.	n.a.	n.a.
1950	25.0	47.6	72.6
1955	38.7	68.8	107.5
1958	42.6	96.8	139.4

Number of Vessels Transiting Canal

Year	Total Annual Transits			Average Daily Transits		
	Dry Cargo/ Passenger Vessels	Tankers	Total	Dry Cargo/ Passenger Vessels	Tankers	Total
1910	n.a.	n.a.	4,533	n.a.	n.a.	12.4
1915	n.a.	n.a.	3,708	n.a.	n.a.	10.2
1920	n.a.	n.a.	4,009	n.a.	n.a.	11.0
1925	n.a.	n.a.	5,337	n.a.	n.a.	14.6
1930	n.a.	n.a.	5,761	n.a.	n.a.	15.8
1935	n.a.	n.a.	5,992	n.a.	n.a.	16.4
1940	n.a.	n.a.	2,589	n.a.	n.a.	7.1
1945	n.a.	n.a.	4,206	n.a.	n.a.	11.5
1950	5,016	6,735	11,751	13.7	18.5	32.2
1955	6,789	7,877	14,666	18.6	21.6	40.2
1958	8,254	9,588	17,842	22.6	26.2	48.9

24. Throughout the history of the Canal southbound and northbound transits have been approximately equal in number. At the present time southbound vessels comprise principally petroleum tankers in ballast, passenger and cargo vessels. The cargo carried southbound consists mainly of manufactured goods. The petroleum carried southbound comprises refined products for local distribution, together with some cargoes from Eastern Europe. Northbound traffic is made up of laden oil tankers taking petroleum produced in the Middle East to Europe and America, passenger vessels, and cargo vessels carrying principally raw materials to similar destinations. Details of the southbound and northbound traffic in 1958 were:

Southbound Traffic	Million Tons	Northbound Traffic	Million Tons
Cement	1.4	Petroleum	94.4
Fertilizers	3.7	Ores	5.6
Railway materials	0.8	Textile fibres	1.8
Fabricated materials	5.3	Cereals	1.7
Wood pulp and paper	0.5	Oil seeds	1.6
Salt	0.4	Rubber	1.3
Cereals	3.9	Sugar	1.0
Petroleum	2.4	Fruits	0.7
Others	6.5	Others	6.3
Total	24.9	Total	114.4

25. Although much affected by the competition of air transport, passenger traffic through the Canal remains substantial. In 1958 the number of passengers recorded was 342,404, the number of vessels classified as passenger ships being 558. The latter would in almost all cases carry cargo as well as passengers.

26. The foregoing statistics show that while the annual volume of dry cargo passing the Canal remained comparatively steady between 1910 and the second World War at a figure of the order of 20 million tons, after the war it increased at a substantial rate, more than doubling in amount by 1958. Petroleum, negligible in amount in 1910 rose gradually between the two wars, but in 1935 still represented only about 20% of the total traffic. After the last war, however, as a result of increases in crude oil production in the Persian Gulf area, the volume of petroleum passing through the Canal increased at a phenomenal rate, and in 1958 amounted to nearly 100 million tons, or 70% of the total traffic.

27. Corresponding increases occurred in the number of annual transits but these were proportionately lesser in extent than the cargo tonnage increases, because during the period concerned the average size of the transiting vessels was becoming greater. In the case of dry cargo vessels, the increase in size was relatively small, the annual average Suez net tonnage of vessel, which was 3,640 tons in 1910, rising only to 5,830 tons in 1949 and falling slightly to 5,653 tons in 1958. The average dead weight tonnage of the transiting tankers, however, of the order of 10,000 tons before the 1939-1945 war, had risen to 13,648 tons in 1949 and to no less than 20,734 tons in 1958.

VII. FUTURE TRAFFIC PROSPECTS

28. Ever since the emergence of the Middle East as a prime factor in world oil production, the tanker movement of Persian Gulf oil has become an increasingly important element in Canal traffic. This growth in importance involves increases in both the size of vessels in use and the total tonnage of petroleum transported.

29. The Bank made an investigation of the petroleum-transportation industry's plans concerning the size of tankers and traffic prospects generally. It is clear that a trend towards larger vessels exists, which could adversely affect tanker traffic through the Canal unless improvements are effected. As shown in Appendix 4, as of January 1, 1959, there were under construction by the petroleum-transportation industry, 251 vessels, ranging from 30,000 to 40,000 tons dw.; 206 vessels of 40,000 to 50,000 tons d.w.; 6 vessels of 50,000 to 60,000 tons d.w.; and 63 vessels over 60,000 tons d.w. A laden tanker which coming to the Canal from Middle East has a draft of 35 feet, would be of approximately 36,000 tons d.w.; and one having a draft of 37 feet would be about 46,000 tons d.w. The greater part of the 206 vessels of 40,000 to 50,000 tons d.w. now being built and some of the 251 vessels from 30,000 to 40,000 tons referred to above will fall in the 36,000 to 46,000 tons range. A number of vessels of this category are also already in service. Should the present draft limitation of 35 feet remain, all of these vessels, both in service and under construction, would, when fully loaded, be unable to use the Canal. Accordingly, the canal improvements included in the Project, which as described in the next section of this report have been designed to make possible the passage of vessels having 37 feet draft, should permit the recovery of the traffic already being lost through the diversion of vessels in the 36,000 to 46,000 tons range and the retention of traffic which in future will move in such vessels yet to be placed in service.

30. It would appear that the still larger tankers upwards of 46,000 tons will tend to be used primarily on routes other than the Persian Gulf-Western Europe route. Furthermore, the number of "giant" tankers is foreseen to remain relatively small.

31. Until recently there appeared to be no important factors which could materially affect further substantial increase of the volume of petroleum movement through the Canal. At present, however, there are distinct possibilities that for a time at least such factors will be present. The most significant of these is the discovery and initial development of prospectively important new oil-producing areas in the world, notably in Africa but also in the Western Hemisphere. These developments combined with import restrictions in the United States, are felt by many observers to foreshadow a material slowing down of Canal petroleum tonnage increases.

32. Dry cargo shipments through the Canal, although only 30% of the whole, nevertheless constitute a substantial volume of traffic, amounting to 42.6 million tons in 1958. The opinion is generally held that the increasing trend in this traffic during the postwar period, as described in paragraph 26, is likely to continue in respect of both volume and number of transits.

33. The Authority's own forecast of the level of traffic envisages an increase in petroleum traffic from about 97 million tons in 1958 to approximately 140 million tons in 1965 and an increase in the average total daily transits including dry cargo vessels from 49 in 1958 to 58 in 1965.

34. The complete program of improvements now planned by the Authority consists of the first phase extending to 1961, the project for which the Bank's financial participation is sought, and a subsequent two-year phase for the years 1962 and 1963. The first phase is required, even with the present volume of traffic, to operate and maintain the Canal effectively and to prevent the increasing diversion of that traffic from the Canal as the average size of tanker increases. The second phase, on the other hand, will be required only if the number of transiting vessels increases substantially. The Authority intends to observe traffic developments in the next year or so before deciding whether or when to undertake this second phase. As will be seen later in this report, the project would be financially sound even if no increase in traffic were experienced after 1959/60. Accordingly, the degree of future traffic increases is not an essential consideration in the project appraisal.

VIII. THE PROJECT

General

35. From the opening of the Canal in 1869 until 1955, the Suez Canal Company carried out seven Canal improvement programs. In the latter year the company began a further series of improvements known as the Eighth Program, which was in progress at the time of nationalization. The Authority continued work on this program after making a number of changes and also drew up an additional scheme known as the Nasser Program for further development to follow the Eighth Program.

36. The Project consists of elements necessary to complete the modified Eighth Program and a part of the Nasser Program, extending to the year 1961. It comprises the principal items shown below. Fuller details of the Project are given in Appendix 5 and Maps 2 and 3; the technical basis of the Canal improvements is described in Appendix 6.

The Project

37.(a) The widening of the single way Canal cuts at various locations for the purpose of eliminating navigational hazards and increasing the wet cross sectional area of the Canal.

(b) The deepening of the Canal and its approaches in various locations to permit the passage of vessels having a draft of 11.28 meters (37 feet), and in the case of certain parts of the cuts to increase the wet cross sectional area for the purpose described in paragraph 51 below.

(c) The deepening and improvement of Port Said Harbor and the provision of berths for cargo and passenger ships clear of the Canal channel and assembly area.

(d) The construction of a research laboratory and miscellaneous buildings required for the Authority's operations.

(e) The construction of roads and bridges in the Port Tewfik and Port Said areas.

(f) Miscellaneous civil engineering and maritime construction, including the construction of basins and sheds for lighterage traffic in Port Said and Port Fuad.

(g) The purchase of dredging equipment, tugs, launches, barges, ferry boats, pilot vessels, floating and land cranes, and earth moving, electrical, air supply, water supply, fire fighting and telecommunications equipment to meet the Authority's future requirements and replace obsolescent equipment.

Present Progress

38. The Project had progressed virtually according to schedule at the time of the mission's appraisal. With reference to the principal items shown in Appendix 7, widening and deepening of various sections of the Canal by dredging and revetment construction was started in August 1958 and was scheduled to be completed by September 1960. Dry digging was started in February 1958 and was scheduled to be finished by September 1959. In July 1959, dredging was 36 percent, construction of new revetments 47 percent and demolition of existing revetments 41% complete.

39. Modification of the El Guisr curves was started in January 1959; expected to be completed by May 1960; contract work was 60% finished; and the direct administration work had just been started in July 1959. The widening of the Kantara section was just started in July 1959 and is scheduled for completion in July 1960.

40. Deepening of Port Said roadstead and Great Bitter Lakes was finished about October 1, 1959, by the U.S. Corps of Engineers' hopper dredger "Essayons". Deepening of the Suez roadstead has not been started.

41. Deepening and widening of other sections of the Canal to complete the modified Eighth Program had just been started and is scheduled for completion at the end of September 1960. Deepening of the Canal between km 132 and km 157.5 had not been started at the time of the mission's appraisal. Improvements to Port Said Harbor are expected to be started in July 1960. The widening operations at El Ferdan bridge will start in December 1959 and take about two years to complete. Widening the Canal from km 79 to km 97 has not yet been started, nor a schedule as yet announced. The construction of a research laboratory at Ismailia was started in April 1959 and scheduled for completion early in 1960. It was about 50% finished in July 1959. Other works and acquisition of equipment are progressing satisfactorily. Further details concerning approximate dates for commencement, completion, order and delivery are included in Appendix 5.

The Cost of the Project

42. The estimated cost of the Project is LE37,606,356 (US$107,930,422 equivalent), of which LE 19,689,000 (US$56,500,000 equivalent) will be in foreign currency, the following being the principal items (for details see Appendix 7):

	Foreign Currency		Local Currency	Total	
	£E (millions)	US$ Equiv. (millions)	£E (millions)	£E (millions)	US$ Equiv. (millions)
a) Canal Improvement Program	9.8	(28.1)	11.4	21.2	(60.8)
b) Provision of buildings and miscellaneous facilities	.4	(1.2)	2.4	2.8	(8.2)
c) Purchase of plant and equipment	8.7	(24.9)	3.1	11.8	(33.7)
d) Contingencies	.8	(2.3)	1.0	1.8	(5.2)
Total	19.7	(56.5)	17.9	37.6	(107.9)

43. The phasing of expenditure on the Project by fiscal years is approximately as follows, in £E millions:

	Last 6 mos. 57/58		58/59		59/60		60/61		First 6 mos. 61/62		Total Project	
	F	L	F	L	F	L	F	L	F	L	F	L
a) Canal Improvement Program	1.1	.4	2.2	3.0	4.3	4.9	2.0	2.4	.2	.7	9.8	11.4
b) Buildings & Miscellaneous facilities	*	.1	.1	.4	.2	1.1	.1	.7	*	.3	.4	2.4
c) Plant and Equipment	.8	.3	1.6	1.0	2.7	.7	2.6	.8	1.0	.3	8.7	3.1
Total	1.9	.8	3.9	4.3	7.2	6.6	4.7	3.9	1.2	1.3	18.9	16.9
Contingencies	-	-	-	-	.4	.6	.3	.3	.1	.1	.8	1.0
Grand Total	1.9	.8	3.9	4.3	7.7	7.2	5.0	4.2	1.2	1.4	19.7	17.9

Note: Totals do not always equal sum of factors because of rounding.

*Amounts less than £E 50,000 omitted
F represents foreign exchange costs
L represents local currency costs

44. The foregoing estimates include expenditures made by the Suez Canal Authority since January 1, 1958. Foreign exchange expenditures for the Project since that date to January 1, 1959, have been of the order of £E 3.5 million equivalent.

45. The estimates allow for contingencies and appear to be realistic, having been to a large extent based on actual prices already paid or quoted.

46. The wet dredging and excavation, representing about 35% of the cost of the Project, is being carried out by contract after international bidding except in the case of dredging in Port Said roads and the Bitter Lakes, which has been carried out by the U.S.Corps of Engineers' dredger "Essayons" on a charter basis, and certain dredging which can be done more economically using the Authority's own craft. Dry excavation and the revetment is being done by local contract, foreign contractors not being able to compete in prices for this class of work. The purchase of equipment will be generally on the basis of international tender.

47. The civil engineering design work connected with the project is being carried out by the Authority, which has its own staff of competent engineers. To a considerable extent the designs adopted for Canal improvement follow principles and practices which have grown up over the many years of the Canal's history and in the formulation of which many engineers of international reputation have played a part.

The 1962/63 Program

48. The Project as described above is a part of a continuing program extending through 1962 and 1963. While most of this additional program will follow completion of the Project, parts of it may be started before 1962.

49. The additional plans call for further widening, further deepening and extension of the existing by-passes or double sections of the Canal at Ballah, Great Bitter Lake, Kabret and Port Said; additional improvements at Port Said Harbor; the construction of a shipbuilding yard at Port Fuad; other miscellaneous building construction; and the acquisition of additional operating and maintenance equipment.

50. The cost of the 1962/63 program is now estimated to be about £E 31.1 million, of which £E 15.6 million equivalent would be in foreign exchange and £E 15.5 million in local currency. (See Appendix 8).

IX. BENEFITS RESULTING FROM THE PROJECT

51. As a result of widening and deepening works, vessels having a draft of 11.28 meters (37 feet) fully loaded, e.g., a tanker of about 46,000 tons d.w. will be able to transit the Canal as compared with the present limitation of 10.67 meters (35 feet), equivalent to tanker tonnage of 36,000 tons d.w.

The increase in wet cross sectional area achieved will facilitate navigation and attain an acceptable ratio of 1 to 5 between the wet cross section of the larger transiting vessels and the wet cross section of the canal cuts. Research has indicated that with a lesser ratio erosion of the banks and consequent maintenance costs are at an uneconomic level, steering of vessels is adversely affected and the "squat" of the larger transiting vessels is excessive.

52. Navigation will be facilitated generally and certain existing hazards will be eliminated. Delays to vessels awaiting convoy will be reduced; and generally the Canal Authority will be in a better position to retain its existing traffic in the face of competitive routes such as that around the Cape.

53. The improvement of Port Said Harbor will reduce delays to shipping awaiting entry to the Canal occasioned by the present inadequate area of the harbor and its use as a commercial port as well as an assembly area for Canal convoys. At the same time hazards to shipping will be lessened and the efficiency of Port Said as a commercial port will be increased.

54. The research laboratory is required for the carrying out of hydraulic and related research into Canal dredging, revetment maintenance and similar problems. It will also provide services for outside bodies subject to priority for work connected with the Canal. Details of the operational need for the various items of plant and equipment are given in Appendix 5. In general, the new items are needed to replace existing equipment which is nearing the end of its useful life, to provide additional equipment necessary to enable the Authority to maintain and operate the improved Canal efficiently and to provide users with the ancillary services which they require.

X. EARNINGS AND FINANCES

55. The earnings and finances of the Authority depend very largely on Canal tolls. Only relatively small amounts accrue from berthing and towage of vessels, the supply of water and electricity, ferry tolls and the rent of buildings and floating equipment.

56. Canal toll charges are related to the "Suez Canal net ton" which is calculated in accordance with specific rules pertaining to methods for vessel-space measurements. Payment of transit tolls by ships' agents at Port Said and Suez, in advance of ships entry into the Canal, is generally made by check in Egyptian pounds acquired by the sale of foreign exchange to the National Bank of Egypt.

57. Canal toll charges have not been increased since 1941, and, in fact, they were reduced in 1951 and again in 1954, to the current level, as shown below:

Effective Date	Rate of Tolls per Suez Canal Net Ton	
	Laden Vessels	Vessels in Ballast
	- LE -	
December 15, 1938	0.2803	0.14015
January 1, 1941	0.390	0.195
September 15, 1951	0.365	0.170
September 14, 1954	0.340	0.155

58. Earnings. The Suez Canal has consistently been operated at a profit, after allowance for depreciation based on the straight line method and original cost.

59. Annual depreciation charges provide ample allowances, being the maximum permitted by the Government Tax Department.

60. Net operating income after income taxes and depreciation has been as shown below:

Year	Operating Revenues (£E 000)	Operating Expenses (£E 000)	Net Revenues (£E 000)	% Operating Ratio
1956/57 (7 mos.)	14,261	9,322	4,939	65
1957/58	41,053	18,879	22,174	46
1958/59	45,303	18,884	26,419	42

Note: The foregoing table includes in operating expenses depreciation, income taxes and government royalty, as shown in Appendix 9. Net revenues are calculated accordingly.

61. Finances. The Authority's balance sheet as of June 30, 1959, is summarized below. For greater detail see Appendix 10.

	(£E 000)		(£E 000)
Current Assets	32,828	Current Liabilities	20,563
Fixed Assets	14,662	Reserves:	
		Income Tax	5,300
		Depreciation and renewals	15,476
		Unappropriated Income	6,151
Total Assets	47,490	Total Liabilities	47,490

62. Fixed assets acquired at time of nationalization are carried at one pound Egyptian. Subsequent reinvestment of earnings in fixed assets has been at a high level, amounting to more than £E 14.6 million during the three-year period ending June 30, 1959.

63. The Authority has no long-term debt. Current assets bear a satisfactory relationship to current liabilities and its financial position is sound.

64. The amounts charged to depreciation, credited to the renewals fund and remaining to the Authority in the form of unappropriated income amounted to 27% of gross revenues in 1957/58 and to 23% in 1958/59, as summarized from Appendix 9 and shown below:

	1957/58	1958/59
Gross revenues	£E 41,053,000	£E 45,303,000
Depreciation	2,808,000	3,200,000
Renewals Fund	3,000,000	2,736,000
Unappropriated Income	5,160,000	4,599,000
	£E 10,968,000	£E 10,535,000
	26.7%	23.3%

XI. FUTURE FINANCING

65. A Bank loan($56,500,000 equivalent) has been requested in order to meet the foreign exchange costs of the Project, estimated to cost, as shown in Appendix 7, £E 19,689,000 equivalent foreign exchange and £E 17,917,000 local currency. As stated earlier, the Suez Canal Authority is planning further improvements, most of the cost of which would be incurred in 1962 and 1963. In the course of the next two years the Authority will be able to observe traffic trends before making a final decision concerning its investment program. The cost of such improvements, which are not included in the Project, are currently estimated at about £E 15,650,000 equivalent foreign exchange and £E 15,465,000 local currency.

66. The Authority has prepared a forecast of income through 1962/63 based upon its own forecast of future traffic. The projection indicates the following earnings, in thousands of Egyptian pounds: (For details see Appendix 11).

Year	Operating Revenues	Operating Expenses	Net Revenues	Operating Ratio (%)
1959/60	46,250	22,019	24,231	48
1960/61	49,625	23,567	26,058	47
1961/62	53,000	24,691	28,309	47
1962/63	56,250	26,153	30,097	46

Note: Operating Expenses include depreciation, income taxes and Government royalty, 5% of gross revenue.

67. The profitability of the Suez Canal Authority is such that even if no increase in traffic were experienced subsequent to 1959/60, the Authority would without difficulty be able to carry out the Project and service the requested Bank loan. Based upon the assumption of no increase in traffic after 1959/60, the income accounts would develop substantially as shown below. (For details see Appendix 12).

	Fiscal Years (£E 000,000)					
	1959 1960	1960 1961	1961 1962	1962 1963	1963 1964	1964 1965
Total operating revenues	46.2	46.2	46.2	46.2	46.2	46.2
Total operating expenses, including depreciation, taxes, and Government royalty	22.0	22.6	23.1	23.0	23.2	23.5
Net revenue after depreciation, taxes, and Government royalty	24.2	23.6	23.1	23.2	23.0	22.7

68. The extent to which the local currency and loan service costs would be covered by earnings plus depreciation assuming no increase in traffic or revenues after 1959/60, is shown in the following table:

	LE 000 or equivalent			
	1959/60	1960/61	1961/62	1962/63
1. Local currency cost of the project	7,200	4,237	1,380	
2. The 1962/63 program, foreign and local currency costs			15,000	16,116
3. IBRD interest	56	707	985	1,136
4. IBRD amortization	-	-	436	958
Total lines 1 to 4	7,256	4,944	17,801	18,210
5. Depreciation	3,700	4,200	4,700	5,000
6. Net income after depreciation, income taxes and government royalty	24,231	23,671	23,106	23,208
Total lines 5 and 6	27,931	27,871	27,806	28,208

69. For the construction period of the project, ample margins are provided. In 1961-62 a part of the costs for the 1962-63 program (LE 15 million) is also included. Most of the costs of this program would be incurred after the project is completed. They are included in the foregoing table in order to show that, even without taking into account any future outside financing, ample funds would be available for the purposes indicated.

XII. CONCLUSIONS AND RECOMMENDATIONS

70. Management of the Suez Canal is efficient and its operations are well conducted.

71. The Project is designed to permit the transit of vessels of about 46,000 tons d.w., with a draft of 37 feet, compared to the maximum now permitted, 36,000 tons d.w. and a draft of 35 feet. Navigational hazards and delays to shipping will be reduced. Equipment necessary for effective operation and maintenance of the Canal will be provided.

72. Traffic has been increasing consistently in the postwar period, particularly with respect to northbound transits and tonnage of petroleum from the Middle East.

73. Recent developments in petroleum production will affect Suez Canal future traffic to a degree as yet uncertain. Nevertheless, because of the trend toward larger tankers and the necessity to maintain a high level of operational efficiency, the Project is required if the Authority is to keep abreast of developments and retain its traffic volume. The Project is sound and arrangements for carrying it out are satisfactory.

74. The earnings of the Authority are good and its financial condition is satisfactory. Reinvestment of earnings in plant and equipment has been at a high level and there are no working capital problems. There is no long-term debt. Operations may be expected to continue to be profitable.

75. The present level of traffic and revenues will be sufficient for the Authority to carry out the Project and to service the proposed Bank loan.

76. The Project is suitable for a Bank loan of about $56,500,000 equivalent which would cover its foreign exchange costs. An appropriate term would be 15 years with a two-year grace period. The Suez Canal Authority would be the borrower.

Appendix 1

SUEZ CANAL PROJECT

List of Suez Canal Authority's Existing Floating Equipment

Item No.	Description	Number	Date Purchased	Remarks
	Dredging Equipment			
1.	Hopper (drag suction) dredger	1	1950	Dredger "Rameses"
2.	Cutter suction dredgers	3	1955-58	Dredgers "Tohotmos", "26th July" and "15th September"
3.	Bucket dredgers	5	1913-27	-
4.	Rock breaker	1	1950	-
5.	Pump ashore units	2	1914,1925	-
6.	Self-propelled dumping hoppers	3	1906	-
7.	Dumping hoppers	25	1906-53	-
	Tugs			
8.	Large tugs	4	1898-1954	Of these tugs only the "Amtar" was built since 1926.
9.	Medium tugs exceeding 1000 hp.	6	1949-58	-
10.	Medium tugs less than 1000 hp	6	1924-57	-
11.	Small tugs	19	1892-1955	-
	Floating Cranes and Sheerlegs			
12.	80 tons capacity	1	1954	-
13.	40 tons "	2	1930	-
14.	8-10 tons "	8	1913-53	-
15.	3-6 tons "	8	1913-47	-

Item No.	Description	Number	Date Purchased	Remarks
	Barges			
16.	Work barges	211	1884-1953	-
17.	Fuel barges	9	1908-50	-
18.	Water barges	7	1906-51	-
19.	Pile drivers	2	-	Barges included in item 16.
20.	Derrick cranes	3	1888-1908	-
	Launches			
21.	Harbor launches	2	1902, 1913	-
22.	Pilot launches	21	1938-57	-
	Motor Boats			
23.	Miscellaneous	33	1922-56	-
	Miscellaneous Craft			
24.	Pilot boats	2	1912,1951	-
25.	Salvage boats	2	1950	-

Note:

Of the above craft, a large proportion have been sunk and salvaged. In their salvaged condition their usefulness has in many cases been adversely affected, particularly where craft with electrical equipment are concerned. The considerable age of many of the craft is also noticeable.

Appendix 2

The Convoy System and the Capacity of the Canal

1. As described in paragraph 15 there are at present three convoys daily, two southbound and one northbound. The convoys assemble in Suez Bay and Port Said Harbor, and must have anchored and notified the Authority of their arrival 2½ hours before convoy departure time in order to obtain permission to join the convoy. If a vessel arrives just after this time limit, it may thus lose 24 hours if northbound, or about half as long if southbound.

2. The northbound convoy leaves Suez in two sections, the first section consisting of tankers less than 14,000 tons spaced at 10 minute intervals, followed by tankers 14,000 tons and over at 16 minute intervals, and the second section of dry cargo and other vessels spaced at 9 minute intervals. The first section travels at 13 km p.h. and the second, which leaves about 40 minutes after the last vessel of the first section, at 14 km p.h., by this superiority of speed partly catching up the first section during the transit. The two southbound convoys travel at 14 km. p.h. with the vessels at 9 minute intervals.

3. The northbound convoy passes the first southbound convoy at anchor in the Great Bitter Lake, and passes the second tied up in the Ballah By-pass. Although the northbound convoy is intended to travel through the Canal without stopping, in practice it frequently anchors in the Bitter Lake, either because the last of the first southbound has not yet entered the Lake, or to re-arrange the convoy, it not always being possible to assemble in proper order at Suez.

4. The relative advantage of various convoy systems is a complex matter. Broadly speaking, reduction in the number of convoys increases the daily transit capacity of the Canal until the number of convoys is reduced to three, the present number. To reduce the number to two daily would offer no further advantage in this respect. An increase in the number of convoys daily would however decrease the average time lost waiting to join convoy at the end from which the increased number of convoys left.

5. Given the spacing, the speed of ships, and the position and length of the by-passes, the theoretical maximum daily transit capacity can be computed, i.e. the number of ships which can pass through the Canal providing that all vessels exactly keep station; that there are no delays due to accident or weather; and that the proportion of tankers exceeding 14,000 tons d.w. is not abnormal. To obtain a figure for daily capacity which can be used to compute the total annual capacity of the Canal it is necessary to use a reduction factor allowing for the variations tending to reduce capacity listed above and also for the fact that the number of vessels seeking transit daily is not steady but fluctuates between wide limits. The Suez Canal Company choose a value of 15% for this reduction, the Authority feel that this was on the conservative side.

6. Appendix 3 gives details of the daily transits recorded during 1958. As will be seen, the monthly daily average varied between 46.1 and

53.3, the annual daily average having been 48.9. Individual daily transits varied between a maximum of 84 and a minimum of 12. The Authority state high figures such as the former, apparently exceeding the theoretical maximum capacity of the Canal, arise under circumstances of the following kind. Although that number of vessels may have entered the Canal on the day concerned, they may not all have completely transited on that day, i.e., the three convoys may have over-run 24 hours; there may have been an unusually small number of loaded tankers exceeding 14,000 tons in the convoy, thus shortening it; when there is heavy congestion of shipping the Authority allows a slightly higher speed than normally stipulated, an increase which can only be permitted occasionally if undue damage to the banks is to be avoided.

KS/SnW

UNITED ARAB REPUBLIC
SUEZ CANAL AUTHORITY
Management

TRAFFIC THROUGH THE CANAL, 1949-1958

Northbound Goods Traffic in the Canal (1949 - 1958)
(Thousands tons)

Year	Petroleum Products	Ores & Metals	Textile Fibers (Raw)	Cereals	Oil Seeds	Rubber	Sugar	Fruits	Others	Total
1949	36,976	1,933	1,316	1,492	984	1,167	541	212	3,406	48,027
1950	47,526	2,212	1,489	2,061	1,444	356	428	282	4,670	60,468
1951	42,873	2,592	1,549	3,072	2,083	1,369	521	358	4,916	59,333
1952	45,933	3,731	1,409	1,824	1,531	1,384	548	398	4,689	61,447
1953	49,420	5,049	1,817	2,068	1,734	1,246	1,060	452	5,035	67,881
1954	56,978	4,552	1,629	2,189	1,765	1,217	1,046	553	4,582	74,511
1955	66,893	5,300	1,744	2,488	1,803	1,349	964	618	6,267	87,426
1956 (2)	65,777	(1)	(1)	(1)	(1)	(1)	(1)	(1)	17,099	82,876
1957 (3)	54,051	4,344	999	1,146	1,153	755	752	298	3,721	67,219
1958	94,401	5,602	1,766	1,681	1,594	1,257	1,012	706	6,411	114,430

(1) Cannot be specified due to absence of the Captains' Declarations of July 1956.
(2) Figures of 1956 are for the navigational period of the year (10 months)
(3) Figures of 1957 are for the navigational period i.e. from 10th April till end of the year.

KS/SnW

UNITED ARAB REPUBLIC

SUEZ CANAL AUTHORITY

Management

Southbound Goods Traffic in the Canal (1949 - 1958)

(Thousands tons)

Year	Petroleum	Cement	Fertilizers	Coal & Coke	Railway Materials	Fabricated Metals & Machinery	Wood Pulp & Paper	Salt	Cereals & Derivatives	Others	Total
1949	166	1,326	673	161	329	2,642	452	1,136	1,668	4,475	13,028
1950	111	1,110	1,389	549	377	2,725	450	161	779	4,790	12,141
1951	1,931	1,207	1,085	328	308	2,788	510	835	2,215	6,213	17,420
1952	6,415	1,701	1,593	406	304	2,529	441	393	2,176	6,043	22,001
1953	7,231	1,587	2,065	72	268	3,052	608	406	1,468	5,761	22,518
1954	6,084	1,990	2,089	75	385	3,169	568	470	504	7,036	22,370
1955	1,905	2,683	2,454	116	467	3,759	611	497	489	7,101	20,082
1956(2)	1,755	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	16,352	18,107
1957(3)	847	1,285	1,935	61	426	3,514	367	182	1,046	4,441	14,104
1958	2,376	1,379	3,685	149	760	5,331	506	404	3,937	6,416	24,943

(1) Cannot be classified due to absence of the Captains' Declarations of July 1956.
(2) Figures of 1956 are for the navigational period of the year (10 months)
(3) Figures of 1957 are for the navigational period i.e. from the 10th of April till the end of the year.

KS/SnW

UNITED ARAB REPUBLIC

SUEZ CANAL AUTHORITY

Management

TRAFFIC IN THE CANAL 1949 - 1958

Year	NUMBER OF TRANSITS						Suez Canal net tonnage (Thousands of tons)		
	By kind of ships			By direction of transit					
	Tankers	Others	Total	Southbound	Northbound	Total	Tankers	Others	Total
1949	5,501	4,919	10,420	5,272	5,148	10,420	40,195	28,616	68,811
1950	6,735	5,016	11,751	5,950	5,801	11,751	52,092	29,704	81,796
1951	5,900	5,794	11,694	5,807	5,887	11,694	46,732	33,624	80,356
1952	6,235	5,933	12,168	6,111	6,057	12,168	51,822	34,315	86,137
1953	6,456	6,275	12,731	6,362	6,369	12,731	56,374	36,531	92,905
1954	6,890	6,325	13,215	6,629	6,586	13,215	65,012	37,482	102,494
1955	7,877	6,789	14,666	7,332	7,334	14,666	75,857	39,899	115,756
1956(1)	7,382	5,909	13,291	6,699	6,592	13,291	74,348	32,658	107,006
1957(2)	5,849	5,109	10,958	5,498	5,460	10,958	62,883	27,028	89,911
1958	9,588	8,254	17,842	8,999	8,843	17,842	107,816	46,663	154,479

N.B.- (1) Figures of 1956 are for the navigational period of this year (10 months only).
(2) Figures of 1957 are for the navigational period of this year from 10th April till the end of the year.
It is to be noted that the period from 10th April to end of time is a period of recovery of traffic, the figure being below normal.

Transits Through the Canal During 1958

Month	Southbound			Northbound			Total Transits		Monthly
	Daily Average	Max. Daily	Min. Daily	Daily Average	Max. Daily	Min. Daily	Max. Daily	Min. Daily	Daily Average Total Transits
January	22.4	38	9	24.1	45	7	62	29	46.5
February	24.2	45	13	23.7	42	11	69	33	47.9
March	25.0	42	12	23.6	52	16	84	12	48.6
April	23.8	42	10	23.9	34	11	66	32	47.7
May	24.1	38	16	25.8	40	17	67	40	49.9
June	23.5	34	12	22.6	35	15	68	31	46.1
July	23.6	35	14	22.5	37	11	72	31	46.1
August	24.4	33	11	23.2	34	14	61	35	47.6
September	26.0	35	15	24.4	35	19	65	39	50.4
October	27.0	38	11	24.8	34	17	66	32	51.8
November	27.2	51	10	26.1	39	18	73	39	53.3
December	24.8	40	16	25.8	37	14	67	35	50.6

Annual Average Daily Total Transits: 48.9

WORLDWIDE INDUSTRY TANKER CONSTRUCTION BY SIZE GROUPS
AS AT JANUARY 1, 1959
(VESSELS 6,000 D.W.T. AND OVER)

OWNERSHIP	Total No.	Total T2	Total Average DWT	DEADWEIGHT CLASS 6,000/16,000 No.	6,000/16,000 T2	16,001/20,000 No.	16,001/20,000 T2	20,001/30,000 No.	20,001/30,000 T2	30,001/40,000 No.	30,001/40,000 T2	40,001/50,000 No.	40,001/50,000 T2	50,001/60,000 No.	50,001/60,000 T2	60,001/PLUS No.	60,001/PLUS T2
OIL COMPANIES																	
Jersey	53	158.0	43,790	-	-	-	-	-	-	23	56.3	27	86.7	-	-	3	15.0
Standard-Vacuum	4	7.6	28,390	2	1.9	-	-	-	-	1	2.6	1	3.1	-	-	-	-
Sub-total	57	165.6	42,710	2	1.9	-	-	-	-	24	58.9	28	89.8	-	-	3	15.0
Allied/Ashland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atlantic Refining	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
British Petroleum	57	141.1	36,840	14	14.5	5	6.4	-	-	12	27.6	18	57.7	-	-	8	34.9
Caltex	13	37.3	43,090	-	-	1	1.2	-	-	4	9.0	6	18.5	-	-	2	8.6
Cities Services	3	13.0	65,000	-	-	-	-	-	-	-	-	-	-	-	-	3	13.0
Continental Oil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gulf	23	61.1	38,880	-	-	1	1.2	6	12.2	10	26.0	3	8.7	-	-	3	13.0
Hess	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paragon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Petrofina	3	6.5	32,270	-	-	1	1.3	-	-	1	2.2	1	3.0	-	-	-	-
Pure Oil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Richfield	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sinclair Refining	2	3.3	24,500	-	-	-	-	2	3.3	-	-	-	-	-	-	-	-
Shell	45	101.4	33,760	-	-	15	18.0	-	-	21	48.7	4	12.2	-	-	5	22.5
Socony-Mobil	15	42.1	41,860	-	-	2	2.5	2	4.2	-	-	11	35.4	-	-	-	-
Standard Oil-California	10	34.7	51,900	-	-	-	-	-	-	-	-	7	21.7	-	-	3	13.0
Standard Oil (Indiana)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sun Oil	3	10.0	47,750	-	-	-	-	-	-	-	-	3	10.0	-	-	-	-
Texas Co.	11	29.4	39,660	-	-	2	2.6	-	-	2	5.2	7	21.6	-	-	-	-
Tidewater	15	59.3	59,190	-	-	-	-	-	-	-	-	6	18.4	-	-	9	40.9
Union Oil	2	8.5	60,000	-	-	-	-	-	-	-	-	-	-	2	8.5	-	-
Other Oil Companies	12	28.6	35,600	1	1.0	1	1.1	1	1.4	3	6.4	6	18.7	-	-	-	-
TOTAL OIL COMPANIES	271	741.9	40,600	17	17.4	28	34.3	11	21.1	77	184.0	100	315.7	2	8.5	36	160.9
INDEPENDENT COMPANIES																	
Andreadis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barber Oil	6	18.8	46,000	-	-	-	-	-	-	-	-	6	18.8	-	-	-	-
Carras	3	9.9	47,530	-	-	-	-	-	-	-	-	3	9.9	-	-	-	-
Goulandris	10	27.5	40,990	-	-	-	-	-	-	5	12.7	5	14.8	-	-	-	-
Hendy, Joshua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kulukundis	3	4.8	23,970	-	-	2	2.6	-	-	1	2.2	-	-	-	-	-	-
Kurz	4	13.1	45,370	-	-	-	-	-	-	-	-	4	13.1	-	-	-	-
Lemos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livanos	5	10.9	31,780	-	-	-	-	2	3.6	3	7.3	-	-	-	-	-	-
National Bulk	3	21.0	104,520	-	-	-	-	-	-	-	-	-	-	-	-	3	21.0
Niarchos	7	26.5	55,790	-	-	-	-	2	3.3	1	2.7	-	-	-	-	4	20.5
Nicolaou	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nomikos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Onassis	14	53.7	56,640	-	-	-	-	1	1.7	3	8.0	2	6.4	-	-	8	37.6
Vergottis	2	4.9	36,650	-	-	-	-	-	-	1	2.2	1	2.7	-	-	-	-
Wang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Independent Companies	459	971.3	31,770	4	3.4	133	169.5	70	117.8	151	353.3	85	258.7	4	14.2	12	54.4
TOTAL INDEPENDENT COMPANIES	516	1162.4	33,700	4	3.4	135	172.1	75	126.4	165	388.4	106	324.4	4	14.2	27	133.5
GOVERNMENT COMMERCIAL	23	30.8	20,000	11	6.4	2	2.6	1	1.7	9	20.1	-	-	-	-	-	-
TOTAL WORLD COMMERCIAL	810	1935.1	35,600	32	27.2	165	209.0	87	149.2	251	592.5	206	640.1	6	22.7	63	294.4

Source: Standard Oil Company (N.J.)
Transportation Coordination Dept.

Appendix 4

SUEZ CANAL PROJECT

Detailed List of Items Comprising the Project

Item No.	Description of Item.	Purpose for which required.	Approximate commencement date or date of order.	Approximate completion date or date of delivery.	Method of execution or procurement.	Remarks
1.	Canal Improvement Program Widening and Deepening of Various Sections of Canal comprises dry digging, demolition and construction of revetment and dredging	Elimination of navigational hazards, increase in wet cross section	In hand	July 1960	Dry digging by local contract, dredging by contract	Dredging by consortium
2.	Modification of curves in El Guisr Region comprises dry digging, construction of revetment and dredging	Elimination of navigational hazards, increase in wet cross section	In hand	May 1960	Dry digging and revetment local contract, dredging departmentally	-
3.	Widening and Deepening of Section at El Kantara comprises demolition of existing structures and revetment, dry digging, construction of new revetment and dredging	Elimination of navigational hazards, increase in wet cross section and deepening to permit transit of 37 feet draft vessels	In hand	July 1960	Demolition and dry digging local contractor, dredging departmentally	-
4.	Widening and Deepening in Port Said Roads and Great Bitter Lake and Suez Roads extension of dredged areas and deepening in Port Said Harbor, channel and roads and deepening of anchorages and channel in the Great Bitter Lake and Suez Roads	To permit transit of 37 feet draft vessels and reduce congestion at Port Said	In hand	October 1959	Dredging by USCE dredger "Essayons" on charter	-
5.	Widening and Deepening of Other Sections of the Canal comprises dredging only	Elimination of navigational hazards, increase in wet cross section and deepening to permit transit of 37 feet draft vessels	In hand	September 1960	Departmentally	Item includes work in Suez Roadstead
6.	Deepening of Canal from Km. 132 to Km. 157 and widening between Km.145 and Km. 155. deepening and widening the Canal by drag line excavator	Increasing wet cross section and deepening to permit transit of 37 feet draft ships	August 1959	October 1960	Contract	Contract awarded to a Belgium-Dutch consortium
7.	Improvements to Port Said Harbor removal of existing islands and replacement by making areas elsewhere doubling the channel in the harbor, removal of end of existing internal breakwater, provision of navigational aids and provision of deep sea quays to berth passenger and cargo ships loading or handling cargo at Port Said	To diminish congestion in the harbor so as to reduce waiting time of vessels entering the Canal and to improve the efficiency of the port of Port Said	July 1960	End of 1961	Contract	International bids

Appendix 5

SUEZ CANAL PROJECT
Detailed List of Items Comprising the Project

Item No.	Description of Item	Purpose for which required	Approximate commencement date or date of order	Approximate completion date or date of delivery	Method of execution or procurement	Remarks
8.	Widening of El Ferdan Bridge Section Demolition of existing bridge pier protection and construction of new steel sheet pile protecting wall.	Increase in cross section of Canal and reduction of navigational hazard presented by bridge piers.	December 1959	December 1961	Contract	International bids
9.	Widening of Canal from Km. 79 to Km. 97 Widening of Canal by dry digging, demolition and construction of revetments, and dredging.	Increase in wet cross section of Canal	End of 1960	End of 1961	Contract	International bids
10.	Construction of Research Laboratory Laboratory building with Canal experimental tank, wave tank, materials testing laboratory, soil mechanics laboratory, etc. at Ismailia.	Research into hydraulic problems associated with Canal, materials and soil mechanics testing in connection with construction program.	In hand	End of 1960	Local contract	-
11.	Miscellaneous Building Construction Comprises various buildings including a school at Ismailia for the children of the Authority's personnel, an extension of the Authority's offices at Ismailia, etc.		Early 1960	End 1961	Contract	Local bids
12.	Miscellaneous Civil and Marine Construction Comprises (a) berths at which the Authority's dredgers, tugs, etc. may moor at various points along the Canal, and (b) improvements to the Port Fuad and Cherif Basins at Port Said, including the provision of transit sheds.	(a) To meet the operational needs of the Authority. (b) To relieve congestion at Port Said by providing facilities for loading and unloading lighters clear of the harbor, thus diminishing the delays to vessels awaiting entry to the Canal.	In hand	1961	Contract	Mainly local bids
13.	Construction of Road and Bridge at Raswa Comprises the construction of a 4 Km. road and a swing bridge over the Mensaleh junction canal at Port Said.	Improvement to a highway for which the Authority is responsible, use of which is essential to the operation of the Canal.	Early 1960	Early 1961	Contract	Local bids
14.	Construction of Road and Bridge between Ferry Point and Port Tewfik. Comprises the construction of an 8 Km. road and a bridge between El Koubri and Port Tewfik.	" " "				
15.	Floating Dock for Port Said 25,000 tons lifting capacity floating dock.	To meet the needs of shipping transiting the Canal and in the area generally, there being no large floating or graving dock available in the eastern Mediterranean or Red Sea.	Order placed	October 1960	-	Repair work on ships using the dock will be carried out by private firms, not by the Authority.

SUEZ CANAL PROJECT
Detailed List of Items Comprising the Project

Item No.	Description of Item	Purpose for which required	Approximate commencement date or date of order	Approximate completion date or date of delivery	Method of execution or procurement	Remarks
16.	Dipper dredger and rock breaker (combined)	For removal of isolated patches of rock encountered in new or maintenance dredging.	Order placed	July 1960 (in Holland)	Contract	-
17.	Launches and Barges for Dredger Service. 24 launches, 1 echo sounding launch, 2 diving launches, 15 rowing boats, 10 barges, 1 house barge	For use in connection with the operation of the Authority's dredgers	In hand	1960	Partly by contract; partly in Authority's workshop	-
18.	3 Tugs for dredger service	Attendance on Authority's bucket and cutter suction dredgers.	1959	-	Contract	
19.	1 Cutter suction dredger	Maintenance and occasional new dredging in Canal cuts	1960	End of 1961	Contract	Required to supplement the work of the three existing cutter suction dredgers in carrying out maintenance in the Canal cuts, estimated at 6,000,000 c.m. in site per year.
20.	100/150 tons floating crane	For use principally in connection with repair work on Authority's craft at Port Fuad workshops.	Order placed	March 1960	Contract (Germany)	-
21.	Three 8 ton cranes	To be mounted on barges for use in handling dredger pipelines, etc.	Order placed	June 1960	Local fabrication contract.	-
22.	One 25 ton floating crane	For handling service buoys in the roadsteads.	Order placed	July 1961	Contract (Germmay)	-
23.	Two 8 ton cranes	To be mounted on barges for use in handling dredger pipelines, etc.	1961	-	Contract	-
24.	Two 200 ton ferry boats	To replace existing craft at Kantara and El Koubri	1960	-	Will probably be built in Authority's workshops.	-
25.	One 500 passenger ferry boat	To replace existing craft at Port Said.	End 1959	End 1960	Will probably be built in Authority's workshops.	-

SUEZ CANAL PROJECT
Detailed List of Items Comprising the Project

Item No.	Description of Item	Purpose for which required	Approximate commencement date or date of order	Approximate completion date or date of delivery	Method of execution or procurement	Remarks
26.	Two 6400 h.p. tugs	To attend on vessels in Canal, viz. when aground or in other difficulties.	Order placed	1/April 1960 1/Dec. 1960	Contract (Holland)	The Authority has only one modern tug of this capacity, the probable useful life of which has been reduced by its having been sunk and salved. The additional tugs covered by this and the following item are considered necessary to reduce the liability of blockage of the Canal to a minimum. They will be stationed at strategic points in the Canal.
27.	Two pilot vessels	To house pilots awaiting ships at Port Said and Suez	1/September 1959 and 1/1961.	- -	Contract	One vessel is required for use in connection with the pilotage service at Suez now to be established by the Authority as described in the report, the other to replace an old vessel in use at Port Said.
28.	Eight service launches	For use by the Works Department in connection with carrying out of revetment work, etc., part in replacement of old craft.	In hand	August 1960	Being built in Authority's Workshops.	-
29.	Three navigational-aid service launches	To service navigational aids, handling light buoy batteries, etc.	August 1959	December 1960	Local Fabrication contract	-
30.	Two pilot launches	For use by pilots at Suez	July 1959	December 1960	Being built in Authority's workshops.	Required in connection with new Suez Bay pilotage service referred to above.
31.	Two harbor tugs	For use in handling shipping in Port Said, replacing existing old craft.	1959	1961	Contract	Will be not less than 1500 h.p.
32.	Launches and service floats	For use at signal stations along the Canal so that transit personnel can investigate accidents.	1960	-	-	-

SUEZ CANAL PROJECT
Detailed List of Items Comprising the Project

Item No.	Description of Item	Purpose for which required	Approximate commencement date or date of order	Approximate completion date or date of delivery	Method of execution or procurement	Remarks
33.	Increased workshop capacity (machine tools)	Mainly for use in Port Fuad workshops, to increase workshop capacity, and to provide new tools necessary because of the acquisition of diesel and electric equipment.	Part orders placed	End of 1961	Contract	-
34.	Increased capacity of land transport (cars, trucks and motorcycles)	Required for transport of pilots and other personnel in replacement for old vehicles.	Part orders placed.	End of 1961	Local Contract	-
35.	Increased capacity of naval transport	-	-	-	-	-
36.	Increased capacity of land cranes (mobile cranes, rail cranes, gantry cranes, fork lift trucks)	For use in Authority's workshops, partly replacing existing old or inadequate equipment.	Part orders placed, remainder by end 1959.	-	Contract	-
37.	Earth moving and site equipment (bull dozers, tractors, dredger pipe lines)	For use in connection with work of Authority's cutter suction dredgers	Part orders placed.	-	Local Contract	Bull dozers and tractors are used to clear site for and move dredger pipe lines.
38.	Electrical equipment (motors, transformers, generating sets, etc.)	For use mainly in Authority's workshops for purposes of electrification and replacement of existing old equipment.	Part orders placed.	-	Local Contract	-
39.	Water supply projects (cast iron pipes, meters)	For extensions and replacements of Authority's water supply installations at Port Said and Port Twefik.	Part orders placed.	-	Local Contract	-
40.	Fire fighting equipment (pumping sets)	To be mounted on tugs, etc. for use in the event of tanker fires.	Part orders placed.	-	Local Contract	The Authority has at present no equipment for this purpose on floating craft.
41.	Signal and marking equipment (buoys, lights, batteries, moorings for buoys)	For marking the proposed Canal extensions and replacing existing gas lights.	Part orders placed.	-	Buoys in Authority's workshops, remainder by contract.	-
42.	Printing and tabulating machines	Authority's accounting and statistical departments, etc.	Part orders placed, remainder later.	-	Contract	-

SUEZ CANAL PROJECT
Detailed List of Items Comprising the Project

Item No.	Description of Item	Purpose for which required	Approximate commencement date or date of order	Approximate completion date or date of delivery	Method of execution or procurement	Remarks
43.	Metering and testing equipment	For use in Authority's workshops	Part orders placed, remainder later	-	Local Contract	Mainly electrical testing equipment.
44.	Calculating machines and typewriters	For office use	Part orders placed.	-	Contract	-
45.	Telecommunications equipment (A comprehensive telecommunications system including land lines and VHF telephone communication between the movements' center and the pilots on all transiting vessels, and with all the Authority's tugs, launches, pilot vessels and dredgers, extension of radar systems, and telepointer links between Port Said, Ismailia, Suez and Cairo.)	Will assist operations by speeding up communications with the transiting vessels, assist dredging and maritime activities by improving communications with craft and sites lessen hazards of transit in fog and dust conditions and afford economies respect of transmission of statistics and documentation.	Part orders placed, remainder before end 1959.	-	Local Contract	Present communication between movements' center and pilots on transiting vessels is by the ships' W/T or by magaphone or visual signals from signal stations only.
46.	Extension of Port Fuad Power station (2 additional generating sets about 800kw. each).	Required to meet increasing local wiring from greater activity of Authority's workshops, installation of proposed floating dock, etc.	1/end 1959 1/1960	-	Contract	-
47.	Extension of Port Fuad workshops Compressed air and water booster pumps	Required to meet increasing demand arising from increasing activity of Authority's workshops, etc.	Before end 1960	-	Contract	-

Note: (a) Where provision is shown to be by "local contract" under items 21-47, this means purchase through an overseas manufacturer's local agent unless otherwise stated.

(b) Where provision is shown to be by "contract" under items 21-47, bids will be invited from overseas firms or in some cases both overseas and local firms.

Technical Basis of the Canal Improvements

1. The engineering design of the Canal Improvements is in general based on the results of hydraulic research but carried before nationalization by the research organization "Neyrpec" in its laboratories at Grenoble. This research indicated that the minimum acceptable ratio between the wet cross section of the larger transiting craft and the wet cross section of the Canal cuts to be 1:5. With a lesser ratio, erosion of the banks and consequent maintenance costs would be at an uneconomic level, the steering of vessels would be adversely affected and the "squat" would become excessive.

2. Under the present project, the Canal Authority engineers have two principal aims:

a) To achieve a depth such that vessels having a maximum draft at rest of 11.28 meters (37 feet) can transit the Canal.

b) To achieve in the cuts a ratio wet cross section vessel/wet cross section Canal of not less than 1:5.

3. The present minimum depths in the Canal (July 1959) are as follows:

Canal Cuts — 12.5 meters (41.0 feet), i.e., 6 feet under a 35 feet ship.

Lakes — 12.30 meters (40.34 feet), i.e., 5.34 feet under a 35 feet ship.

Theoretically the project planned minimum depths are:

Canal Cuts — 14.38 meters (47.17 feet), i.e., 10.17 feet under a 37 feet ship.

Lakes — 13.13 meters (43.07 feet) i.e., 6.07 feet under a 37 feet ship.

The clearances of 10.17 feet and 6.07 feet are arrived at as follows:

	Canal Cuts Feet	Lakes Feet
Allowance for "steerage way"	2.95	2.95
" " "squat"	2.30	1.64
" " silting (average)	4.92	1.48
Total	10.17	6.07

The allowance for "steerage way" is the minimum clearance beneath the ship necessary for the ship to be able satisfactorily to answer the helm. The allowance for silting in the cuts is varied somewhat to allow for the difference in siltation rate experienced in certain localities.

4. In order to achieve the wet cross sectional ratio of 1:5 in the cuts, a cross sectional area of 1,800 sq. meters, including the allowance for silting is aimed at, although this will not always be attained in the present project. Assuming a ship drawing 37 feet and with a beam of 100 feet, e.g. a laden tanker of about 46,000 tons d.w. coming from the Persian Gulf, this represents a ratio of 1:5.5. The desired cross section is obtained either by widening or by deepening beyond the minimum depth required for transit, or by a combination of widening and deepening, as may be found most economical by a study of the exact site conditions. Because of this procedure, and because of the variation in siltation allowance referred to above, actual project dredging depths vary as follows:

Canal Cuts	14.5 m. (47.56 feet) to 16.0 meters (52.48 feet).
Lakes	13.0 m. (42.64 feet) to 13.5 meters (44.28 feet).

Estimate of Cost of the Project
(LE equivalent)

	Foreign Exchange	Local Currency	Total
I. Canal improvement program including widening and deepening, and improvements to Port Said Harbor			
1. Widening and deepening of various sections of the Canal	4,989,000	4,044,000	9,033,000
2. Modifications of curves in El Guisr Region	82,000	976,000	1,058,000
3. Widening of section at el Kantara	67,000	732,390	799,390
4. Deepening of Port Said roads, Great Bitter Lakes and Suez Roads	750,000	259,000	1,009,000
5. Widening and deepening other sections of the Canal	518,000	840,000	1,358,000
6. Deepening canal from Km. 132 to Km. 157.5	470,000	756,000	1,226,000
7. Improvements to Port Said Harbor	1,125,000	2,071,000	3,196,000
8. Widening of El Ferdan bridge section	645,000	547,000	1,192,000
9. Widening of canal from Km. 79 to Km. 97	1,164,000	1,187,000	2,351,000
	9,810,000	11,412,390	21,222,390
II. Provision of buildings and miscellaneous facilities			
10. Installation of research laboratory	232,250	178,000	410,250
11. Miscellaneous buildings	20,000	943,000	963,000
12. Miscellaneous engineering and marine construction	150,000	943,000	1,093,000
13. Construction of road and bridge at RASWA	-	189,630	189,630
14. Construction of road and bridge at Port Tewfik	-	184,000	184,000
	402,250	2,437,630	2,839,880
III. Purchase of construction, operating and maintenance equipment			
15. Floating dock for Port Said	1,355,000	252,000	1,607,000
16. Dipper dredge and rock breaker	266,241	-	266,241
17. Launches and barges for dredger service	156,804	358,000	514,804
c.f.	1,778,045	610,000	2,388,045

	Foreign Exchange	Local Currency	Total
b.f.	1,778,045	610,000	2,388,045
18. Three tugs for dredger service	120,000	-	120,000
19. One cutter suction dredger	1,200,000	-	1,200,000
20. Floating crane, 100/150 ton	391,670	-	391,670
21. Three 8-ton floating cranes	96,594	130,000	226,594
22. One 25-ton floating crane	118,466	-	118,466
23. Two 8-ton cranes	120,000	-	120,000
24. Two 200-ton ferry boats	100,000	78,000	178,000
25. One 500-passenger ferry boat	100,000	196,895	296,895
26. Two 6400-horsepower canal tugs	1,355,233	190,000	1,545,233
27. Two pilot vessels	600,000	-	600,000
28. Eight service vessels	60,000	78,000	138,000
29. Three service vessels for navigational aids	36,750	50,000	86,750
30. Two pilot launches for Suez Roads	150,000	-	150,000
31. Two harbor tugs	400,000	-	400,000
32. Launches and service floats	125,000	316,000	441,000
33. Increased workshop capacity (machine tools)	184,653	57,000	241,653
34. Increased capacity of naval transport	159,270	222,000	381,270
35. Increased capacity of land cranes	176,845	51,000	227,845
36. Earth moving and site equipment	345,839	198,000	543,839
37. Electrical equipment	148,377	58,000	206,377
38. Water supply projects	87,980	330,000	417,980
39. Fire fighting equipment	35,218	66,000	101,218
40. Signal and marking equipment	142,150	130,000	272,150
41. Printing and accountancy equipment	53,446	146,000	199,446
42. Metering and testing equipment	4,230	53,000	57,230
43. Calculating and typing machines	23,030	33,000	56,030
44. Telecommunications equipment	409,478	1,000	410,478
45. Extension of Port Fuad power station	120,000	55,000	175,000
46. Extension of Port Fuad compressed air plant	30,000	16,000	46,000
	8,672,274	3,064,895	11,737,169
• Contingencies	804,657	1,002,260	1,806,917
Total cost of the Project (I, II, III and IV)	19,689,181	17,917,175	37,606,356
Equivalent in US Dollars approximately	56,500,000	51,422,000	107,922,000

Appendix 8

Statement Showing Estimated Cost of the Shipbuilding Yard and the 1962/63 Phase of the Over-all Five-Year Program

		Foreign	Local	Total
			LE 000	
1.	Shipbuilding Yard	778.3	1,470.6	2,248.9
2.	Canal Improvements 1962/63 including widening and extending by-passes at Ballah, Great Bitter Lake and Kabret; extending of double canal at Port Said and other improvements at Port Said Harbor	7,661.0	9,722.9	17,383.9
3.	Buildings and Miscellaneous facilities	104.0	1,105.1	1,209.1
4.	Operating and Maintenance equipment	6,070.5	3,166.5	9,237.0
5.	Contingencies	1,036.8	-	1,036.8
	Total	15,650.6	15,465.1	31,115.7

Statement showing income accounts 1956/57, 1957/58 and 1958/59
(£E 000)

	1956/57	1957/58	1958/59
Operating Revenues			
Transit tolls	13,792	40,069	44,364
Miscellaneous operating revenues	411	806	842
Revenues relating to previous years	17	123	98
Common estate: land rentals	41	54	-
Total Operating Revenues	14,261	41,053	45,303
Operating Expenses			
Administrative and General expenses	775	1,226	1,233
Caral and Port Said working expenses	1,455	2,105	1,899
Canal and Port Said maintenance	886	769	676
Maintenance of equipment	681	1,206	1,555
Public service activities	1,119	1,462	1,210
Directors and experts remuneration	2	30	31
Civil defense expenses	9	*	*
Bad debts		2	2
Common estate: land rental expense	85	84	-
Expenses relating to previous years	115	134	238
Depreciation	1,732	2,808	3,200
Income taxes	1,750	5,000	4,500
Government royalty (5% of gross revenues)	713	2,053	2,265
Pension expenses	-	2,000	2,075
Total Operating Expenses	9,322	18,879	18,884
Net Revenue from Operations	4,939	22,174	26,419
Miscellaneous Deductions from Income			
Losses and damages: 1956 crisis	2,547	14	-
Suspense Account - Balance Sheet 6/30/58	-	-	4,084
Total Income after Depreciation	2,392	22,160	22,335
Disposition of total income			
Reserve for renewals	2,000	3,000	2,736
Government share of profits	4,000	14,000	15,000
Unappropriated income or deficit	(3,608)	5,160	4,599

Totals do not always equal sum of factors because of rounding.
( ) represents red figure.
* Amounts of less than £E 500 not shown.

UNITED ARAB REPUBLIC
Suez Canal Authority

APPENDIX 10

BAIANCE SHEET - June 30th 1959

ASSETS	LE	m/ms	LE	m/ms
Current Assets				
Cash & Investments				
Banks & Safes	21,352,601	905		
Investments	494,000	-		
			21,846,601	905
Debtors & Debit Accounts under settlement			3,631,407	528
Stores			7,349,964	851
Fixed Assets (under estimation)				
Canal)				
Land of Concession)				
Land & Buildings)			1	-
Equipment)				
Improvement Works				
Canal			8,434,344	577
Land and Buildings			98,535	679
Equipment				
Heavy Equipment	411,601	579		
Floating Equipment	3,236,614	549		
Lightning & Mooring Buoys & Beacons etc.	153,788	978		
Small Tools	13,095	891		
Furniture	63,764	668		
Counting & Typing mach.				
Precision Instruments	44,935	822		
Water Plants: Port Said-Ismailia-Suez	117,200	087	4,041,001	574
Buildings in Progress			1,736,257	961
Equipment in Progress			352,624	906
			47,490,739	981

LIABILITIES	LE	m/ms	LE	m/ms
Current Liabilities				
Creditors & Credit accounts under settlement			20,563,408	231
Reserves & Provisions				
Provision for income tax	5,300,000	-		
Provision depreciation and renewals	15,476,383	-	20,776,383	-
Net Revenues				
Net Profits	4,598,675	784		
Profits reported from previous years	1,552,271	966	6,150,947	750
Capital (under estimation)			1	-
			47,490,739	981

Appendix 11

Statement showing Estimate Income Accounts 1959/60 to 1962/63, Inclusive

(LE 000)

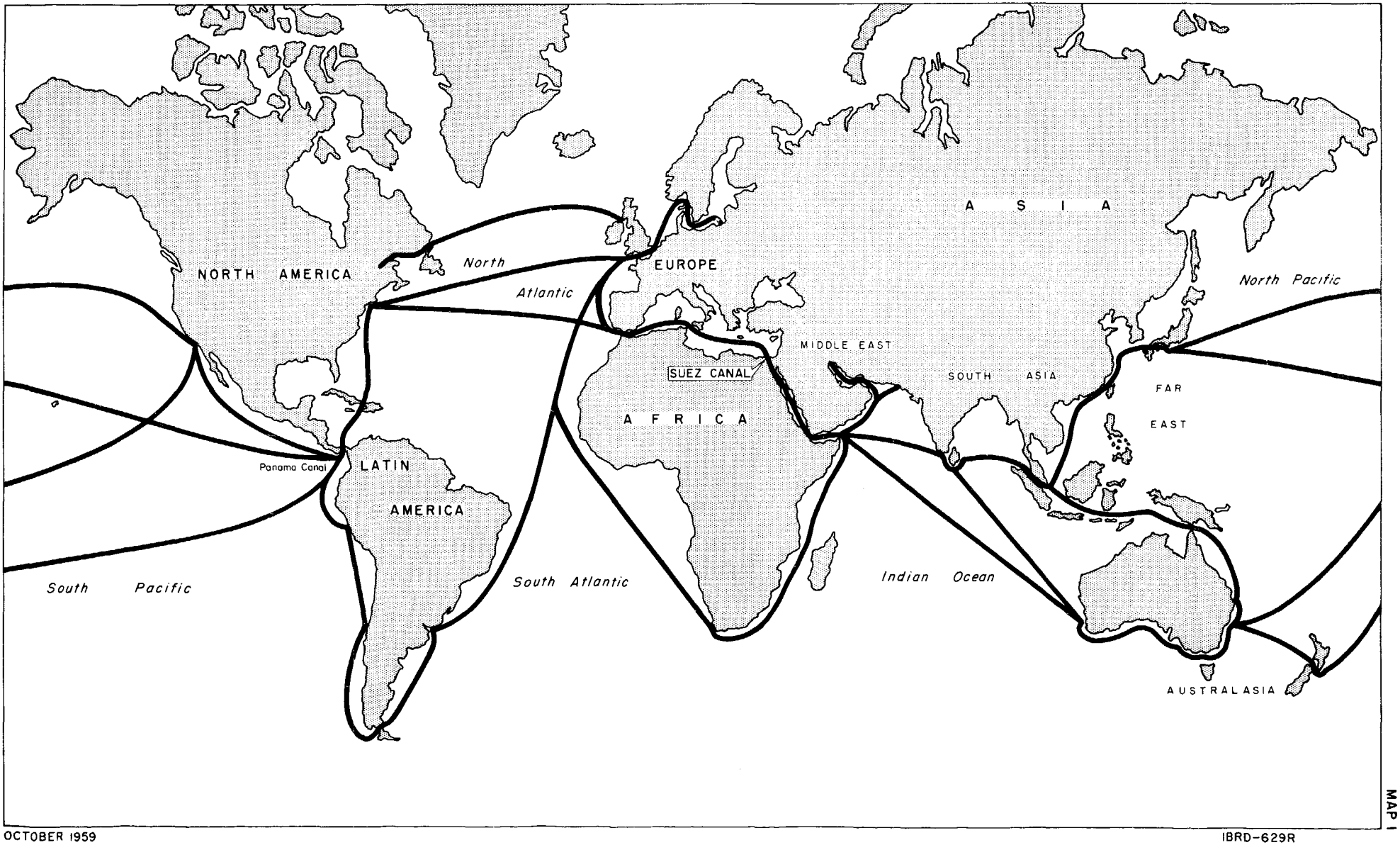
	1959/60	1960/61	1961/62	1962/63
Total Operating Revenues	46,250	49,625	53,000	56,250
Operating Expenses				
Administrative working maintenance and public service activities	8,500	9,125	9,875	10,625
Directors and experts remuneration	55	60	65	65
Bad debts	1	1	1	1
Expenses relating to previous years	200	200	150	150
Depreciation	3,700	4,200	4,700	5,000
Income taxes	5,250	5,500	5,750	6,000
Government royalty, 5% of gross revenues	2,313	2,481	2,650	2,812
Pension expense	2,000	2,000	1,500	1,500
Total Operating Expenses	22,019	23,567	24,691	26,153
Net Revenues from Operations	24,231	26,058	28,309	30,097
Miscellaneous Deductions from Income	-	-	-	-
Total Income after Depreciation	24,231	26,058	28,309	30,097
Provision for Renewals	2,500	2,500	2,000	2,000
Income after Reserves and Provisions	21,731	23,558	26,309	28,097

Statement showing Income Accounts, Estimated for 1959/60 to 1964/65 based on Assumption of No Increase in Traffic after 1959/60

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
Operating Revenues	46,250	46,250	46,250	46,250	46,250	46,250
Operating Expenses						
Administrative, working, maintenance and public service activities	8,500	8,670	8,843	9,020	9,200	9,384
Directors and experts remuneration	55	60	65	65	65	65
Bad debts	1	1	1	1	1	1
Expenses relating to previous years	200	200	200	200	200	200
Depreciation	3,700	4,200	4,700	5,000	5,100	5,200
Income taxes	5,250	5,135	5,022	4,943	4,896	4,849
Government royalty, 5% of gross revenues	2,313	2,313	2,313	2,313	2,313	2,313
Pension expenses	2,000	2,000	2,000	1,500	1,500	1,500
Total Operating Expenses	22,019	22,579	23,144	23,042	23,275	23,512
Net Revenue from Operations	24,231	23,671	23,106	23,208	22,975	22,738
Miscellaneous Deductions	-	-	-	-	-	-
Total Income after Depreciation	24,231	23,671	23,106	23,208	22,975	22,738
Reserve for renewals	2,500	2,500	2,000	2,000	2,000	2,000
Income after reserve for renewals	21,731	21,171	21,106	21,208	20,975	20,738

Note: Administrative, working, maintenance and public service activity expenses are increased by 2% per year to reflect probable rises in prices of materials and supplies and in-grade salary increases; income taxes are estimated at 16.67% of net revenue from operations before taxes which is the relation estimated for 1959/60 by the Canal Authority; and all other expenses and provisions are those shown the Authority's estimates to 1962/63 extended to 1964/65. An exception is depreciation expense for 1963/64 - 1964/65 which is increased moderately in the latter two years.

SUEZ CANAL PROJECT
WORLD SHIPPING ROUTES



MAP 1

OCTOBER 1959

IBRD-629R

SUEZ CANAL PROJECT

CANAL IMPROVEMENTS 1959-61

MAP 2

PORT SAID

Two way

Km 6

One way

Deepening to 15.5m or 16.0m

Two way

Km 61

One way

Km 102

Two way

Km 122

One way

Two way

SUEZ

Deepening to 13.5m and widening of Port Said Roadstead and Harbor

Deepening to 14.5m and widening of Port Said Harbor

Deepening Port Said By-Pass to 14.5m

Deepening to 15.5m and widening

Deepening to 15.5m and widening Kantara Section

Deepening to 15.5m and widening

Deepening to 15.5m and widening East Ballah Cut

Deepening Main (west) Ballah to 14.5m

Deepening to 16.0m and widening El Ferdan Br. Section

Deepening to 15.5m and widening El Guisr Section

Deepening to 13.5m and widening Lake Timsah Anchorage

Deepening to 15.5m and widening

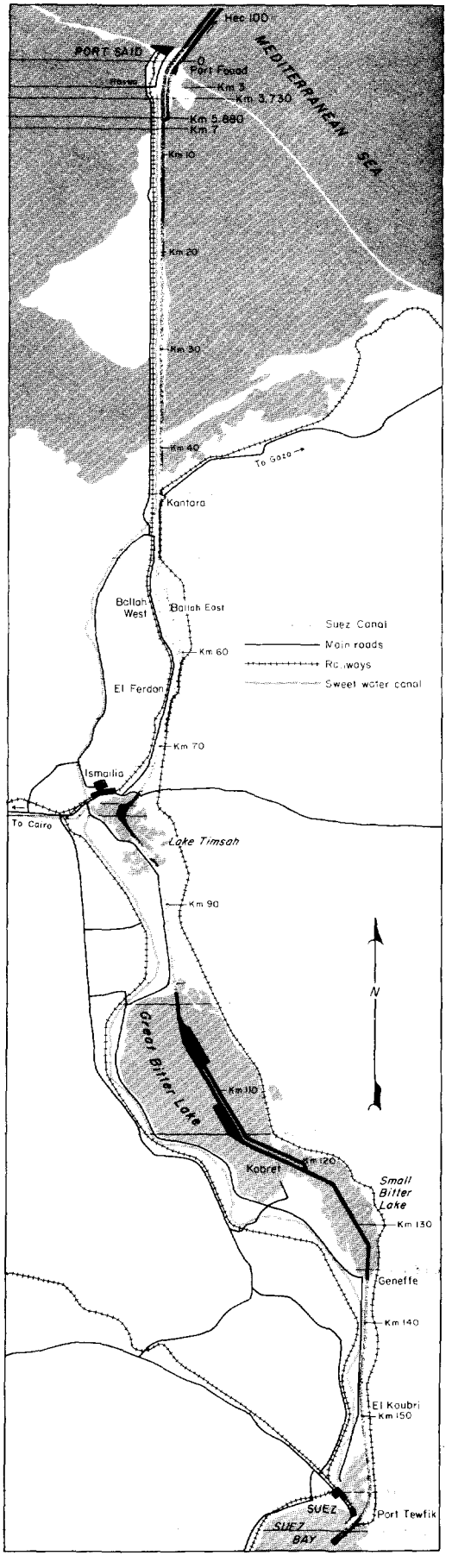
Deepening to 13.0m Channel and Anchorage in Great Bitter Lake

Deepening to 13.5m Channel in Small Bitter Lake and Kabret By-Pass

Deepening throughout to 14.5m and widening from Km 144

Deepening Suez Entrance to 14.5m

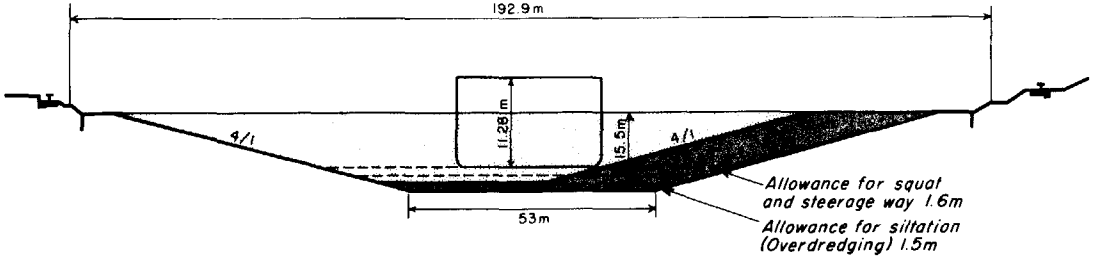
Deepening Suez Roadstead to 13.0m



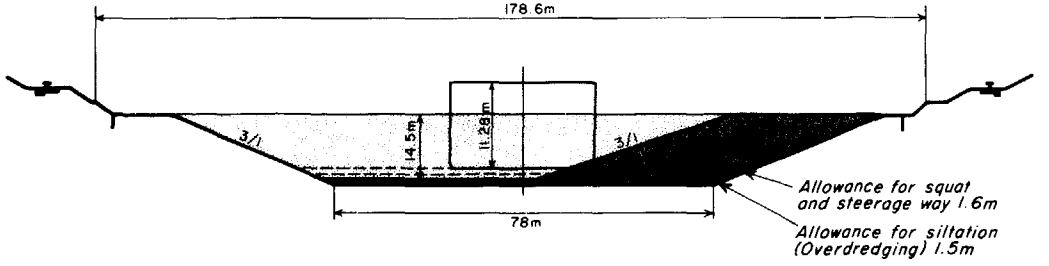
OCTOBER 1959

IBRD-628

SUEZ CANAL
TYPICAL CROSS-SECTIONS



WET CROSS-SECTION
INCLUDING ALLOWANCE FOR SILTATION - 1782m²
BETWEEN KM 25 and 50



WET CROSS-SECTION
INCLUDING ALLOWANCE FOR SILTATION - 1686m²
BETWEEN KM 132 and 157

Existing Cross-sections

Cross-sections after completion of project

PROJECT MINIMUM DEPTHS

	In Canal Cuts		In Lakes and Roads	
	meters	feet	meters	feet
Maximum draft of transiting vessel at rest	11.28	37.00	11.28	37.00
Allowance for squat	.70	2.30	.50	1.64
Allowance for steerage way	.90	2.95	.90	2.95
	12.88	42.25	12.68	41.59
Allowance for siltation	1.50	4.92	.45	1.48
	14.38	47.17	13.13	43.07

Wet Cross-section Aimed At 1800m²

MAP 3

RESTRICTED

Report No. EA-161b

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

THE ECONOMY

OF

THE UNITED ARAB REPUBLIC

(in two volumes)

VOLUME I

The Main Report

November 14, 1966

Europe and Middle East Department

CURRENCY EQUIVALENTS

1 Egyptian Pound (LE)	=	2.30 US dollars
1 US dollar	=	LE 0.435
LE 1 = 100 piasters	=	1000 milliemes

Prior to May 7, 1962, the rate was LE 1 = $2.87

WEIGHTS AND MEASURES

1 square kilometer	=	0.386 square miles
1 feddan	=	1.038 acres
1 square kilometer	=	238 feddans

The metric system is used in the United Arab Republic, and all tonnages are expressed in metric tons unless otherwise specified.

FISCAL YEAR

The Government's fiscal year ends on June 30.

VOLUME I

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(continued)

CONTENTS OF VOLUME II

This report was prepared by a mission which visited the U.A.R. in February-March 1966. The mission consisted of Messrs. J. H. Collier, V. Wouters, A. Elsaas, G. Sciolli, and D. H. Bickers of the Bank, J.P. Bhattarcharjee of the F.A.O. and A. Papasolomontos and A. Papic, Consultants. Messrs. H. van Helden and M. Ballesteros joined the mission for part of its stay in U.A.R.

BASIC DATA

Area	238 million feddans = 1 million sq. kms.	
Population: Total	30.9 million	
Rate of growth	2.8% p.a.	
Density in inhabited area	850 per sq. km.	

Gross national product	1964/65	1959/60-1964/65
Total	LE 2,044 million	
Annual rate of growth	5.5%	6.5%
Per capita	$152	

Share of values added in	1964/65 (%)
Agriculture	27.1
Industry and mining	21.9
Electricity	1.3
Construction	5.3
Transport and communication	8.9

Share of GDP at market prices	1964/65 (%)	1959/60-1964/65 (%)
Gross investment	17.8	16.6
Gross savings	14.1	12.7
Balance of payments current account deficit	3.7	3.9
Investment income payments	0.7	0.5
Government current revenue	25.1	22.6
of which taxation revenue	15.4	13.3
Resource gap as % of investment	20.8	24.5

Money and credit	End of June 1966 (LE million)	Annual rate of increase 1960-65 (%)
Total money supply	667.7	9.1
Time and savings deposits	265.4	13.8
Total credit to public and private sectors	1,152.4	13.7
of which:		
Commercial bank credit to private sector	235.2	3.3
Other lending to private sector	124.4	15.0
Rate of change in cost of living (1965)	11.9%	3.7

Public sector operations	1964/65 (LE million)	Annual rate of increase 1960/61-1964/65 (%)
Government current receipts	509.6	13.3
Government current expenditure	518.3	13.7
Surplus/deficit	-8.7	
Total public investment (including public enterprises)	294.2	3.1
of which government investment	47.4	17.8

External public debt		
Including undisbursed (June 1966)	1/	$1,662 million
Excluding undisbursed (June 1966)	1/	$ 993 million
Total annual debt service (1967)		$ 168 million
Debt service ratio 2/		18%

Balance of payments	1964/65 ($ million)	Annual rate of increase 1960/61-1964/65 (%)
Total exports	563.0	0.3
Total imports	-906.2	4.2
Net invisibles	143.1	5.0
Current account balance	-200.1	22.4

Foreign exchange reserves	June 1966 ($ million)	Average, 1961-65 ($ million)
Gold	139	160
Foreign exchange	53	51
Total	192 (or 2.5 months' imports)	211
Payments' agreements (net)	-301	-225

IMF position	June 1966 ($ million)	Average, 1961-65 ($ million)
Quota	150	102
Drawings	117	109

External financial assistance	1964/65 ($ million)	Average 1960/61-1964/65 ($ million)
Total (gross)	371.4	261.7
Soft assistance	114.3	120.7
Hard assistance	257.1	141.0

1/ Including major reported addition to January 31, 1966; excluding IMF.
2/ Debt service in 1967 as % of foreign exchange earnings in 1965.

SUMMARY AND CONCLUSIONS

1. The development problem in the U.A.R. is dominated by the pressure of a population growing at about 2.8% per year. The total population is estimated at 31 million almost all of which is concentrated in the valley and the delta of the Nile where irrigated agriculture is possible. The population density in this restricted area is around 1,200 per square mile which is one of the highest in the world. To provide income and employment for the growing population the U.A.R. Government has programs for bringing new land under cultivation to use the water available from the High Dam, for improving the productivity of the land already cultivated and for the development of industry. In addition to agriculture and industry the U.A.R. has three other significant economic assets; namely, the Suez Canal, the tourist trade and petroleum. The Canal is a most important source of hard currency earnings; the tourist trade, while less important as a source of income than the Canal, is growing rapidly and may have greater potential in the long-run. Petroleum production is also small, at least by Middle Eastern standards, but a great deal of exploration is going on; Egypt is at present a net importer of petroleum products but hopes to reverse the position in the next five years.

2. In the first half of this century income per head in Egypt probably fell, perhaps by as much as 20%. After the war the position improved and income per head began to rise slowly despite the rapid increase in population which began at this time. From the revolution of 1952 until 1960 the national product grew probably at between 3.5% and 4.0% per year. In 1960 a comprehensive development plan was introduced, investment was increased and the growth rate increased to perhaps 6.5% per year. The accleration was, however, accompanied by a sharp increase in the balance of payments deficit since the rise in investment was not matched by a corresponding rise in domestic savings. The consequence was a rapid increase in external debt, both long-term debt incurred in connection with development projects and short-term debt accumulated in an effort to bridge the balance of payments gap since foreign exchange reserves were virtually exhausted. Import restrictions and exchange control measures were tightened and consequently an acute shortage of foreign exchange appeared.

3. In the middle of 1965 it was announced that the new development plan envisaged a total investment of LE 3.2 billion over seven years. The decision to make the plan cover seven years instead of five is in effect a reduction from the levels which were under discussion earlier in the year.[1/] The really important issue, however, is how the plan is to be financed. If the balance of payments position is to be held under control internal savings will have to be relatively larger than they have been in the last five years. According to the new plan only 15% of total investment is to be financed by imported resources as against 27.5% during the previous plan period. How much of an increase in the proportion of income saved will be required depends upon the rate of growth which is actually achieved. Assuming however that the capital output ratio is approximately the same as it appears to have been during the first plan the rate of growth of output would be around 7.2% per year and the proportion of the

---

1/ It is now reported that a three-year program is being prepared. This will presumably take into account the short-term difficulties which the economy has encountered during the last several months.

additional output saved would have to be 21% to 22% as against an average of 19% during the last five years. This does not appear an unreasonably large increase and in view of the degree of control which the Government can exercise over the economy and the level of consumption, there should be no economic reason why it could not be reached. The main reason why savings did not rise sufficiently during the last five years was the pressure of increasing government consumption on social services and defense.

4. The growth rate which will be achieved will depend on the progress made in agriculture and industry. During the last plan agricultural output rose at about 3.5% per year which was larger than the growth of population but the margin between them was not large enough to satisfy the increase in demand for food and to provide sufficient additional exports. However, in many periods in the past, for example between the mid-thirties and 1960, the population growth was substantially greater than the increase in agricultural output. Broadly speaking agricultural output can be increased in two ways: "horizontal" expansion, that is, bringing new land under cultivation, and "vertical" expansion, or increasing the productivity of land already cultivated. Horizontal expansion requires water which may come either from the more efficient use of existing water or from new sources such as the High Dam. Construction of the High Dam has gone well and is ahead of schedule and the prospect of additional water has meant a considerable emphasis on horizontal expansion both in the last plan and in the new one. Horizontal expansion also has the advantage of providing new employment opportunities for the agricultural population which in a country such as Egypt is a matter of urgency. On the other hand it is expensive and yields its results only after a considerable time lag. A large part of the investment in agriculture during the first plan, for example, that on the High Dam itself, has not yet produced any increase in output at all. (The High Dam did, however, prevent a reduction in output which would otherwise have occurred as a result of a low flood in 1965). Vertical expansion, on the other hand, yields much more output per unit of capital but its progress is determined less by the availability of finance but by the rate at which social and organizational obstacles, such as the resistance of the peasant to the Government's attempts to change and improve methods of cultivation, can be overcome.

5. The emphasis placed by the Government on industrialization in an over-populated country such as Egypt is understandable. Egypt already has a sizeable industrial sector and industry now accounts for 22% of the gross national product. Since the end of the war industrial production has increased on the average at about 5% per year but with the industrialization drive associated with the last Five-year Plan it rose to 8.9%. Industries based on the processing of local raw materials such as cotton and food products are still predominant in Egypt. A steel plant using local ore has, however, encountered difficulties apparently largely due to the low quality of the ore. The Government has also put a lot of stress on the development of import saving industries; some of these, particularly the engineering and metal products industries, have not been able to operate as economically as had been hoped - their demand for imported materials and

components is high and because of the shortage of foreign exchange they are forced to operate below capacity. These industries are still, however, quite a small proportion of the whole industrial sector.

6. An important long-run problem for Egyptian industry concerns the degree and method of control by the Government over economic enterprises. In 1961 all the major enterprises, both Egyptian and foreign, were nationalized and since then the Government has been trying to devise a satisfactory solution to the problem of operating Government-owned industrial enterprises and of planning investment in industry. Since this is a problem of the utmost difficulty, a satisfactory solution has not yet been found. The problem of which decisions and how many decisions are to be taken at the center and which by the enterprise is closely linked to the whole problem of price and wage control and the use of prices versus administered targets as methods of controlling or influencing enterprises. The effect of price control has been to pull the control of enterprises into the Government ministries and thus to reduce their freedom of action. The Government is now attempting to deal with the erosion of incentives which this has produced. This issue runs very deep since in the end it concerns the kind of economy and society in which the people wish to live.

7. Little need be said of other sectors in this summary. In electric power the picture is dominated by the High Dam, the first two units of which will come into use at the end of 1967. This, together with thermal capacity already under construction will take care of Egypt's needs for some time so that no important investment decisions have to be taken in the near future. Egypt has a good transport network of railways, roads and waterways but the expansion of the system in the last few years has been insufficient and transport has become a bottleneck. There is a good railway system which is economic and well run but more could be done to obtain the most benefit from the waterways.

Conclusion

8. The U.A.R. is facing an immediate balance of payments problem which is made difficult to handle because of a considerable amount of short-term debt. The short-term debt is composed of repurchase obligations to the IMF amounting to $121 million, commercial bank debts amounting to $250 million which are usually rolled over every year but which have now become so large that this is becoming difficult, and some commercial arrears, the amount of which is not certain. This short-term problem requires for its solution a sharp temporary improvement in the balance of payments so as to reduce short-term debt and restore reserves. This could be supplemented by some form of refinancing. However, it is not easy in present circumstances to see how any major refinancing operation could be organized.

9. In the longer run the U.A.R.'s problem is to finance its future growth with less reliance on foreign capital so that its balance of payments is kept under control and the volume of external debt maintained within manageable limits. At present the U.A.R.'s long-term external debt is $1.7 billion equivalent of which $993 million is now disbursed

and outstanding. Debt service, excluding service on military credits, is now about 18% of foreign exchange earnings. If the new investment plan is to be financed using foreign resources for only 15% of the total required, the gross borrowing over the next four years would have to be about $1.2 billion - $676 million for the new plan plus $555 million amortization. The effect of such borrowing on the debt service will depend on the terms of the new borrowing and on the rate at which the U.A.R. can increase its foreign exchange earnings. Export earnings in the past have fluctuated considerably but with only a modest upward trend of perhaps 3% per year. There seems, however, no reason why this should not be raised to between 6% and 7% per year. Egypt produces many commodities which can find markets abroad; the important point is that internal consumption should not rise so fast that potential exportable surpluses are instead consumed at home. Assuming, however, a 6% to 7% increase in exports, gross borrowing on the scale mentioned above would be possible without any increase in the debt service ratio provided all the new borrowing could be in the form of conventional long-term loans (i.e., loans with debt service equal to 10% of the principal amount). This would represent a considerable improvement in the structure of the external debt since at present the annual debt service is 16.7% of the principal amount. If there were no improvement in debt structure the debt service ratio would rise to 20.6%.

10. In sum, therefore, the long-run problem of debt management in the U.A.R. is amenable to a solution compatible with a satisfactory rate of growth. The debt is, however, already quite sizeable and it is important that further borrowing be kept in line with the growth of the country's debt servicing capacity. This requires some change in the direction of Government policy. Last December the Government introduced a number of measures which indicate that such a change may be under way. The measures became necessary in order to restore some balance to the Government budget and they included significant increases in taxes and in the prices of many important consumer goods.

THE ECONOMY OF THE UNITED ARAB REPUBLIC

I. THE ECONOMIC SETTING

1. The United Arab Republic presents a number of economic problems similar to those of many less developed countries. A rapidly expanding population exerts increasing pressure on the available agricultural land. The low standard of living in the rural areas generates a steady drift of people into the towns in search of employment and a better life. The Government is fostering industrial development to provide employment for the growing labor force and to reduce the dependence of the economy on cotton exports for which the world demand increases only slowly. In this attempt the Government is also encountering familiar obstacles. The requirements for foreign exchange exceed the amount available and service on external indebtedness takes an increasing share of export earnings.

A. The Nile and Agriculture

2. The economy of the U.A.R., does, however, have certain distinctive characteristics. The virtual absence of rainfall and hence the dependence of Egyptian agriculture on the waters of the Nile is well known. To make the best use of Nile water has been a foremost objective of the Egyptians from the earliest times. The traditional system of irrigation made use of the annual Nile flood between July and December which enabled crops to be grown each year on the moist soil left by the receding water. Beginning in the first half of the nineteenth century a number of barrages, canals and other works have been constructed which store some of the flood water and enable year round irrigation to be practiced. This so-called "perennial" irrigation greatly increases the productivity of the land by enabling two or three crops a year to be grown.

3. The construction of the new High Dam at Aswan, with its reservoir reaching some 300 miles up the Nile into the Sudan, will enable the whole of the Nile flood to be stored and used when it is needed during the following year or years. For the first time there will be "over-year storage" on the Nile. The danger of high floods and of abnormally low ones will be finally removed and the wastage of flood water into the Mediterranean will cease. It is estimated that, through bringing new land into cultivation and further conversion to perennial irrigation, the High Dam will permit a 25% increase in the cropped area. Since the rate of increase of the population is about 2.8%, this can be regarded as offsetting some eight to ten years of population growth.

4. The principal limit on the cultivable area of Egypt is the availability of water. After the High Dam is completed there will still be some scope for increasing the amount of Nile water as, for example, by constructing a canal through the Sudan swamps to prevent losses by evaporation. Then there is some possibility of utilizing underground water in the desert. The Government already has some schemes of this nature but it is not yet clear how much can be done in this way. Apart from these resources, the future growth of agricultural production in Egypt will have to depend on

improved productivity on the existing cultivated area and the development of higher value crops, at least until the cost of distilling sea water has been sufficiently reduced to enable the Egyptians finally to break out of their narrow river valley.

5. Agriculture in Egypt differs from that in many underdeveloped countries in that there is no sector of subsistence farming. The introduction of cotton cultivation in 1821 and its rapid growth thereafter turned Egypt into an export economy with the peasant producing for the world market. At the beginning of this century cotton exports amounted to LE 13 million and represented 80% of Egypt's total merchandise exports; in 1953-56 cotton still represented 78% of total exports. The economic fate of Egypt has therefore been bound closely to cotton and it is only very recently that any reduction of this dependency has begun to appear. The other principal Egyptian crops are cereals - wheat, rice, millets and barley - the value of these crops taken together in a normal year being roughly equal to that of cotton. The output of cereals is, however, no longer sufficient to meet the needs of Egypt's growing population - wheat began to be imported in the mid-fifties and now only 47% of the wheat consumed is produced domestically. The returns from growing cotton are larger than those from wheat and it is therefore economic to export cotton in exchange for it. Even higher returns can be obtained from the production of fruit and vegetables, the production of which has been expanding rapidly although it is still only about 10% of total agricultural production. The economic opportunities for Egypt in the export of fruit and winter vegetables are great but so are the difficulties to be overcome; large capital investment, greater technical knowledge on the part of the farmer, the development of grading, packing and refrigeration facilities and, of primary importance, the development of the necessary organization and know-how for the marketing of these products under highly competitive conditions. All in all, therefore, it will be some time before Egypt can earn any substantial amounts of foreign exchange from these products.

B. Mineral Resources

6. Egypt's most important mineral resource is oil. The annual output of crude oil rose from 2.3 million tons in 1953 to 6.3 million tons in 1965. The economy is still, however, a net importer of oil products although it is hoped that this position will be reversed before very long. The net deficit in foreign exchange on account of the petroleum industry was reduced from $45 million equivalent in 1959/60 to $17 million in 1964/65. The exploration and development of Egypt's oil potential since the war has been slower than it might have been because of changes in the Government's attitude to foreign oil companies. In 1963, however, new concessions opened the way for extensive exploration work. ENI, the Italian oil concern which already has producing interests in Egypt, obtained prospecting rights in the Nile Delta and two United States companies obtained large concession areas in the western desert. One also obtained some offshore exploration rights in the Gulf of Suez where a new strike was made in 1965 which is expected to produce six million tons a year by 1968. In addition, the

electric power soon to become available from the High Dam will reduce the requirements of imported fuel so that Egypt should become more than self-sufficient in fuel and energy.

7. Low grade iron ore is mined near Aswan to supply a steel plant at Helwan near Cairo. A higher grade of ore has been found at Bakariya in the western desert 300 km from Helwan. Reserves have been estimated at 300 - 500 million tons and there is a project for expanding the steel mill and building a railway to the new deposit. Rock phosphates are worked in the upper Nile valley and near the Red Sea coast. Manganese is produced on a small scale in Sinai and the country's first coal mine was opened in 1964 in the same area. There are ample supplies of building materials such as clay and limestone.

C. The Suez Canal

8. The Suez Canal is one of Egypt's most important assets and the Egyptians have rightly accorded a high priority to its improvement and efficient operation. Canal revenues have increased 110% since 1956 and now amount to $190 million a year. This is equivalent to 21% of total foreign exchange earnings.

D. Tourism

9. Egypt's excellent winter climate and its unique historical interest have long made it an attraction for foreign visitors. In the last ten years Egypt has benefited from the rising "demand" for tourist services and the number of visitors has shown a strongly upward trend. There is great potential for the tourist trade and the Government is making a considerable effort to take advantage of it.

E. Population

10. During the first half of this century the growth of Egypt's population was steady but not very rapid. In 1907 it was 11.3 million and the rate of growth was 1.5% per annum. In 1937 it was 18 million and the rate of growth was a little less than 1.2%. After the war, however, the growth rate increased rapidly, owing to declining death rates resulting from improved sanitary and health conditions, and is now estimated to be 2.8% per annum and the present population about 31 million.

11. The Government's attitude towards population growth remained rather passive until 1962, when the first steps were taken to study the problem and to work out a family planning program. Such a program was officially launched last February, with the establishment of a new organization for family planning within the Office of the Prime Minister. The program appears to have a sound basis. The Government is relying primarily on more than 2,000 rural health clinics, which have been operating successfully for some time and have earned the confidence of the population. A campaign has been launched to inform the public about the need and merits of family planning and the program has the approval of the Moslem leadership. It

will, of course, require several years before the effects can be assessed, especially considering that over 60% of the population still live in the villages, where birthrates are highest and attitudes towards family planning are apt to be most conservative.

12. The age structure of the Egyptian population reflects the recent increase in the rate of population growth in that the proportion of those under 15 years old increased from 38% in 1947 to 43% in 1960. The impact of these larger age groups on the labor force has begun to be felt in the last five years and will increase in the future.

II. ECONOMIC GROWTH

A. Historical Background

13. Although the statistics are fragmentary, the evidence is that the growth of domestic production from 1913 to 1939 was no greater than the rise in population, that is, about 1 or 1-1/2% per year. Since there was an adverse change in the terms of trade over this period, there was a corresponding decline in income per head. During World War II, income per head declined further and, according to one recent estimate, in 1945 it may have been some 20% lower than at the beginning of this century. The record would have been somewhat worse than it was, had it not been for the beginnings of industrialization during the depression of the thirties which occurred as a result of the relative unprofitability of cotton and a new policy by the Government of protection for local industry.

14. After the war, production began to rise more rapidly but the simultaneous increase in population growth absorbed almost all the increased output until after 1956 when the Government's drive for economic development began to take effect. Since 1956 output has risen at about 5 or 6% per year and, since there do not appear to have been great changes in the terms of trade, national income has probably risen at much the same rate. This acceleration in the rate of growth reflects a rise in the proportion of resources directed to investment. Whereas before the war investment was only about 7 or 8% of G.N.P. from 1946 to 1956 it averaged about 12.5% and since 1956 it has risen gradually to about 17 or 18%.

15. Another significant feature of the postwar period has been a rise in public consumption owing principally to increased expenditure on social services, particularly education, and defense. The higher level of public consumption and the higher rate of investment have been met partly by a fall in the share of private consumption in G.N.P. and partly by imported resources, that is, by a deficit in the balance of payments. Egypt has incurred balance of payments deficits more or less continuously since the end of World War II, which have been financed first by the use of reserves and then by foreign borrowing. Owing to the presence of Allied troops during the war a very substantial amount of sterling was accumulated, amounting at the end of 1945 to LE 379 million, or the equivalent of more than three years imports.

These reserves were not, of course, freely usable; they were released gradually in accordance with agreements between the U.K. and the U.A.R. By 1962, however, Egypt's foreign exchange reserves had been virtually exhausted and the deficit since then has been met by borrowing and by aid from the U.S. in the form of surplus commodities. The relative size of the deficit has increased sharply in the last few years. It averaged 2.3% of GNP in most of the 1950's, reached 4.3% of GNP in the early 1960's and 5.6% in the three years since 1962/63. The deficit for 1963/64 was, however, somewhat less than that for the previous years. Nevertheless there is at present an acute shortage of foreign exchange in Egypt and a double problem of achieving an immediate short-term improvement in the balance of payments and of ensuring a longer term increase in foreign exchange earnings. These matters are discussed in more detail later in the report.

16. More or less continuous balance of payments deficits together with a shortage of foreign exchange are usually indications of inflation. The rise in prices in the U.A.R. since the end of the war has, however, been quite moderate until 1964. Wholesale prices rose by only about 25% between 1945 and 1963. The relative stability of prices was due partly to direct price controls and subsidies on important commodities and partly to the rapid increase in the labor supply which has prevented any serious upward pressure on wages. In 1964 and 1965 the increase became more rapid and amounted to another 15% for the two years combined. Moreover, there are definite signs of suppressed inflation at the present time in the form of shortages of goods and black markets.

B. Institutional Background

17. This brief outline of economic growth and the more detailed analysis which follows have to be seen against a background of the profound institutional changes in Egypt which have occurred since 1952 and which have transformed the economy from one characterized by monopolistic private enterprise and an extremely unequal distribution of land and income into a government owned and centrally controlled system. When the Free Officers movement took over from the previous politically bankrupt regime in 1952 its immediate economic concerns were to deal with the problems left in the wake of the Korean boom and to institute a program of land reform. Its policies for economic development were of a traditional kind; public investment was increased, a development budget was introduced, the tariff structure was reformed and tax incentives for investment were introduced. The laws regarding foreign investment were liberalized. The Government also set about the task of obtaining finance for the High Dam.

18. The year 1956 was really more of a turning point in Egyptian affairs than was 1952. The Suez war provided the element of dramatic triumph in which the military coup of 1952 was somewhat lacking. The authority of the new regime was consolidated and the influence of the considerable foreign community in the economic life of Egypt was largely eliminated. With the sequestration of British and French property the Government found itself in control of the main part of the banking and insurance system and some business enterprises. A marked change in development policies began

to occur. A Five-year Industrialization Plan was adopted in 1957 and in 1960 the Government prepared a comprehensive Five-year Plan with the objective of achieving a rate of growth sufficient to double the national income in ten years. Investment was stepped up and the budget deficit grew.

19. In 1961, one year after the start of the first Five-year Development Plan, the Government passed a number of laws which nationalized the bulk of industrial, commercial and financial enterprises, both Egyptian and foreign. These measures represented the culmination of a process under which the Government gradually acquired direct control over the economy which had begun with the sequestrations of foreign properties. It had continued in 1960 with the nationalization of the Bank Misr, a banking concern with substantial holdings in the Egyptian textile industry. The large-scale nationalizations of the following year were motivated mainly by the Government's growing conviction that control over investment and the financial resources of the industrial sector were essential conditions for a policy of rapid industrialization.

20. After nationalization the enterprises continued for a time to operate much as they did as private companies but gradually the Government devised a system of supervising and controlling authorities. A number of "General Organizations" were established, one for each major branch of industry, which were in the nature of holding companies. Each General Organization was made responsible to the appropriate government ministry, generally the Ministry of Industry. With the building up of this system the Government has extended its control over the operations of the companies so that there is now a strongly centralized administration of the whole industrial sector. Owing to the widespread price controls the profits of the companies ceased to act as indicators of efficiency or as guides to investment opportunities and the economy became to a substantial degree a directed economy relying on a system of targets covering production, costs, exports, etc., which was worked out jointly by the companies and their supervising organizations. The working of this system and the problems to which it has given rise are discussed in more detail in the section on Industry and Power.

C. The Development Plan 1960 to 1965

21. In the seven years preceding the First Five-year Plan the gross national product increased at a rate of 3.8% annually. Since the increase in the population was about 2.4% per year, there was only a slow rise in per capita income. The rate of investment remained at 13 to 14% of G.N.P. The Development Plan for 1960 to 1965 was to be the first of two five year plans which had as their primary objective the doubling of G.N.P. over 10 years which would require a sustained rate of growth of just over 7% per year. This was to be achieved principally by speeding up the growth of industrial production from 6 to nearly 15% per year and agricultural production from about 2.5 to 5.0% per year. To achieve these goals and to allow for the necessary increases in the transport and service sectors investment was to be increased by 70% over the five years so that the rate of investment would increase from 13-14 to slightly over 20% of G.N.P.

22. In its estimate of the total investment required to reach the growth targets the plan was possibly not far off the mark, although the distribution of investment between sectors did not turn out to be accurate. However, it also envisaged the simultaneous achievement of a surplus in the balance of payments and hence it called for an increase in domestic savings even larger than the increase in investment. This was aiming very high; it would have meant that slightly more than 40% of the additional incomes arising from economic growth would have had to be saved. In practice, the course of events in this respect departed markedly from the plan. Although the total investment over the period was not far short of that envisaged in the plan it was financed with the help of a large deficit in the current balance of payments. The marginal savings rate instead of being over 40% was around 19% which meant that there was only a small increase in the proportion of national income saved over the period. The pressure from rising government and private consumption, increased spending on social services, defense and subsidies to prevent the cost of living from rising meant that the plan ceased to be a guide to practical policy in this field.

23. The growth of the various economic sectors and the behaviour of the gross product, savings and investment during the period are shown in the following tables:

Table 1: ECONOMIC GROWTH DURING THE FIRST PLAN (1960-65)

	Annual growth of production (per cent)			Production in 1964/65 as percentage of plan target
	1952/53-1959/60	Plan	Actual	
Agriculture	2.7	5.1	3.3	93
Industry 1/	6.2	14.6	8.7	77
Construction	7.7	- 2/	14.3 3/	180 3/
Commodity sectors, total	4.1	8.7	6.3	89
Transport 4/ and communications	7.3	3.8	11.2	134
Housing services	3.1	2.9	1.9	95
Trade and financial services	3.5	5.0	3.4	94
Other services	2.6	4.7	7.8	121
Services, total	3.5	4.4	6.7	113
Goods and services, total	3.8	7.0	6.5	98

1/ Including electricity.
2/ Less than 0.5%.
3/ In current prices.
4/ Including the Suez Canal.

Table 2: DEVELOPMENT OF SUPPLY AND USE OF RESOURCES OVER THE FIRST PLAN PERIOD

(at current prices)

	L.E. Millions		Percentages	
	1959/60	1964/65	1959/60	1964/65
1. Gross Domestic Product	1375.6	2050.6	100.0	100.0
2. Import of Goods and Services	286.6	497.7	20.8	24.3
3. Total Supply	1662.2	2548.3	120.8	124.3
Used for:				
a) Private Consumption	971.6	1330.9	70.6	65.0
b) Government Consumption	228.1	431.3	16.6	21.0
c) Gross Investments	171.4	364.3	12.5	17.7
d) Exports	291.1	421.8	21.1	20.6
Savings (1-3a-3b)	175.9	288.4	12.8	14.1

Table 3: INVESTMENTS, SAVINGS AND THE EXTERNAL BALANCE

(L.E. millions in current prices)

	Investments	Savings	Import Surplus
1959/60	171.4	175.9	-4.5
1960/61	225.6	210.1	15.5
1961/62	251.1	164.7	86.4
1962/63	299.6	195.6	104.0
1963/64	372.4	236.8	135.6
1964/65	364.3	288.4	75.9
First Plan period, total	1,513.0	1,095.6	417.4
First Plan period, relative figures	100.0	72.5	27.5

24. While the overall growth rate seems to have been close to the 7% envisaged by the plan, the development of the various sectors differed significantly from the plan forecasts. In the important sectors of agriculture and industry, production was less than had been hoped, partly, if not largely, because investment was less than intended. Actual investment in industry (including electricity) in current prices amounted to 88% of planned investment in 1959/60 prices; taking into account the price increase the volume of industrial investment was probably 20-25% short of the target. Moreover, a considerable proportion of it was made in the last three years of the period and may not have produced its effect on output until after 1964/65. Similarly, investment in current prices on agriculture, irrigation and drainage amounted to less than 90% of the planned expenditure at fixed prices. The main reasons for the gap between the planned and the actual investment were, firstly, that many projects took longer to carry out than expected and, secondly, the expansion of investment had to be deliberately held back owing to insufficient domestic savings and balance of payments problems. By contrast, the volume of construction and the demand for transport services were much greater than expected and the capacity of these two industries was stretched to the utmost. There was also a large expansion of "other services" including education, health, defense and government services in general.

25. Another area in which the expectations of the plan did not materialize was that of foreign trade. Exports increased by 20% which was less than the 30% intended but not unduly so. Exports suffered directly from the pressure of consumer's demand not only for traditional goods such as cotton and rice but also for manufactured goods such as tires and refrigerators. Another factor which may have stood in the way of higher exports of cotton related to the terms and conditions of PL.480 assistance. It was, however, the behavior of imports which departed radically from the plan. The plan foresaw a slight decline in the volume of imports with increasing imports of investment goods being more than offset by reduced imports of consumer and intermediary goods. This was to have been brought about by industrialization which was to produce a large volume of import substitutes. In practice, however, this did not occur. Although there was a substantial increase in industrial production the volume of imports also rose in much the same proportion. Nevertheless the demand for imports was not fully met and there was consequently some under-utilization of industrial capacity. It is true that the expansion of industrial production was about 23 percent less than the target but it is hardly likely that the demand for imports would have been less if industrial production had been higher. It might well have been even higher.

26. It is, in fact, an open question whether the expansion of so-called import-saving industries in the UAR can lead to a substantial fall in the relationship between imports and gross national product. Egypt has built up a sizeable industrial sector since before the war, a large part of which must be regarded as import saving. In 1938 imports amounted to 18.5% of GNP and since the war they have fluctuated between 16 and 23%. From 1960/61 to 1964/65 they averaged about 20%. It therefore seems likely that increasing imports of a wide variety of goods supplementary and complementary to

domestic production will be required in the process of industrialization. Even if it were possible to steer industrialization in, so to speak, an "inward-looking" direction, it might not represent an economic use of resources and hence might imply a slower growth rate. If this is so, the rate of growth of industry in the future may be determined by the rate of increase of total foreign exchange earnings.

27. To provide an increase in employment was one of the prime objectives of the development plan, which had as a target the employment of 7.1 million people by 1964/65. According to official estimates, total employment rose from 6.0 million in 1959/60 to 7.3 million in 1964/65, or by 22%. About 40% of the increase in employment was provided by agriculture and 30% by industry and construction together. Since G.N.P. rose by 37% the increase in production per employed person was slightly over 12%. The distribution of the rise in employment is shown in the following table:

Table 4: EMPLOYMENT BY SECTOR, 1959/60 AND 1964/65

(In thousands)

	1959/60	1964/65
Agriculture	3,245	3,780
Industry	614	843
Construction	185	345
Commodity producing sectors, total	4,044	4,968
Transportation and communication	218	278
Other services	1,744	2,087
Service sectors, total	1,962	2,365
Total employment, commodity and service sectors	6,006	7,333

28. That economic developments over the last five years did not all turn out in accordance with the targets of the Five-year Plan is not cause for surprise. The Plan itself was prepared in a hurry and, as is generally the case in these matters, on the basis of very imperfect statistics. It was, moreover, the first attempt of its kind in Egypt. The important institutional changes which took place during the Plan period could not be foreseen. However, the comparison of events with the Plan is of some interest as an illustration of the areas in which future plans and policies might be revised. The Plan certainly led to an acceleration of investment and

economic growth which compares well with that of many developing countries. The fact that this acceleration was financed by too great a reliance on external funds and not enough on domestic savings was not the fault of the Plan since the Plan called for a great increase in savings. The savings effort assumed in the Plan was, however, unrealistic.

29. A new plan is now being prepared for the period 1965/70. At the same time, the Government has become aware of the difficulties created by the rapid expansion of consumption and at the end of 1965 a series of measures to restrict demand were introduced. These entailed increases in the prices of a wide range of consumer goods, higher taxes on tobacco and alcohol, an increase in customs duties and an increase in income tax. The original target for investment in the new development plan which amounted to LE 2.5 billion to be spent over five years has been reduced to LE 3.2 billion to be spent over seven years. The implications of such an investment plan are discussed in section VIII.

III. AGRICULTURE

A. General

30. Agriculture in Egypt is concentrated on the narrow strip of the Nile Valley and the fan-shaped area of its delta, which together occupy barely 3.5% of the area of the country. Apart from the Mediterranean coastal fringe which receives an average annual rainfall of 120-25 mm, the country receives almost no rain and must rely on irrigation. Water, rather than land, sets the limit for agricultural development. Although much of the soil in the desert is of poor quality it would be possible to extend cultivation substantially if water were available and could be economically exploited.

31. The scarcity of cultivable land and the dependence on irrigation favor an intensive use of land for growing fibers, grains, fodder, fruits, vegetables, sugarcane and other crops. Livestock are raised as a supplement to other farming activities but there is no extensive livestock rearing, nor are there any forests. The only timber produced is from plantations on the road-side and canal banks and wind-breaking rows of trees on the edge of the desert. In 1964-65, 92% of the total cultivated area was under field crops, 6% under vegetables and 2% under fruit and wood trees.

32. For many years there was no major change in the composition of agricultural output. Since the late fifties, however, certain shifts are noticeable and although they are still small, they have promising implications. These shifts indicate a reduction in the share of field crops, and an increase in those of vegetables and fruits and of fisheries. The UAR possesses a potential comparative advantage in the cultivation and export of fruits and vegetables and its fisheries have yet to be fully exploited, especially in the Red Sea and the reservoir behind the High Dam. Of the gross value of agricultural production in 1964-65, 63% was accounted for by field crops, 6% by vegetables and 5% by fruits and wood, the balance being contributed by animal products and honey (24%) and fisheries (3%).

33. Although the relative share of agriculture in the gross domestic product declined from 32% in 1959-60 to 28% in 1964-65, it is still contributing more than industry. However, the importance of agriculture comes out much more clearly in the high proportion of the labor force in agriculture (57% of the economically active population), the relatively large rural population (62% in 1960) and a large share of agricultural commodities and products of agricultural origin in the export trade of the country (about 85%).

34. In the past agricultural production has not always kept pace with the growth of population. As shown in the following table production lagged behind population from the mid-thirties until the early fifties. In the last few years, however, the increase in production has exceeded the growth in population, although the margin between them has not been enough to take care of the more rapid rise in demand arising from the increase in income per head. Consequently imports of food have had to be increased in order to prevent prices from rising.

Table 5: GROWTH OF POPULATION AND AGRICULTURAL OUTPUT

Period	Percent increase in	
	Population	Agricultural Production
1935-37 to 1958-60	61.9	39.0
1948-50 to 1958-60	27.6	27.5
1950-55 to 1958-60	12.9	16.4
1959-60 to 1964-65	13.3	16.7

35. In looking to the future there are a number of directions in which efforts to increase production may be made. Firstly the area under irrigation can be increased - so-called "horizontal expansion" - within the limits set by the available water. Secondly, the productivity of land now under cultivation can be increased and even though, for most crops, Egypt's yields are among the highest in the world there is still considerable scope for further improvement. Finally, the pattern of land use can be adjusted to produce more of the higher value crops such as rice and vegetables. Horizontal expansion is expensive but has the great advantage that it provides more land for the growing population. Vertical expansion yields a much higher return in relation to its cost but provides little direct additional employment. Moreover the rate at which yields can be improved depends not so much on the availability of financial resources but on the speed at which farmers can be persuaded and trained to improve methods of cultivation. It is in the light of these possibilities and against the background of rising population pressure that the Government's agricultural development plans have to be understood.

B. Irrigation

36. Since Egyptian agriculture is almost wholly dependent on the Nile, the large yearly and seasonal fluctuations present a major problem of water control. The average annual discharge of the Nile as measured at Aswan amounts to 82,000 million cubic meters of water; in some years however the volume is as low as 42,000 million cubic meters, while in others it is as high as 155,000 million cubic meters. The seasonal fluctuations are even larger - 80% of the volume passing during July-December and only 20% from January-June.

37. To overcome these fluctuations and to even out the water supply available for irrigation, a number of barrages have been constructed which now provide a storage capacity of 7.5 billion cubic meters. Nevertheless, before the construction of the High Dam a large amount of water, amounting on the average to 32 billion cubic meters, was discharged into the sea during the flood period. Hence the amount of water available for irrigation was only 48 billion cubic meters. An extensive network of canals and channels deliver this water to the fields according to a rotation system which varies with the cropping pattern.

38. The irrigation policy and projects of the Government have as their objective the harnessing of the whole of the Nile flow, utilizing the available water as economically as possible and exploring for new sources of water for the development of desert land. Between 1937 and 1965, the supply of irrigation water from the Nile had remained fixed at the storage capacity of the dams, and the objective of irrigation programs had been to utilize this water both for extending cultivation and for bringing about shifts in the crop pattern through economies in water use. The extent to which this objective has been achieved since the early fifties can be assessed from the fact that between 1952 and 1964-65, the cultivated area increased by about 8% and the total cropped area by about 10%. The intensity of cropping has therefore increased a little; but the area under rice, vegetables and sugarcane which require heavy irrigation has increased very considerably. This has been made possible by economies in water use, improvement in the design and management of the water distribution system and the supplementing of supplies from the irrigation canals with drainage and ground water and similar measures.

39. These improvements in irrigation efficiency cannot, however, extend cultivation and cropping beyond a certain limit. By the late fifties, this limit may be said to have been in sight. It became apparent that further progress depended on the availability of additional water. This is the reason for the urgency placed by the Government on the High Dam. The High Dam will provide "over year storage" with a capacity of 127 billion cubic meters and permit all of the Nile water to be used for irrigation.

40. According to the 1959 agreement between the UAR and the Sudan the net additional benefits from the High Dam, estimated at 22 billion cubic meters (32 billion previously discharged into the sea less 10 billion lost by evaporation), will be divided in the proportion of 7.5 billion cubic

meters for the UAR and 14.5 for Sudan. The arrangement will therefore ensure 55.5 cubic meters of water for the UAR. (i.e. the original 48 plus 7.5 billion cubic meters). The agreement also provides for any excess water over and above these figures to be divided equally between the Sudan and the UAR, and for the Sudan to lend the UAR a total of 1.5 billion cubic meters of water annually until 1977.

41. The cost of the dam, powerhouse and transmission lines, is now estimated at LE 227.5 million of which the Soviet Union has provided LE 116.8 million in the form of two loans repayable over 12 years with interest at 2.5%. An estimate of the total cost of the project, including the necessary irrigation and reclamation works, the removal of population from the lake area and the indemnity to the Sudan has been put at around LE 600 million. The benefits of the project are estimated as (a) the extension of the cultivated area by 1.3 million feddans, (b) the conversion of 700,000 feddans from basin irrigation to perennial irrigation, (c) the generation of 6 to 9 billion kwh of electric power annually, (d) flood protection, (e) improved navigation, (f) the lowering of the water table and consequent raising of productivity in the irrigated areas. The Government intends to use the additional water for 694,000 feddans of land to be reclaimed in the Second Five-Year Plan and also for changing the cropping pattern on presently cultivated land to increase the area under rice by more than one-fifth, that under cotton by about one quarter and that under sugarcane by nearly two-thirds. The whole question of the most economical use of High Dam water - how much new land to reclaim, how much additional water should be used on the present land to produce more water-intensive crops, the balance between irrigation and power requirements, etc., is one which needs considerable investigation. It may be that eventually there will not be enough water to reclaim 1.3 million feddans. This is a question which will arise after the Second Plan.

C. Land Reclamation

42. The First Plan placed a great deal of emphasis on land reclamation and the rate of reclamation was stepped up considerably. During the Plan some 536,000 feddans were reclaimed as compared to 78,800 in the years 1952-1959/60. Those areas are to be irrigated initially from existing water sources and eventually by water from the High Dam. The agencies responsible for this work, the Organizations for Land Development and Desert Development have done some pioneering work in the field of reclamation, settlement and cultivation of arid, desert land. However, this is a long process involving soil classification, selection of available areas, survey of these areas, planning and execution of works necessary for the levelling and layout of land, construction of roads, and provision of electricity, irrigation systems and housing. While these reclamation works are going on, the land is cropped from the second year for the purpose of building up the soil and after two to five years, depending on the nature of the soil, the land reaches the stage of "marginal productivity." At this stage, holdings are supposed to be distributed to settlers at the average rate of 2.5 feddans per settler. Five more years of cropping are required before the land reaches the level of average productivity of arable land in the UAR.

43. In the early years of the Plan, land reclamation work was undertaken without adequate consideration for costs as evidenced by a relatively large outlay on housing and a fairly liberal scale for provision of community facilities. Later, however, more attention began to be given to the economies of reclamation and settlement work, and the expenditure on housing was reduced and the cost of land reclamation and development has been brought down from between LE 260 and LE 287 per feddan to an average of LE 235. According to data provided by the Ministry of Planning, an investment of LE 235 per feddan generates by the eighth or ninth year a gross output of about LE 90. Thus the investment/output ratio works out from the ninth year (without any discounting) to 2.6 : 1 for such projects of horizontal expansion, as compared to a ratio of a little over 1.2 : 1 for vertical expansion.

44. The Government has also made notable efforts to discover and utilize groundwater resources, especially in the New Valley and the Western desert. Considerable investigation has been made of the hydro-geology of these areas. By 1965, 140 deep wells were operating in the New Valley. However, the actual water reserves in this area are still not fully known, and the settlements developed around the wells are regarded as pilot projects. Even though the high expectations of desert development in the First Plan have not been realized, considerable experience has been gained. The present policy of going slow with this type of development seems clearly correct.

45. At the beginning of the First Plan there were about 973,000 feddans of land under the basin system of irrigation in Upper Egypt. During the Plan 538,000 of these feddans were provided with a perennial irrigation system, at an average cost of LE 71.6 per feddan. The drainage system for these lands will be constructed in the Second Plan and the remaining basin lands will also be fully "converted". Since most of the conversion has taken place towards the end of the First Plan, its benefits in the form of a higher intensity of cropping and larger net returns will be realized during the Second Plan.

D. Drainage

46. As a result of decades of perennial irrigation the sub-soil water table has risen considerably, especially in the low-lying delta areas, with adverse effects on salinity of soil and productivity of crops. To cope with this problem, a system of open drains has been constructed in many parts of the country. Open drains, however, are not efficient, are difficult to maintain, and also result in a loss of 10 to 15% of the land. Justifiably, therefore, the Government has been giving urgent attention to the improvement of drainage, especially to projects for tile drainage (covered drainage). In the First Plan an area of 250,000 feddans was covered with tile drains at a cost of LE 7.8 million; and in the Second Plan, it is proposed to cover an area of 1 million feddans. Estimates of the increase in productivity as a result of tile drainage vary; however, the Government's estimate of an increase of up to 25% in the yield of crops seems reasonable.

E. Land Use and the Cropping Pattern

47. One of the distinctive characteristics of Egyptian agriculture is the system of regulation by which the Government controls the allocation of the land to different crops, the manner of their cultivation and even the method of their marketing. Every year the Government decides at the National, Governorate, village and farm level what areas are to be sown to what crops, the quantities of fertilizers and other inputs to be provided to the farmer through the cooperative, the dates of some of the crucial agricultural operations and for some of the crops the quota to be delivered to the Government. Moreover, the prices of many of the crops, especially cotton, wheat and rice are determined by the Government. This system of direct regulation which has arisen from the necessity for central control of the scarce irrigation water, has tended to discourage the growth and development of production and distribution based on market prices and economic considerations in general. For example, there are no charges for irrigation water and relatively little reliance on the instrument of pricing for bringing about changes in crop areas. The system of administered prices and allocations makes decisions on investment planning difficult. The authorities are aware of this and try to overcome the problem by using international prices for the purpose of planning.

48. In recent years, the Government has been enforcing the rule that no more than one-third of the land can be planted to cotton and no less than one-third to wheat. Both domestic and external considerations have influenced this policy, the more important of them being an attempt to maintain prices of cotton in the world market, and to ensure a certain minimum level of domestic production of wheat which is a relatively low-return crop. However, this "rule of three" has not prevented certain shifts in the cropping pattern. Thus over the last ten years, among the winter crops - the area under wheat and barley has declined and correspondingly that under berseem, vegetables, beans and lentils increased. Among the summer crops, rice, vegatables, millets and sugarcane have gained in acreage, while the cotton area has gone down from a level of 1.8 - 1.9 million feddans up to 1961 to about 1.6 million feddans in the following years. The area under oranges has almost doubled and there has been an appreciable increase in that planted to mangoes and grapes. These changes are summarized in the following table. The changes were more pronounced between 1958-60 and 1963-65 than in the fifties, especially in the case of wheat, cotton, and rice.

Table 6: CHANGE IN AREA AND YIELD OF MAJOR CROPS

(area in '000 feddans and yield in kg. per feddan)

	Average per year					
	1950-54		1958-60		1963-65	
Crop	Area	Yield	Area	Yield	Area	Yield
Cotton (lint)	1,765	214	1,846	249	1,622	306
Wheat	1,571	774	1,452	999	1,261	1,130
Berseem	2,184	-	2,397	-	2,469	-
Maize	1,746	879	1,878	879	1,604	1,196
Rice	519	1,600	651	2,114	921	2,289
Vegetables	300	-	497	5,640	595	7,500[a/]
Fruits	93	-	124	5,146[b/]	164	4,757[b/]
Sugarcane	96	34,458	112	38,393	132	38,500

a/ Yield data based on statistics for 1963 and 1964 only.
b/ Yield of oranges.

49. One of the difficult problems is the area to be sown to wheat. The country is faced with increasing demands for wheat which cannot be met under present cropping patterns and substantial quantities of wheat and flour have to be imported. Furthermore, wheat is a comparatively uneconomic crop to grow in Egypt and the Government spends about LE 10 million annually on subsidising it. Even so, it provides farmers with a comparatively low return. The Government plans to stabilize the wheat area at 1.37 million feddans, which is about 100,000 feddans lower than the 1959/60 average, but also hopes to achieve an increase in production of the order of 32 percent through the introduction of higher yielding varieties.

50. Between 1956-60 and 1961-64 the wheat supply from domestic production and imports increased by 22%, which indicates an annual rate of increase of about 4%. If an allowance is made for some increase in stocks the increase of consumption was about 3.5% per year. At this rate, and assuming that the supply of rice, maize and other cereals increase as they have in the past Egypt will need between 3.7 and 3.8 million tons in 1969/70. Since domestic production is expected to be 1.7 million tons, the import requirements are likely to be around 2 million tons.

51. Recent changes in yields of the major crops are given in Table 6. They show a strengthening of the position of cotton, maize and vegetables and these are the crops in which the country has a comparative advantage. (The figure for fruits is affected by new plantings of oranges and does not reflect a trend). These yields are, if not the highest, then close to the highest in the world. Even for wheat and other cereals, the yields are far above the world average. This does not, however, mean that the scope for further increases in yield has been exhausted in Egypt. Considerable increases could be brought about through increased use of fertilizers, plant protection chemicals and better seeds, tile drainage, further strengthening of extension and training and intensified research in plant breeding. While appreciable progress has been made in these aspects of "vertical expansion" in the First Plan, there are still gaps to cover. Thus, while the consumption of nitrogenous fertilizers has increased by 44% in the First Plan, the average consumption per feddan of crops in 1964-65 worked out to only 23 kilograms in terms of nitrogen, which is on the low side by international standards. The consumption of phosphatic fertilizers rose by about 36%, but very little if any, was used on crops other than cotton. In fact, the rate of application of fertilizers on nearly all crops with the exception of sugarcane is still below the minimum recommended by the Government.

52. Considerable progress was made in the First Plan in the extension of plant protection measures, which in 1964-65 covered almost the entire cotton area and resulted in a reduction of the losses to the cotton crop from about 40% in 1958-59 to about 9%. However, plant protection measures are far from adequate for most other crops, particularly fruits and vegetables. But, unless more attention is given to the supply of quality seeds and to plant protection measures for vegetables, the large increase planned for vegetable exports may be difficult to achieve.

53. Most of the research on plant breeding, etc., has until lately been devoted to cotton. It was only during the later years of the First Plan that attention began to be paid to other crops and a regional approach was also adopted. Six regional research stations have just been set up but it may be some years before their activities show up in improved research, training and extension work. For the immediate future, improvements in the varieties of wheat, rice and sugarcane, whose yields have grown only slowly, will depend on the research already in the pipeline. One of the major achievements of the Government has been in the strengthening of agricultural extension, the organization of cooperatives and the provision of credit and marketing facilities. A network of extension services has been built up in the rural areas and linked to the cooperatives of which there are now about 4,665. The cooperatives provide farm supplies, machinery used in common by farmers, marketing facilities, credit, a consumer's store and, in some areas, community services. The system is coordinated by the General Organization for Agricultural Cooperatives and is undergoing considerable expansion.

54. There has been a substantial expansion of agricultural credit during the First Five-Year Plan. The amount of short-term loans has increased from LE 35.7 million in 1960/61 to LE 62.4 million in 1964/65.

Most of this credit is given in the form of crop loans and carries virtually no interest. The volume of medium-term loans has been much smaller, LE 1.5 million in 1960/61 and LE 2.4 million in 1964/65. However, the amount of credit is still rather low being only about LE 6 per feddan of crop, and the medium-term loans are at a much lower level, LE 1 per landowner. The loans would probably be used more economically if a system of interest rates for different categories of loans were established.

F. The First Five-Year Plan: Summary of Results

55. The First Five-Year Plan had as one of its objectives the attainment of a growth in agricultural output of about 28% between 1960-61 and 1964-65. To this end the Plan provided for an investment of LE 356.3 million in the public sector and LE 35.7 million in the private sector. This represented about 25% of the investments in all sectors. The most important programs and projects in the public sector of the Plan were the High Dam (13% of the public investments), those for the horizontal expansion of agriculture (49%) and irrigation and drainage (29%). Only 8% of the investments were allocated for vertical expansion, and a negligible 0.4% for fisheries.

56. Table 7 compares the planned investments with those actual results. The expenditure on the High Dam was more than double the original estimate. Investment other than the High Dam fell short of the planned amount by some 10%. Since there has been a rise in prices since 1959-60, the shortfall in real terms would be more than 10%. This is the result of investment on irrigation and drainage and horizontal expansion falling below the target because of slow progress during the first two years. However, expenditure on vertical expansion and on the livestock and fisheries programs was higher than the original target.

Table 7: PUBLIC INVESTMENTS IN THE AGRICULTURE SECTOR - FIRST AND SECOND PLAN

	First Plan			Second Plan		
		Actual investment		Proposed investment		Percent increase (+) decrease (-) over First Plan actual
	Plan outlay (LE mil.)	Amount (LE mil.)	Percent of total	Amount (LE mil.)	Percent of total	
Agriculture						
Vert. expan.	29.6	43.5	11.5	57.3	8.9	+ 14
Horiz. expan.	173.4	140.8	37.3	300.6	46.9	+113
Livestock	-	7.4	2.0	17.2	2.7	+132
Fisheries	1.3	2.6	0.7	21.1	3.3	+701
Irrig. and drainage	104.7	84.2	22.3	203.0	31.7	+141
High Dam	47.3	98.6	26.2	41.6	6.5	- 58
Total	356.3	377.1	100	640.8	100	+ 70

57. At least 64% of the investments during the First Plan were directed to programs such as the High Dam and horizontal expansion which could not be expected to produce their effect on output during the First Plan itself; their benefits will be realized during the Second Plan. Thus the 536,357 feddans of land reclaimed during the First Plan with an investment of about LE 140 million generated a gross output of only LE 11.3 million but when these lands reach the level of average productivity, they should yield a total output of the order of LE 48 million per year.

58. As compared with an expected growth of 28% in agricultural output, the increase actually achieved from 1959/60 to 1964/65 was 16.7%. Horizontal expansion schemes contributed roughly 18% of the increase in output, while 82% was the result of an increase in the acreage of high-value crops such as rice, vegetables, fruits and sugarcane and increases in the yield of other crops such as maize and cotton through better cultural practices, shifting to summer cropping, effective plant protection measures, increased use of fertilizers, some improvement in crop varieties and seed and a strengthening of the credit and extension services. A growth of 16.7% in five years is equivalent to 3.3% per year. This is a little, but only a little, greater than the growth rate of the late fifties. It is higher than the rate of growth of population but, according to what information does exist concerning the income elasticity of demand for food products, not enough to satisfy the growing demand with increasing per capita incomes.

G. The Second Five-Year Plan

59. The original investment program for the Second Plan 1965/66 to 1969/70 envisaged expenditures of LE 640.8 million. Although this figure may be reduced somewhat 1/, or the period for which the expenditure is planned may be lengthened, the main outlines of the Plan are not likely to be altered. As was shown in Table 7 the Second Plan calls for substantially increased investments in horizontal expansion and irrigation and drainage while the increase in expenditure on vertical expansion seems at first sight modest.

60. However, if the allocation for irrigation and drainage were divided between horizontal and vertical expansion, then owing to the large amounts included under irrigation for tile drainage (LE 43.5 million), and conversion of basin land (LE 57 million), the investment on vertical expansion would more than double and would amount to about 25 percent of the total investment. There has thus been relatively more emphasis placed on vertical expansion in the Second than in the First Plan. The large rise in the allocations for fisheries and livestock also shows a concern to bring about increases in output through short-maturity schemes. In other words, the Second Plan is likely to result in the production of much more output within the Plan period itself than was the case in the First Plan.

61. Nearly 58% of the investment on new projects is for projects which will use the water available from the High Dam. Without these investments the capital already invested in the High Dam would not start earning

1/ In the most recent revision of the plan investment in agriculture has been reduced to LE 588 million over seven years.

returns, and there is therefore little scope for maneuver in this respect. Two of the biggest projects are the Salhia Reclamation project east of the delta and the tile drainage project in the delta. The Salhia project, estimated to cost LE 99 million with a foreign exchange component of LE 25 million is for the reclamation of 312,000 feddans and some work on it has already started.

62. The production targets under the Second Plan indicate an overall growth of agricultural production of about 22 percent by 1969-70. The prospects for increasing production in the Second Plan are much better than in the First, because the investment in land reclamation and development and in research and extension during the First Plan will bear fruit in the Second Plan. Also the High Dam will make it possible to modify the crop pattern so as to increase the acreage under crops such as rice. Thus in addition to increases in the yields of crops now grown there will be new production from the reclaimed lands, the erstwhile basin land, and the increased output of some crops as a result of higher intensity of irrigation. Assuming no delays in the reclamation and cropping of new lands, the horizontal expansion achieved in the First Plan and to be continued in the Second Plan is expected to yield additional production of the order of 7% by 1969-70 to which may be added an increase of 15% resulting from vertical expansion and other schemes. These appear to be rather conservative estimates and it should not therefore be difficult to achieve the growth rate planned for agriculture.

IV. INDUSTRY AND POWER

A. The Role of Industry in the Economy

63. The reasons for the great emphasis placed on the development of industry in the UAR are easy to understand. With the cultivable area already densely populated and the population growing at 2.8% per year it is clear that agricultural development alone cannot support the increasing numbers of people. Some new employment can be provided by bringing new land under cultivation. But this is expensive; it could be as capital intensive a process as industrialization. It is, therefore, natural to have recourse to industry as a key element for economic development.

64. Industry in Egypt originated at the beginning of this century with the establishment of cotton ginning, pressing, spinning and weaving enterprises and other industries using local materials such as salt, cement and pottery. It was not, however, until the depression of the nineteen thirties, when Egypt obtained control over its own tariffs and raised them substantially, that the first real impetus was given to the growth of industry. When the government entered the field of development planning, the first plan which was prepared was a Plan for Industrialization which was launched in 1958. In 1960 this was incorporated in a more general Five-year Plan in which the planned investments in industry were greatly increased. Investment in industry, including power and construction, was put at 38% of total gross fixed investment which was more than for agriculture including irrigation and the High Dam.

65. There is no fully satisfactory index of industrial production in the UAR but from what estimates have been made it appears that since the end of the war industrial production has grown at an average rate of something over 5% per year. There have, however, been great variations within this period. In some years it was as great as 12% per annum whereas in the early fifties after the Korean war it was more like 2-1/2%. In the five years after 1955 production grew at an average of about 7% and during the period of the first Five-year Plan the rate was 8.9%. During the period of the plan employment in industry rose by 6.5% per year indicating a rise in productivity of about 2.3% per annum. This figure would probably have been higher had it not been for a reduction in the hours of work in 1961, and, more important, for the pervasive pressure upon all economic enterprises to employ more labor than is really necessary.

66. In developing her industry Egypt started with the advantage of being an economy in which external trade was a fairly high proportion of national income so that the initial industries could satisfy an existing market. The traditional industries in the UAR such as the textile and food processing industries produce import substitutes from local raw materials. These have been joined since World War II by the petroleum and chemical industries, also using local raw materials. More recently there has been some development of the steel, metal processing and engineering industries where reliance on imported raw materials and parts is much greater and the experience here has been much less favorable. The general direction of industrialization has been more towards consumer and intermediary goods than towards capital goods. The relative importance of these different types of industries and the changes during the last five years are shown in the following table:

Table 8: MAIN INDUSTRIAL GROUPS

	Increase in output 1959/60 to 1964/65	Share in total industrial output 1959/60	Share in total industrial output 1964/65
Processing of agricultural raw materials (food, textiles, tobacco, etc.)	20.5%	76.8%	68.2%
Petroleum and products, chemicals and electricity	112.0%	9.6%	14.9%
Basic metals, metal products and engineering	100.0%	5.7%	8.3%

67. The cotton textile industry expanded rapidly after the war but since 1957 its growth has not been as fast as that of other industries. During the five years 1959/60 to 1960/64 value added in textiles grew by 26% as compared to around 50% for all manufacturing industry. During the fifties the capacity of the textile industry overtook the increase in domestic demand and exports grew considerably; in the last five years textile exports

doubled despite a rapid increase in domestic consumption and now represent almost half of all industrial exports. The Egyptian cotton textile industry has to use domestic high-quality long and medium staple cotton as its raw material since the import of cheap short staple cotton is forbidden. Consequently the industry has difficulty in competing with cheap textiles manufactured in Asia. In the past this cost disadvantage to the industry was to some extent offset by export taxes on raw cotton - which raised the price of the raw material of foreign producers - and sales of cotton to the local industry at below the export price have occasionally been made. As the textile industry grows this problem will become more important; it is, however, a complicated issue since it is necessary also to take account the effect on raw cotton prices of additional exports.

68. The food processing industry is the largest industrial group in the U.A.R. However, it has grown at a considerably slower rate than the rest of the industrial sector. The most important part of the industry is the crushing and refining of sugar. Production of refined sugar rose by 20% from 1959 to 1964 as part of a program to make possible an increase in per capita consumption without an increase in imports. Although yields per acre in Egypt are among the highest in the world costs are relatively high, making it difficult to export sugar competitively. In any event local consumption has risen sufficiently that the margin for export which existed a few years ago has disappeared. Hence the future development of the industry will be directed towards meeting domestic needs. The same is true in the case of edible oils, which is disappointing since Egypt is well suited to develop exports of processed foodstuffs and has been successful with dehydrated onions and frozen shrimp.

69. There has been a substantial increase in the output of crude petroleum - from 3.2 million tons in 1959/60 to 6.3 million in 1964/65. The Egyptian oil fields are concentrated in the areas of the Gulf of Suez and the Red Sea. The deposits are very small by comparison with the Persian Gulf fields and reserves are now 150 million cubic meters. However, the prospects for further increases in production are quite good; a new strike was made last year off the Red Sea coast which is estimated to be able to produce 6 million tons a year by 1968 which will almost double present production. Prospecting is now being carried out by three foreign companies working in conjunction with the General Egyptian Organization for Petroleum. Two of them have recently begun exploration in the western desert. Refining capacity has also expanded from 3.8 million tons in 1959/60 to 8.3 million tons in 1964/65.

70. Electric power generation has been increasing very rapidly; it rose more than three and a half times in the ten years up to 1965. Over the same period installed capacity rose from 565 to 1,592 megawatts. Until 1960 all power capacity in the UAR was thermal; the first hydro power was produced in 1960 when a power station was added to the old Aswan Dam. Power from this station is used for a fertilizer plant at Aswan and for the construction of the High Dam. The first power from the High Dam will become available in 1967. Three generators each of 175 megawatt capacity will be put in operation during 1967, four generators in 1968, four in 1969 and one

in 1970. When the plant reaches full utilization, which is not expected before 1976, the energy generated is expected to be between 7,000 and 9,000 million kwh annually, which may be compared with a figure for total power generated in Egypt in 1965 of just over 5,000 million. There is also some 1,000 megawatts of new thermal capacity under construction in the delta area which is intended to meet power requirements until High Dam power is available. This new capacity, plus the High Dam, should provide Egypt with sufficient power to meet its needs for the next ten years.

71. There was a considerable emphasis given to the chemical industry, particularly fertilizers, in the First Five-year Plan and it has been one of the most important and rapidly growing sections of industry. Taken together, the chemical and petroleum industries now contribute more to GNP than does the textile industry whereas in 1959/60 they contributed only two-thirds as much. The increase in fertilizer production has almost kept pace with rise in consumption over the last five years and Egypt produces about 65% of its own requirements. The chemical industry aims to meet all domestic requirements by 1970 and provide for a 70% increase in fertilizer use and some surplus for export. A major program of investment in petrochemicals has, however, been postponed.

72. The steel, metal-using and engineering industries have also greatly expanded over the last five years. Egypt's first integrated steel plant at Helwan began production in 1958 but has been beset with difficulties. The quality of the iron ore which is mined near Aswan turned out to be lower than expected and the consumption of high cost coke produced from imported coal is very high. For this and other reasons the price of steel is substantially higher than imported steel and the company is operating at a loss. It is hoped to reduce costs by enlarging the plant and making use of a better quality iron ore at Bahariya. This program, which is intended to raise pig iron production from 230,000 tons to 1.7 million tons by 1972 was started in 1964 with assistance from the Soviet Union. In addition, a new pig iron smelter is planned to be built near Aswan.

73. The engineering industry consists of three main groups. Firstly, a variety of transport equipment is produced including trucks, buses, passenger cars, farm tractors and rail passenger and freight cars. Secondly, there are a number of plants producing consumer durables such as radio and TV sets, washing machines, refrigerators and many smaller items and finally a considerable range of small industrial and commercial machinery is produced. The development of these branches of industry has been particularly difficult. They are highly dependent on imported parts and materials and many of them are operating below capacity owing to the shortage of foreign exchange.

B. Industrialization Policy and Problems

(i) Prices and Profits

74. The growth of the industrial sector on a sound economic basis in the U.A.R. is dependent on the solution of a number of organizational and economic problems which have emerged from the experiences of the last five

years. As a result of the nationalization of 1961 virtually all the industrial sector is under government control. The extension of controls with the two objectives of keeping consumer prices from rising and, where necessary, of protecting infant industries from foreign competition has created disparities between domestic and foreign prices and within the domestic price system. These distortions have had a number of consequences. They have had an arbitrary and discriminating impact on different industries. They interfere with supply and demand, they affect the distribution of income, they render difficult the evaluation of new investments and of the financial operations of commercial enterprises but, most important of all, they have led to a gradual erosion of the incentives and compulsions which normally operate on all enterprises and help maintain their efficiency. In many cases the price situation faced by a firm is such that the pursuit of profit would lead it in directions contrary to government policy. For example, some goods have been exported but at prices considerably lower than those obtained on the domestic market. The government has tried to deal with this situation by allotting a series of targets for each enterprise covering production, exports, costs, etc., and has thus had to involve itself in the operations of the firms and subject them to fairly detailed control. To some extent, indeed, this development has fitted in with prevailing ideas of planning which are intended to provide an alternative method of economic organization to the profit system. In Egypt, moreover, the fact that in the past the profits of industry contained large elements of monopoly gain and accrued to a small privileged group of the population is hard to forget.

75. Nevertheless the development of Egyptian industry has reached a stage where its interrelations are becoming increasingly complex and the consequences of planning errors more serious. The problem of incentives, is now receiving a great deal of high level attention. A Production Conference was held last year at which a great many suggestions on how to improve efficiency were made and a new law which is intended to give more responsibility to managers of enterprises is being prepared. However, it is going to be difficult to allow enterprises any substantial degree of economic autonomy unless a simultaneous attempt is made to move towards a more realistic price system which means, in effect, prices which are more or less in line with international prices as modified by normal tariffs and excise taxes. Ultimately it would be desirable to relax the degree of price control although resort to a freer price system is dependent on a sufficient degree of competition either within the country or from imports. Foreign exchange is so short at the present time, however, that imports are not sufficient to provide competition for domestic firms. Thus the problems of incentives and profits, of the degree of autonomy of enterprises and supervision by the government, of price distortions and the relation of domestic to foreign prices and hence of the exchange rate, and the shortage of foreign exchange are all interconnected. The industrial sector might be described at present as operating on the basis of a modified profit system with controlled and distorted prices and supplemented by a system of targets and direct controls. It would appear that if the present problems of incentives and efficiency, of encouraging exports and determining investment priorities are to be solved there will have to be a general move in the direction of a more decentralized system relying more on prices and earnings and less on detailed government directives.

(ii) Investment Policy

76. The plans for industrial development in the Second Five-year Plan are being revised after the change of government last year. The Government's policy as regards investment criteria is aimed at three objectives, (1) to maximize the return of investment, (2) to increase exports and substitute domestic production for imports and (3) to eliminate bottlenecks and expand existing enterprises. The process by which decisions are arrived at and the basis on which they are made reflect the centralized organization of industry. Proposals for investment projects are considered first by the General Organization of the industry concerned and then by the Ministry of Industry. In the past the Ministry of Industry appears to have been concerned so much with the desire to encourage industrialization that there was no adequate screening process for new projects or for ensuring that investment commitments did not exceed available funds. This was encouraged by the separation of investment decision making from the problems of financing. Moreover it also affected the efficiency with which projects were carried out.

77. To help avoid these problems the responsibility for the appraisal of projects should be closely associated with the responsibility for providing assistance to the individual enterprises which are to carry them out. A system of this kind would require the establishment of some form of government lending agency for industry - an Investment Bank - to which the government could allocate funds for investment in industry. The government itself could, of course, lay down the broad lines of investment policy as between the various economic sectors and might well wish to take decisions on major or strategic projects. The Investment Bank, on the other hand, would be responsible for the selection of individual projects and for making loans to the enterprises which would carry them out. All potential investors could have access to the bank's money and the bank could select those which best met the relevant criteria. It could make loans both for fixed and working capital and could provide funds both in local currency and foreign exchange and thus avoid the necessity for a separate allocation of foreign exchange. Such a system could be introduced gradually by establishing a bank with a limited amount of local currency and foreign exchange for the expansion of existing plants or for special projects to increase exports.

(iii) Imports and Exports

78. One of the objectives of the industrialization program was to produce commodities locally which were previously imported and thus improve the balance of payments. Although it is obvious that developing a domestic resource such as, for example, petroleum will save imports of petroleum, it does not necessarily follow that developing industrial production will lead to a reduction in imports, either in absolute amount or even in relation to G.N.P. There are many countries where it has not and, as pointed out in para. 26, the U.A.R. seems to be one of them. Calculations of import savings made on a project by project basis are misleading as an indication of the behavior of total imports. Since the production of almost any commodity, except one which is physically impossible to import, can be said to save

imports, this criterion can be used to justify all kinds of projects and the result is the generation of a powerful drive towards economic self-sufficiency which is continuously re-enforced by the prevailing shortage of foreign exchange, but for which the real economic justification is very doubtful. If a project cannot produce at a lower cost than imports plus a reasonable infant industry tariff, then there is something wrong either with the project or the exchange rate.

79. There is thus a great difference between the effects of policies to "save imports" and those to stimulate exports; of the importance of the latter there is no doubt. Exports of industrial goods have increased quite rapidly in the recent past particularly of textiles, yarn and oil and oil products. The growth might have been even faster had it not been for the rise in consumption which used up previously exportable surpluses as happened for fertilizers, sugar and tires. This kind of instability makes it difficult for Egyptian industry to establish itself in foreign markets. Exports are also hindered, as already mentioned, by the fact that prices obtainable on the domestic market are often higher than those for exports.

V. TRANSPORT

A. General

80. Egypt has a good network of railways, roads and waterways. That two-thirds of the population live in the small Delta area simplifies the transport problem but the fact that the Nile and the railway south of Cairo serve only a very narrow strip is a disadvantage. From a technical point of view the country is relatively easy since it is flat, but soil and foundation conditions in the Delta are unfavorable and so is the absence of stone for road construction within the Delta region and some of the desert areas.

81. The railways play the key role in Egypt's transport system, carrying about half of the total freight in ton kilometers. Animal transport is still important for farm to market transport, and farms are usually close to either road, rail or water arteries.

82. Transportation is closely controlled by the Government, and the users do not have a free choice of the most suitable and economic means of transport. This lack of choice, together with an absence of competition, could easily lead to an uneconomic transport system. However, both road and rail transport rates are at present quite reasonable by international standards. Moreover, with few exceptions the Government-owned and operated transport undertakings show a financial surplus after due allowance for depreciation. The operation of the transport system is therefore not a drain on the Government budget, a situation achieved only in a few countries.

83. This is partly the result of the intensive use of the present network. Bottlenecks have arisen, however, and considerable new investments in the transport sector are certainly needed. As part of the second Five-year Plan an investment program amounting to LE 530 million, or about twice

the amount spent over the last five years, was prepared, the magnitude of which could only be justified by assuming a very high rate of future increase in traffic. The growth of both passenger and freight traffic over the previous five years amounted to nearly 60%; the estimated future increase in passenger traffic was based on this previous trend, but freight traffic was expected to increase by more than 100% in the next five years, which would have meant an annual growth of about 15%. However, the Plan period was subsequently stretched from five to seven years ending June 1972, which would reduce the expected annual growth rate to about 10.5%. The estimated increase in dry cargo traffic moving through the maritime ports amounts to 85%, which over the same 7 year period would mean an annual increase of about 9%.

84. The decision that the whole development plan should be carried out over seven years instead of five would justify a re-examination of the demands of the various sectors for transport so as to provide a sounder basis for investment planning. The introduction of some freedeom of choice by the users, and hence some competition between modes of transport might be a useful indicator of priorities. In addition to the problem of the total amount of investment in the transport sector there is a question about its allocation between the different forms of transport. Of the total amount to be spent, rail and road transport each take about one-third of the investment program, and inland water transport only 7%. For the next few years both road and particularly rail transport will have to carry the main burden of the increase in traffic, but there is considerably more room for cheaper water transport. The inland waterways have been neglected in the past but the Government proposes to remedy this. It will of course take some years to improve them, in particular to make the irrigation canals more suitable for navigation, but more development of water transport might well affect the investment needs in other transport sectors. In particular it might lead to a slower increase in the demand for rail transport, and it could also affect port investments since more trans-shipment between ocean vessels and barges could influence the need for, and type of, both maritime and inland port facilities.

B. Railways

85. The railway, which consists of 3,500 route kilometers of main lines, is the mainstay of the transportation system. It carries more than half of the country's motorized freight traffic in ton kilometers, and about one-third of the passenger kilometers. The railway is doing remarkably well financially (Table A 19); it has earned a surplus, after depreciation, in each of the last six years and for 1965-1966 the surplus amounted to LE 10.8 million out of total revenue of LE 39 million. These are impressive financial results, and an indication of sound railway management, the more so since transport conditions in Egypt do not particularly favor railways. The average freight haul is only 270 km. and in the delta area, where two-thirds of the population is concentrated, the hauling distance is, of course, considerably less for much of the traffic. Moreover, freight composition is widely diversified; apart from building materials which amount to 25% of the tonnage, no other commodity amounts to more than 10% of the total tonnage.

86. On the other hand, there are three factors which favor the railways; firstly, there is a certain degree of protection by the Government since traffic is distributed over the various means of transportation by a Government commission, secondly, water transport has been neglected in the past and finally there is a shortage of trucks. Nevertheless these factors have not resulted in high railway costs. Even though prices in Egypt are not as meaningful as in less controlled economies, the average revenues of 1.2 US cent per ton km. for freight, and 0.7 US cent per passenger km. are quite low by international standards.

87. Apart from a short electric suburban line in Cairo the system is completely dieselized. The main line locomotives are in good condition, but many of the shunting locomotives are old and in poor shape, and much of the wagon and coaching stock is also over-age. There is also a substantial backlog of track renewals.

88. Freight traffic has grown by 53% over the five years to June 1965, and passenger traffic by 59%. (Table A 18). An investment program amounting to some LE 188 million was originally prepared, based on the expectation that over the five years to 1970 freight traffic would double and passenger traffic would increase by some 56%. Recently, however, the investment program was cut back to an overall LE 164 million for the railways and the period extended to seven years. There are, however, some reasons for believing that such a large investment program may not be necessary. When more and better trucks become available in the near future and if water transport is developed, the growth of railway traffic may well be less than the present expectations. Although the improvement of the navigable waterways will take some time, their effect will be felt by the railways during the later years of the plan. In practice it may be desirable to reconsider the railway investment program in order to make more funds available for water transport which may well prove more economical for many commodities.

C. Roads and Road Transport

89. The construction and maintenance of all roads is the responsibility of the Roads and Bridges Department which in turn is responsible to the Minister of Transport. There are plans, however, to make the Governorates responsible for local roads. The country's 22,000 km. of roads are divided in four classes and the classification is determined by the status of towns served, rather than by traffic densities. This system limits the advantage that is taken of one of the most distinctive characteristics of road transport, namely that the infrastructure can be built and improved in stages, as the traffic warrants. The usual practice in Egypt is to pave all roads immediately with asphalt concrete. This is expensive and could be wasteful, particularly if the pavement is laid on weak foundations so that the road needs major repair before the end of the normal lifetime of the pavement. Under Egyptian conditions a properly constructed asphalt concrete pavement should last about 8 years and should then need only a cheap surface treatment every three to five years, rather than a new asphalt concrete layer. A more gradual transition from earth to asphalt concrete roads would allow deficiencies in the foundations to be corrected over time, before a costly paving, which cannot be cheaply reconditioned, is laid down.

90. Hand labor is used extensively for road maintenance, and the small amount of machinery and equipment available is mostly in poor condition and suffering from a shortage of spare parts. The limited amount of money and equipment available for road maintenance is also given as a reason for constructing high cost pavements. But although the cost of routine maintenance of earth and gravel roads may be higher than of asphalt concrete roads under similar traffic conditions, the current practice of paving all roads immediately with asphalt concrete may also prove to be uneconomic.

91. There is an interesting project for the construction of by-passes and ring roads in and around Cairo, for which the High Board for Cairo Transport is responsible. These roads would not only relieve traffic congestion in the city proper, but would also open up potential new urban areas in the desert. Like most other capital cities of the world, Cairo is growing very fast and valuable fertile land along the Nile is being lost to urban growth. Building by-passes and ring roads through and into desert areas would certainly strengthen their economic justification. It would be worthwhile to retain consultants specialized in both the technical and economic aspects of such projects.

92. Road traffic has developed fairly slowly in Egypt, but the growth of the vehicle fleet has accelerated over the past few years. The average annual increase amounted to 3% from 1957 to 1961 but was 8% from 1961 to 1964. This change in trend indicates that a close watch should be kept on the future distribution of traffic between the various modes of transport.

93. Truck transport is very much a Government responsibility since all trucking companies operating more than five vehicles have been nationalized to form four trucking companies under the Organization for Inland Transport. Although the Organization's fleet amounted to only 1,140 trucks out of a total of 18,000 in 1965, its influence is much greater, since it also controls the rates set by cooperatives which operate an important portion of the private trucks. This has not, however, resulted in unduly high rates. In the year ending June 1965 the Organization earned a surplus of about 11% over gross expenditures including depreciation, while the average revenue of 2.25 US cents per ton km. is quite reasonable.

D. Waterways and Water Transport

94. The principal inland waterways for motorized water transport are:

(a)	Cairo-Aswan (river Nile)	910 km.
(b)	Cairo-Alexandria (main canal route)	220 km.
(c)	Cairo-Alexandria (second route via Rosetta branch of river Nile)	250 km.
(d)	Cairo-Ismailia	133 km.

These routes, together with others used largely by small sailing vessels, are controlled by the Inland Waterways Authority, which is directly responsible to the Minister of Transport.

95. The development of waterways as a major bulk carrier has not received sufficient emphasis and could well justify larger investments in the near future. The expenditure of LE 18 million on waterways plus a further LE 19 million on new motor barges which was originally proposed for the Second Five Year Plan, was not insifnificant, but was small compared to the sum of LE 188 million planned for the railways over the same period.

96. South of Cairo the Nile is navigable the year round for 900 ton two-barge units. From Cairo to Alexandria the conditions are much less favorable; the maximum size of two-barge units is limited to 600 ton, and owing to the numerous swing bridges and locks it takes 12 days to travel the 200 km. distance. The situation is similar on the Cairo-Ismailia route. On both routes there are extensive plans to take advantage of improvements being undertaken for irrigation purposes, and to provide much better facilities for navigation, allowing the use of 900 ton units, and eliminating all the principal sources of delay.

97. The cost of these improvements is expected to be about LE 10 million for the Nubaria Canal between Cairo and Alexandria and a similar amount for the Ismailia Canal, but only LE 1.0 million and LE 2.5 million respectively was allocated for this work from the LE 18 million to be spent under the original Plan. Nearly LE 11 of the LE 18 million was for improving the River Nile between Aswan and Cairo; but this route can already accommodate the 900 ton units, and there would seem to be a strong case for giving priority to other work, particularly to the Cairo-Alexandria route, where traffic demands are already substantial and are expected to increase considerably in the next few years. The cost of water transport on the Aswan Cairo route amounts to only 0.41 US¢ per ton compared to 1.15 US¢ in the Delta as a whole, and at least as much between Cairo and Alexandria, which suggests that there is likely to be much more scope here for larger savings in operating costs and a commensurately larger return on the investment.

E. Maritime Ports

98. By far the most important port is Alexandria which, in 1964-65, handled 6.2 million tons of dry cargo, or two-thirds of the country's total. Suez is important only as a port for petroleum products and Port Said is concerned mainly with bunkering and other ships' supplies. All other ports together handle only 8% of the country's imports and exports of dry cargo.

99. An investment program has been prepared for ports which envisages the expenditure of LE 24 million. This is based on an assumed increase of dry cargo traffic through the ports of 85% but such a rapid increase would be very unusual and does not seem warranted by the country's foreign trade prospects. More than half of this program is for the improvement of the port of Alexandria. Congestion at Alexandria during the winter months is a

serious problem. It is listed as a second class port, and may well be subject to more drastic surcharges in the near future as a result of delays to vessels. But the port already has 53 berths, and should be able to handle considerably more than its present traffic without congestion. If importers were prevented from using the transit sheds as warehouses, if the customs and transport arrangements to and from the port were improved and, most important, when work at present underway for improving the paving in the port is completed, so that modern handling equipment and trucks can be introduced to replace the horse-drawn carts, it might well be possible to increase the capacity of the present facilities by some 50%. This would much reduce the need for investment in new quays and sheds.

100. Alterations to the layout of the port must be made in the light of the future roles of railway, road and canal transport serving it. If the inland waterways are to play a much larger role in conveying port traffic, there should be more direct handling of bulk cargoes between ships and barges which in turn would reduce the need for additional berths.

101. Another important matter with a bearing on port investments at the Mediterranean coast, is the future development of the Aswan region, which is more than 1100 km. away from Alexandria. The Director of Regional Planning of Aswan favors the construction of a road to a port on the Red Sea which is much closer to Aswan than the Mediterranean. An approach has already been made to the United Nations Development Programme (Special Fund) to assist with a survey of such project. A much clearer picture of the eventual development of the Aswan area and Southern Egypt seems to be needed, however, before port requirements, and the best way of meeting them, can be determined with reasonable accuracy.

F. Suez Canal

102. Traffic through the Suez Canal has continued to increase and, by 1965, was 33% above the 1960 figure and nearly eight times as much as it was in the 1930's. Foreign exchange receipts from canal tolls reached a record total of $190 million in 1964/65, which is equivalent to 21% of Egypt's total foreign exchange earnings. The net earnings of the Canal are also an important source of funds for the business budget.

103. In February 1964 the maximum permissible draft of ships passing through the Canal was increased from 37 to 38 feet, and work now under way to increase the draft to 40 feet is expected to be finished early in 1968. The Suez Canal Authority now plan to follow this with a much larger expansion program, which, for an estimated cost of LE 92 million (US$ 212 million), would allow loaded tankers of 48 foot draft (about 95-110,000 dwt) to transit the Canal by 1972. It is then proposed to continue the enlarging until ships of up to 55-57 foot draft (about 200,000 dwt) can be accommodated a few years later.

104. The Authority has proposed this investment in the face of the pronounced and continuing increase in both the average and the maximum size of new tankers under construction, the largest of which are already much

bigger than the Canal is planned to accommodate when the expansion is completed. The case for embarking on this very large program clearly rests on the extent to which tankers en route to Europe will in future be of a size large enough to justify the deepening, yet not so large as to be excluded from the Canal and committed to the Cape route. The economic considerations are clearly very complex, and with so much at stake in terms both of the size of the investment and the importance of the Canal to the UAR, the project needs to be founded on extremely careful technical and economic investigation.

VI. INTERNAL FINANCE

A. The Institutional Framework

105. One of the consequences of the nationalization measures of 1961 is that the public sector accounts for more than four fifths of total investment. The change in the ownership and control of enterprises made it necessary to reform the state budget and a new classification was introduced in the fiscal year 1962/63.

106. Until 1962/63, the State Budget consisted of an "ordinary" budget (including mostly current account expenditures), a "development" (or "capital") budget, and various "annexed budgets" covering public services. Two budgets have been created by the 1962 Reform; the Services Budget and the Business Budget. The Services Budget encompasses central as well as local administrations, and also other institutions such as universities, television, etc. The Services Budget expenditures are divided into current (general) expenditures and investment expenditures, the latter representing a relatively small portion of total public investment (e.g., in 1965/66 investment expenditures in the Service Budget accounted for 11.5% of total public investment).

107. The Business Budget includes both the current and capital transactions of all the Public Authorities and Organizations and of the large number of subsidiary companies, totally or partially owned by the state. Public Authorities are government-owned enterprises which were formerly owned by Government Departments or Administrations (e.g., the Government Printing Offices, the Egyptian Railways, etc.). The reason for their inclusion in the Business Budget is that their activities are essentially of an economic nature and they "follow commercial practices." The "General Organizations" can be regarded as "holding companies" which control the individual companies and provide the link between them and the overall Economic Plan. All investment undertaken by the companies is included in the Business Budget together with investment by Public Authorities and General Organizations. This is because investment by companies is completely controlled by the General Organizations. Industry accounts for the largest share of investment expenditure within the Business Budget, about 30% of the total. Other important sectors are agriculture, electricity, transport and communication and the High Dam project.

108. The Business Budget originates a current surplus which is transferred to the Services Budget. However, some enterprises in the Business Budget need to be subsidized. The amount of the subsidies appears, however, to be relatively small, and much below the amount of surplus going to the Services Budget. Investment by the General Organizations (and their affiliated companies) is financed only to a small extent within the Business Budget in the form of self-financing of companies. The other sources of investment financing are government contributions to the capital of companies, loans from the Treasury, and foreign loans.

109. Since in the U.A.R. public companies and public authorities obtain hardly any of their financing from a capital market, almost all the funds for investment, apart from self-financing by companies, are channeled to the business sector by the Treasury. Loans from the Treasury amount to much more than the Business Budget surplus which is transferred to the Services Budget and the Business Budget is therefore a net receiver of funds from the Treasury. These funds are not transfers from the Services Budget but they are extra-budgetary sources of financing, e.g., social security funds, P.L. 480 counterparts and internal borrowing. (See Tables 13 and 15).

110. The Banking System in the U.A.R. consists of the Central Bank, five commercial banks and three specialized banks (the Agricultural Credit Bank, the Mortgage Bank and the Industrial Bank). The commercial banks provide short-term financing for current operations of the public companies (at 6-7%). Each bank deals with a specific sector, with the exception of the cotton trade which is jointly financed by all five banks. The Central Bank controls the commercial banks through credit ceilings, the reserve ratio and the discount rate which is at present 5%. The reserve ratio was raised in June 1962 from 12-1/2% to 17-1/2%. In April 1966, it was further raised to 20%. During the cotton season (which starts in September and reaches its peak in December) the reserve ratio is usually reduced. The specialized banks depend for their financial operations on their own capital, on lines of credit and sales of bonds to the commercial banks and the Central Bank. The Agricultural Bank is the most important of the specialized banks and grants short-term and medium-term loans to cooperatives and individual farmers. Long-term loans also are granted for land reclamation.

B. The Services Budget

111. During World War II, Egypt's budget produced a surplus as a result of the Government's efforts to combat inflation. After the war the surplus gradually declined and finally disappeared in 1951/52. The revolution of 1952 did not affect the 1952/53 budget which showed a deficit of only LE 8 million. After 1953/54 the new policies of the Government were reflected in an increase in expenditure particularly on social services and education.

112. Since 1959/60 the current budget has shown consistent deficits. The largest deficits occurred in the last three years of the Plan, i.e., from 1962/63. In 1962/63 revenues were about LE 60 million below budget estimates, while in 1963/64, an increase in expenditures for defense was the main cause of the large deficit. The estimate had been LE 116.2 million

while actual expenditure reached LE 177 million. According to provisional data, the deficit in 1964/65 was also due to an excess of current expenditures over the estimates (LE 518 million against LE 496 million). Once again defense expenditures were the main cause; provisional figures indicate an amount of LE 165 million against estimate of LE 133 million. Defense expenditure now accounts for 32% of current expenditure in the Services Budget. In fact, the final accounts are likely to show a larger amount of defense expenditures and a larger deficit on current account. The behaviour of revenue and expenditure in the Services Budget is shown in Tables 9 and 10.

Table 9: SERVICES BUDGET

	Annual Rate of Growth 1960/61-1964/65 %	Share of Total 1964/65 %
CURRENT EXPENDITURES	13.7	100
Defense	18.6	31.8
Educational services	10.1	17.6
CURRENT REVENUES	13.3	100
Tax revenues	12.4	58.6
Non-tax revenues	12.4	24.9
Profit from enterprises	18.4	16.5

113. The annual rate of growth of current expenditures increased from 13% between 1960/61 and 1962/63 to 14% between 1962/63 and 1964/65. The rate of growth of defense expenditure and educational services expenditure increased, respectively, from 17% to 20% and from 8% to 12%. As a result, current expenditures in relation to G.N.P. rose from 21% in 1960/61 to 25% in 1964/65. However, the rate of growth of revenues also increased after the Budget Reform of 1962/63; from 8% between 1960/61 and 1962/63 to 19% between 1962/63 and 1964/65. The expansion of revenues over the last period of the Plan was due mostly to increased tax and non-tax revenues while the profits from enterprises stagnated after a big increase in 1962/63. In 1963/64 revenues increased by more than 22%, and according to provisional data, revenues have increased in 1964/65 by about 15% as a result of additional tax revenues and miscellaneous receipts.

Table 10: SERVICES BUDGET OF THE CENTRAL GOVERNMENT

(LE million)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65 (prov.)	1965/66 (est.)	1966/67 (est.)
CURRENT EXPENDITURES	252.1	310.5	369.4	397.8	492.9	518.3	560.6	625.8
of which:								
Defense	(76.1)	(83.7)	(87.4)	(115.0)	(176.8)	(165.0)	(142.4)	(171.4)
Education and Health	(53.3)	(72.6)	(71.2)	(89.3)	(102.9)	(115.3)	(125.9)	(131.4)
CURRENT REVENUES	295.8	309.5	352.0	358.9	439.6	509.6	568.0	661.4
of which:								
Taxes	(175.3)	(186.9)	(179.4)	(213.8)	(271.8)	(298.7)	(345.1)	(356.0)
Surplus of Enterprises	(41.9)	(43.1)	(44.7)	(67.6)	(70.8)	(84.3)	(118.4)	(123.1)
CURRENT SURPLUS/DEFICIT	43.7	-1.0	-17.4	-38.9	-53.3	-8.7	7.4	35.6
INVESTMENT OUTLAYS	20.9	41.5	49.6	44.3	57.4	39.2	31.1	42.1
OVERALL SURPLUS/DEFICIT	22.8	-42.5	-67.0	-83.2	-110.7	-47.9	-23.7	-6.5

Source: Ministry of Treasury

Table 11: REVENUES IN THE SERVICES BUDGET IN RELATION TO GNP

(Per cent)

	1960/61	1961/62	1962/63	1963/64	1964/65
Total revenues	20.9	23.3	21.4	23.4	24.9
Tax revenues	12.8	11.9	12.7	14.5	14.6
Total revenues excluding surplus from enterprises	18.2	20.3	17.3	19.6	20.8

114. The share of government revenue in GNP has increased between 1960/61 and 1964/65, even if the surplus of enterprises is excluded. The increase has been particularly marked after 1962/63. Moreover, the surplus from the Social Security Fund is not included among budget revenues although it is an important source of public saving. If it were included, the share of government revenues in GNP would have been about 30% in 1964/65.

115. The following table gives the pattern of current revenues in the Services Budget:

Table 12: STRUCTURE OF CURRENT REVENUES

(As % of total revenues)

	1960/61	1961/62	1962/63	1963/64	1964/65	1960/61-1964/65 Average
TAX REVENUES of which:	56.9	49.3	57.6	58.7	58.6	56.4
Customs revenue	(28.6)	(28.1)	(33.7)	(32.8)	(32.1)	(31.3)
NON-TAX REVENUES	29.1	38.0	23.6	25.2	24.9	28.0
SURPLUS OF ENTERPRISES	14.0	12.7	18.8	16.1	16.5	15.6
Total	100	100	100	100	100	100

The surplus from enterprises is mainly the result of the high profits of the Suez Canal Authority. In 1964/65 the surplus from the Suez Canal accounted for about 60% of the total surplus of the business sector (LE 50 million out of LE 84 million). Usually the surplus from enterprises tends to be overestimated in the budget estimates. During the three years 1962/63-1964/65, the estimated surplus amounted to a cumulative total of LE 281 million, whereas the actual receipts reached only LE 223 million. The profits from the Suez Canal are ordinarily in line with the budget figures; it is the industrial profits which tend to be overestimated.

116. Non-tax revenues include services revenues, miscellaneous receipts (profits from currency operations, royalties) and the so-called extraordinary receipts (profits from foreign exchange transactions, receipts from confiscated land and properties). A substantial share of Services Revenues consists of profits from sales of commodities by the Ministry of Supply. This Ministry incurs losses on the purchase and sale of certain goods, particularly wheat and flour and these losses appear in the Expenditure account under cost of living subsidies. However, not all the various goods bought by the Ministry are sold at a subsidized price. Some, such as tea and a part of the sugar crop, are sold at a higher price so that the Ministry is able to make a profit.

117. In the U.A.R. great reliance is placed on indirect taxation, which is not uncommon in underdeveloped countries (see Table A 23). From 1960/61-1964/65 indirect taxes accounted for more than two-thirds of total tax revenues. The system of indirect taxation relies heavily on import duties, which account for more than one-half of the total. Import duties on tobacco account for one-half of total import revenues. Revenue from import duties, as a percentage of the value of imports, has remained more or less unchanged between 1960/61 and 1964/65 - the average for the period being 39%. If tobacco were excluded the burden of import taxation would be around 22-23% of import value which is not out of line with other countries. The U.A.R. authorities believe that it will be possible to increase import duties in the near future. The stabilization measures of last December did include a number of such increases.

118. Direct taxes on individuals and companies, accounted for only 18% of total revenues. The Business Profit tax is the most important source of direct tax revenues and contributes an average of 12% of total tax revenues. The tax rate is 17% of net profits to which must be added a 10.5% defense tax. According to the tax authorities, the administrative cost of company taxation is very low (about 2%) and, at least for the companies of the public sector, tax evasion and legal avoidance are negligible. The profit tax does not, however, play the same role in the U.A.R. as similar taxes do in many other countries in that it does not directly affect the volume of public savings. If the tax rate were to be raised the effect would be to reduce the amount which accrues to the Treasury in the form of company surpluses, or else to reduce the amount of self-financing by companies. Hence the only way to make a significant increase in the contribution to the Treasury by business enterprises is for the enterprises to earn higher profits.

119. The yield of the land tax has remained practically unchanged since 1956. Meanwhile, farm income has increased, but whether this justifies raising taxes on agriculture is a question on which opinions in Egypt differ. Reassessment of land values is due in 1966, but is likely to be postponed.

120. The system of direct taxation also includes a general income tax, separate taxes on wages and salaries and on interest and dividends and taxes on real estate. The reduced role of property taxes after 1960/61 is the result of a reform which transferred the revenues of land taxation to the local authorities. Thereafter, only the defense tax paid by tenants (or by landowners who cultivate their own land) appears among the revenues of the central government.

C. The Business Budget

121. The Business Budget was introduced in 1962/63 as a result of the nationalizations of 1961. Complete information on the financial flows within the Budget and the transfers between the Business Budget and the Services Budget are not available. The Business Budget originates a surplus which is transferred to the Services Budget. The surplus is determined by accounting rules to which the companies are subject. However, this surplus from the Business Budget does not represent a net transfer since the current operations of some enterprises need to be subsidized by the Treasury. The difference between sources of financing and investment in the Business Budget presumably reflects the deficits on the current operations of these enterprises (see Table 13).

Table 13: INVESTMENT FINANCING IN THE BUSINESS BUDGET

(in LE millions)

	1962/63	1963/64	1964/65 (prov.)	1965/66 (est.)	1966/67 (est.)
Self-financing by affiliated companies	67.5	35.4	37.0	74.6	92.3
Government contribution to the capital of affiliated companies	17.8	44.8	29.0	15.1	20.1
Loans from the Treasury	115.2	188.6	178.4	167.7	176.2
Foreign loans	28.3	37.8	25.8	73.6	60.5
Total sources	228.8	306.6	270.2	331.0	349.1
Investment	228.8	302.3	246.8	305.8	316.7
Balance	-	4.3	23.4	25.2	32.4

Source: Ministry of Treasury.

122. The sources of investment financing include local loans, government contribution to the capital of the companies, foreign loans and self-financing by companies. Over the last three years of the Plan, self-financing by affiliated companies showed a marked decline. The main reason seems to have been the mounting pressure of wages and other costs while at the same time prices were not increased. The profit margins of many companies were therefore reduced. In the original estimates for 1964/65 self-financing was put at LE 76 million, but according to the provisional results it reached only LE 37 million. The discrepancy between estimates and actual results is similar to that which characterizes the forecasts of the surplus of enterprises and reflects a generally over-optimistic view of the results of the business sector. Self-financing for 1965/66 has also been set at about LE 75 million; however, the stabilization measures of December 1965, which include increases in the prices of certain goods, might bring actual results more in line with the estimates.

Table 14: INVESTMENT IN THE BUSINESS BUDGET

(As % of total)

	1962/63	1963/64	1964/65	1965/66	1966/67 (est.)
Electricity	2	6	8	13	8
Industry	36	35	32	31	29
High Dam	18	21	19	16	20
Agriculture	10	16	17	14	16
Transportation & communication	12	7	8	10	13
Others	22	15	16	16	14
Total	100	100	100	100	100

123. Table 14 shows that industry has accounted for the largest single share of investment in the Business Budget during the last three years of the First Plan. There was a sharp increase in investment in electricity and agriculture and a decline in transportation. In 1963/64 total investment in the Business Budget (see Table A 26) increased by about 32% to LE 302 million but in the following year according to provisional estimates, it reached only LE 247 million. Investment was reduced in accordance with

the stabilization policies initiated in May 1964 in connection with a standby agreement with the International Monetary Fund. However, there is some doubt about how large the reduction really was since the figure for investment in the national accounts shows only a small decline.

D. Financing of Treasury Requirements

124. It is necessary to consolidate the Services Budget and the Business Budget to obtain a complete picture of the financial requirements of the Treasury (see Table 15). It is then possible to see how the overall deficit of the Services Budget (current account deficit plus investment outlays) and the financial requirements for investment in the Business Budget (the difference between total investment and self-financing plus foreign loans) have been met. A detailed analysis is possible only for the period 1962/63-1964/65 for which comparable data is available. For the previous two years, the total annual investment in the public sector amounted to about LE 200 million. In 1960/61 there was a balanced current account of the Services Budget, followed by a deficit of LE 17 million in 1961/62. Net credit expansion was of the order of LE 39 million in 1960/61 and LE 80 million in 1961/62.

125. The demands upon the Treasury increased sharply in 1963/64, mostly as a result of the expansion of investment in the Business Budget from LE 228 million to LE 302 million (see Table 13). At the same time self-financing by companies in the Business Budget declined from LE 67 million to LE 35 million. The investment expansion together with the reduced self-financing led to a substantial increase in government contributions to the capital of the companies and in local loans from the Treasury. In 1964/65, however, investment in the Services Budget declined by about LE 18 million and, according to the provisional estimates investment in the Business Budget decreased by more than LE 50 million.

126. During the last three years of the Plan, the Treasury has been able to increase budgetary saving but there have also been large fluctuations in government borrowing from the banking system. The surplus of the Social Security funds has more than doubled between 1962/63 and 1964/65 and has accounted for more than one-third of total extra-budgetary resources.

127. The Social Security funds are now an important source of public savings. The Pension and Insurance Authority administers the pension funds for about 800,000 government employees while the Social Insurance Authority covers more than 900,000 participants employed by the government companies and private enterprises: premiums for the pension and insurance scheme of government employees are 22.5% of the salary (10% paid by the employee and 12.5% by the Government). Premiums under the Social Insurance Scheme are 33% of the salary, 10% paid by the employee and 23% by the Government: farmers are the largest group not yet covered by any social insurance scheme.

128. The surplus of the Social Security funds is almost entirely transferred to the Treasury and is intended to be allocated to investment expenditures. In fact, some of these funds were used to finance the current deficit of the Services Budget between 1962/63 and 1964/65.

129. As it can be seen from Table 15 both in 1963/64 and 1964/65 a substantial amount of the proceeds of sales of agricultural surpluses received under PL 480 have been made available for Treasury financing. Miscellaneous receipts include such items as Treasury use of other funds of enterprises, sales of savings certificates, etc.

130. In 1962/63 one-third of the financial requirements of the Treasury were obtained from the banking system. In 1963/64 credit expansion covered more than 40% of total requirements, while in 1964/65, reflecting the stabilization measures taken during that year, the reliance on the banking system was reduced, although not to the extent indicated by the provisional figures (see paragraph 113).

Table 15: TREASURY REQUIREMENTS AND FINANCING

(In LE millions)

	1962/63	1963/64	1964/65 (prov.)	1965/66 (est.)	1966/67 (est.)
1. Requirements					
Services Budget current account deficit	38.9	53.3	8.7	-7.4	-35.6
Investment outlays in the Services Budget 1/	44.3	57.4	39.2	31.1	42.1
Government contribution to affiliated companies	17.8	44.8	29.1	15.1	20.1
Loans to companies	115.2	188.6	178.4	167.7	176.2
Total	216.2	344.1	255.4	206.5	202.8
2. Financing					
Postal Savings Bank	7.9	11.4	8.8	10.0	5.1
Pensions and insurance authority	25.6	34.5	50.0	50.2	57.0
Social Insurance Organization	24.5	35.3	50.1	59.1	72.0
Savings certificates	-	-	6.2	-	15.0
Releases from PL 480	-	40.5	46.1	20.0	-
Drawings of Government on cash reserves and other balances	39.7	21.1	2.1	3.0	-
Miscellaneous receipts	48.5	41.3	72.9	47.2	36.7
Sub-total	146.2	194.1	236.2	189.5	185.8
Net bank claims	70.0	150.0	19.2	17.0	17.0
Total	216.2	344.1	255.4	206.5	202.8

1/ Excluding investment financed by own resources of local administrations.

Source: Ministry of Treasury.

E. Money and Prices

131. The following table shows the changes in the money supply in relation to GNP and the behavior of prices.

Table 16: MONEY AND PRICES

	Money Supply[1/]	Cost of Living[2/]	Wholesale Prices[2/]
1959	-	100	100
1960	28	101	100
1961	28	101	102
1962	30	98	101
1963	26	99	100
1964	27	103	105
1965 June	-	116	113
1965 Dec.	30	125	117

1/ As % of GNP: end December figures
2/ 1958 = 100

132. Prices remained fairly stable until the end of 1964, which was perhaps to a large extent the result of widespread price control and changes in the money supply were not necessarily reflected in the movement of prices. For example between December 1960 and December 1962 the money supply rose by 16% and GNP by 12% but the cost of living declined. After the end of 1964, however, the money supply increased more rapidly, by about 20% per year and prices have also risen substantially. Moreover, other signs of inflation have appeared such as shortages of various consumer goods, some black markets and a further deterioration in the balance of payments.

F. Present Situation and Prospects

(i) The Stabilization Measures of December 1965

133. The original 1965/66 budget aimed at a further reduction of the financial requirements of the Treasury from LE 255 to LE 207 million. The Services Budget was to produce a small surplus of LE 7 million. (See Table 15). However during the first five months of 1965/66 the general economic situation, including the financial situation of the Central Government rapidly worsened. An expansion of credit to the Government of LE 44 million became necessary. During the same period in 1964/65 credit expansion had

amounted only to LE 7 million while the total for the entire fiscal year had been kept within LE 20-30 million. The rising trend in public expenditures, together with the deterioration in the balance of payments led the Government to undertake a comprehensive program of stabilization measures in December 1965.

134. On the revenue side, excise duties were increased, particularly on beverages and cigarettes; custom duties on consumer durables (including cars) and other non-essential consumption goods were also raised, in some cases by more than 100%. Direct taxes, in particular the defense tax, were raised as well. In addition the prices of numerous goods produced by government-controlled companies were increased.

135. On the expenditure side, the subsidy for bread was reduced by raising the extraction ratio of flour. Since bread accounts for about one half of total subsidies, this measure should reduce subsidies from LE 35 million to LE 28 million. Higher prices on sugar sold in excess of the ration, on tea, milled rice, etc., and on other items were supposed to increase the profits of the Ministry of Supply by about LE 15 million compared to the Budget estimates. As a result of these measures, the commercial operations of the Ministry of Supply should produce a surplus of about LE 17 million as against the estimated deficit of LE 5 million. Investment expenditures have also been reduced by about LE 25 million, thus bringing the total to LE 320 million, from the estimate of LE 345 million.

136. A full evaluation of the impact of the stabilization measures taken in December is not yet possible. It seems, however, that the general economic situation has continued to deteriorate during the first quarter of 1966. This is particularly true of the financial situation of the Government. The additional revenues from the various tax increases of last December have been less than expected. The demand for certain goods on which excise taxes had been raised (e.g., cigarettes) has proved more elastic than expected. The consumption of subsidized goods such as bread has not declined as foreseen and therefore the expenditure on cost of living subsidies has remained high. The greatest burden on the Treasury has been the continuation of the military expenditures. Provisional data for the first six months of 1965/66 already indicate expenditures for LE 90 million (estimates were put at LE 142 million for the whole year). As a result of these unfavorable developments, borrowing from the banking system has continued at a rate of about LE 10 million a month and it is not unlikely that the final deficit will be in the range of LE 130-150 million as against the original estimate for 1965/66 of a small surplus of LE 7 million. This would be as large as the deficit in 1963/64.

(ii) The 1966/67 Budget

137. The 1966/67 budget has just been presented to Parliament. A few changes have been introduced in the presentation of the figures. The surplus from the enterprises in the Business Budget no longer appears among the revenues of the Services Budget. This explains why, notwithstanding a

greater increase in revenues than in expenditures, the current account of the 1966/67 Budget shows a deficit while a small surplus of LE 7 million appeared in the 1965/66 estimates. According to the old presentation, the 1966/67 budget would indicate a surplus of about LE 36 million in the current account of the Services Budget. Expenditures are estimated at LE 626 million which is about 11% higher than the estimates for 1965/66; defense expenditure accounts for 50% of the increase. Revenues are supposed to rise by more than 16%. Tax revenues and the surplus from enterprises will not change substantially. The sharpest increase is in non-tax revenue (from LE 105 million in 1965/66 to LE 182 million in 1966/67).

138. The presentation of the Business Budget has also changed substantially and the most interesting feature is an attempt to present a capital account showing uses and sources of capital. Again, as in the previous years, the current operations of some enterprises will have to be subsidized. The amount for 1966/67 is LE 27 million. Investment in the Business Budget will be LE 317 million (LE 306 million in 1965/66). Total investment of the public sector, including direct investment in the Services Budget and investment by local administrations will reach LE 368 million (LE 346 million in 1965/66).

139. The two major sources of financing are self-financing by companies (LE 92 million), social security funds (LE 129 million) and foreign loans (LE 60 million). After allowing for other expenditures on capital account, such as repayment of loans, participations in the capital of affiliated companies, etc., the banking system will have to provide about LE 17 million.

VII. INTERNATIONAL TRADE AND PAYMENTS

A. Introduction

140. International trade plays an important role in the Egyptian economy and since cotton has until recently dominated Egypt's exports the country's economic fortunes were closely bound up with its cotton crop. The development of other exports since the war has done something to reduce this dependence; in the early fifties cotton goods represented 82% of total exports while in the last few years they were about 68% of the total. This reflects larger exports of rice, oil products and to a lesser extent manufactured goods.

141. An index of the volume of Egypt's export shows virtually no clear trend between 1938 and 1958; the export volume seems to have remained approximately constant. This is in marked contrast to that of underdeveloped countries in general which increased their exports by about 50%. Export prices, however, been higher since the war, particularly during the Korean boom. In the period since the Korean boom, the value of Egyptian exports, although showing considerable fluctuations, does show an increasing trend which is around 3% per year. Imports were also very high during the Korean boom but after dropping sharply in 1952-54 they rose only slightly

faster than exports until 1960 after which they began to increase very rapidly. Consequently, the deficit in the balance of payments grew larger and Egypt's foreign debt began to mount. The rise in the deficits was the consequence of the increasing investment unmatched by increased domestic savings.

142. The slow growth of exports since the war has brought about a reduction of the proportion of exports to G.N.P., from 17.5% in the late 'forties and early 'fifties to about 13%. On the other hand the rise in imports in the last few years has been faster than that of G.N.P. and the proportion of imports to G.N.P. is now about 20% as compared to 18% ten years ago.

B. The Balance of Payments

143. Egypt has had a deficit in its current balance of payments in almost every year since the war. During the early 'fifties the deficits were generally modest and were financed by the use of some of the large foreign exchange reserves, mainly sterling assets, accumulated during the war. As a result, the country resorted only occasionally to foreign borrowing and the external debt was still low at the end of 1958. After 1960 the deficit increased sharply and has now become the economy's most pressing problem. Despite a substantial increase in the inflow of grants and loans repayable in local currency, the remaining foreign exchange reserves were used up and a large external debt was incurred.

144. The broad movements of the balance of payments since 1952 are summarized in the following table:

Table 17: BALANCE OF PAYMENTS

(Annual averages in millions of U.S. dollars)

	1952/53-55/56	1956/57-59/60	1960/61-64/65	1963/64	1964/65
Current Account:					
Trade:					
Exports	398.5	466.5	506.5	559.1	563.0
Imports	-506.8	-628.3	-828.4	-987.4	-906.2
Balance	-108.3	-161.8	-321.9	-428.3	-343.2
Invisibles:					
Suez Canal receipts	85.7	103.3	161.8	171.1	190.4
Other receipts	143.6	135.5	139.0	140.1	164.5
Expenditures	-173.6	-153.7	-196.7	-206.5	-211.8
Balance	55.7	85.1	104.1	104.7	143.1
Balance on Current Account	-52.6	-76.7	-217.8	-323.6	-200.1
Capital Account:					
Grants and local currency loans	-	20.2	120.7	144.9	114.3
Foreign currency loans and other receipts	8.4	13.7	141.1	238.5	257.1
Total receipts	8.4	33.9	261.8	383.4	371.4
Debt repayments and other payments	-8.1	-33.0	-93.6	-146.1	-199.0
Balance	0.3	0.9	168.2	237.3	172.4
Overall Financial Deficit:					
Total	-52.3	-75.8	-50.1	-86.3	-27.7
Financed by:					
Use of foreign exchange reserves	-60.2	-69.2	-29.0	-1.8	-34.7
IMF drawings	-	-5.0	-19.5	-18.6	-2.1
Non-resident accounts (- means increase)	5.3	-20.7	-6.5	-55.0	16.1
Errors and omissions	2.6	19.1	4.9	-10.9	-6.8

145. Despite a significant increase in the net surplus from invisibles, the deficit on current account increased from an average of $76.7 million in the late 'fifties to $218 million during the last five years. In addition, payments had to be made for compensation of the Suez Canal Company and other properties, and the first installments fell due on the new debt. In total, these payments rose to an average of $94 million; an increase of $60 million over the previous four years. This meant that the U.A.R. had to finance, on average, a total of $312 million, corresponding to 37.8% of total imports, instead of only $110 million during the late 'fifties. Fortunately, assistance from the United States in the form of grants and loans repayable in local currency increased from $20 million to $120 million. If this is taken into account, the remaining financing deficit increased from an average of $90 million to $192 million. It was covered by the use of foreign exchange reserves and drawings on the IMF, amounting to $50 million while an average of $140 million per year was borrowed.

146. There is reason to believe that the balance of payments estimates just given understate the current account deficits actually incurred. These estimates are based on foreign exchange control data; i.e., on payments, and until recently did not include some imports received as grants or on credit. For imports on credit, only the down payment was recorded at the time of payment, while the subsequent payments were added to imports at a later date. To get an idea of the margin of error involved, an attempt has been made to estimate the cumulative deficit for the period 1959-65 by way of information on its financing. This information comes from several sources and is also subject to some margin of error. Consequently, the estimates summarized in the following table are necessarily tentative.

Table 18: FINANCING OF THE BALANCE OF PAYMENTS, 1959-1965

(in US$ millions equivalent)

Net long-term borrowing	720
Grants and loans repayable in local currency	900
IMF drawings	90
Use of foreign exchange reserves	50
Increase in net deficit on bilateral accounts	30
Total	1,790
Compensation for Suez Canal Company and other property	170
Balance	1,620

147. According to this estimate, the U.A.R. financed a total deficit of about $1,800 million, of which between $170 to $200 million was attributable to compensation payments for the Suez Canal Authorities and similar claims. The balance of $1.6 billion represents the financing of the current account deficit. In comparison, the balance of payments shows a deficit of only $1.2 billion. The difference of about $400 million may, therefore, be regarded as a rough indication of the extent to which imports in the balance of payments have been underestimated. It should be noted that this estimate does not take into account an increase in short-term banking and commercial debts over the period. But the error involved may be offset, at least to some extent, in that some receipts such as those from tourism, may have been underestimated. Whatever the figure, it seems reasonable to assume that the deterioration of the external payments position in the last few years was greater than the balance of payments estimates indicate.

148. Over the last few years the Government has made a number of attempts to stabilize the balance of payments. In 1962 the exchange rate was regularized at LE 1 = US$2.30, a stand-by agreement was arranged with the IMF and loans were obtained by the U.S., Germany and the U.K. Again in May 1964 another program was adopted with the support of the IMF which led to a substantial curtailment of domestic credit expansion in 1964/65 and a reduction in public sector borrowing from the banking system. The balance of payments also improved and the current deficit declined from $324 million to $200 million. However, in the second half of 1965 the situation again deteriorated and commercial and other arrears began to accumulate. This led to the adoption, in December 1965, of the financial measures described in paragraph 145. Unfortunately there is no evidence so far that these measures are having the effects which were hoped for. Egypt has been negotiating for extensions to various short term supplier and banking credits and is now discussing a further arrangement with the IMF. Egypt has also made a request to the United States for continued PL 480 assistance. The decisions which are taken on these matters will be the major factors influencing the balance of payments in the immediate future.

C. Exports

149. The behavior of total exports, and the composition of exports, is shown in the following table:

Table 19: U.A.R. EXPORTS

	1952/53-1955/56		1956/57-1959/60		1960/61-1964/65	
	$ million	%	$ million	%	$ million	%
Total exports:	422.9	100	465.1	100	513.0	100
Foodstuffs	28.7	6.8	52.2	11.2	77.9	15.2
Raw materials	337.0	79.6	330.8	71.1	296.9	57.9
Fuels	3.4	0.8	8.7	1.9	36.7	7.2
Finished and semi-finished manufactures	31.9	7.5	54.8	11.8	83.5	16.3
Other	22.0	5.2	18.6	4.0	18.0	3.5
Of which: Cotton trade						
Raw cotton: 1/	330.5	78.2	332.7	69.4	287.6	56.0
Cotton yarn	9.9	2.3	18.8	4.0	37.0	7.2
Cotton goods	5.9	1.4	13.7	2.9	23.1	4.5
Total	346.3	81.9	355.2	76.3	347.7	67.8

1/ Excluding cotton waste.

150. The gradual fall in the importance of exports of cotton and cotton goods has been accompanied by a change in the composition of earnings from cotton. Exports of raw cotton have declined, but the decline has been offset by an increase in exports of yarn and fabrics. Traditionally, the U.A.R. has been the largest exporter of long-staple cotton and despite the fall in its exports, they still account for 60% of world trade. The main reasons for the recent decline were the increasing requirements of the domestic textile industry, stiffer competition from other producers, mainly the Sudan, and from man-made fibers and other types of cotton.

151. Exports of foodstuffs have grown steadily during the past decade, at a rate of about 11% per year, and now average about $80 million, accounting for 15% of total exports. The most important item is rice. Conditions for growing rice in the U.A.R. are good and as more water becomes available from the High Dam production can be expected to expand. Exports have grown rapidly in recent years to 328,000 tons in 1964/65, earning $41.5 million. The U.A.R. also exports several other food items, especially onions, either

fresh or dehydrated, sugar, potatoes, fruits, fish and such other agricultural products as medicinal herbs and flowers. Except for onions, the value of each of these items is still small, though they have good potential.

152. Besides cotton yarn and fabrics, the U.A.R. exports small quantities of a variety of manufactured products. In total, these exports amounted to $24.9 million in 1964/65, which was practically the same as in 1959/60. The discovery of new oil deposits and the installation of new refining capacity have resulted in a sizeable increase in production of petroleum products, some of which have been exported in growing quantities. However, the U.A.R. remains a net importer. In 1964/65 net imports amounted to $27.7 million as compared to $36.2 million in 1959/60.

D. Imports

153. The composition and broad movements of imports since 1952/53 are summarized in the following table:

Table 20: U.A.R. IMPORTS

(Annual Averages)

	1952/53-1955/56		1956/57-1959/60		1960/61-1964/65	
	$ million	%	$ million	%	$ million	%
Consumer goods	162.6	31.4	180.2	30.5	248.9	30.6
Intermediary products	197.3	38.1	239.0	40.5	269.3	33.2
Investment goods	110.8	21.4	135.4	23.0	203.6	25.1
Other	47.1	9.1	35.7	6.0	90.3	11.1
Total	517.8	100.0	590.8	100.0	812.1	100.0

154. The increase in imports in recent years was larger than the figures indicate. The statistics are those of the customs administration - which differ from those in the balance of payments - and do not include such items as military equipment, some equipment for the High Dam and some imports of agricultural products received as a grant.

155. The increase in imports in recent years affected all main categories, but mostly consumer goods and investment goods. Consumer goods account for some 30% of total imports. Some 56% of consumer goods imports consist of cereals (wheat) and oils and fats, while tea, pharmaceuticals and pesticides account for half of the rest. The increase in the imports of consumer goods in recent years is practically entirely attributable to larger imports of

cereals and oils and fats, mostly under PL 480 assistance. The only items in this category which show important import savings over the years are textiles and kerosene, reflecting the growth of the local industry.

156. The increase in intermediary goods amounted to about 13% which is notably less than that of imports as a whole. The import of some commodities either rose only a little or actually declined as in the case of fertilizers in which the local industry was able to take care of the demand. On the other hand there was a marked rise in oil imports. The import component of investment is high because the capital goods industry is still small. Consequently, with the increase in investment, the imports of investment goods rose faster during the past five years than all other imports. This category now accounts for about one-quarter of total imports. Here, the Government had some room for maneuver on the balance of payments. In fact, under the stabilization measures adopted in 1964, investment was curtailed and the imports of investment goods declined from $262.7 million in 1963/64 to $212.2 million in 1964/65.

E. Direction of Trade

157. The regional pattern of foreign trade has changed drastically since 1956. Western Europe has been replaced by eastern Europe as the main trading partner. Eastern Europe now absorbs some 48% of total exports. This shift was the result of a decline in U.A.R. exports to western Europe and a considerable expansion of sales to eastern Europe (Table A 36). But, imports from western Europe have remained practically the same and the U.A.R. has a sizeable trade deficit with this area. The deficit with the United States has been equally large since the shipments of surplus agricultural commodities started. The U.A.R. had also deficits in trade with other major areas of the world. The statistics indicate a surplus with eastern Europe but imports are understated and the bilateral payments agreements indicate that the actual trade balance resulted in a deficit.

158. The availability of markets in eastern Europe has clearly been of considerable importance for the U.A.R. The decline of cotton exports to western Europe has for example been matched by a growth of exports to eastern Europe. Whereas in the early 'fifties, the U.S. and western Europe took about 60% and eastern Europe 20% of raw cotton exports, the position today is approximately the opposite. Trading with eastern Europe under bilateral arrangements does however mean that a corresponding amount of imports has to come from these countries whereas in practice imports from hard currency countries tend to be preferred since they are generally cheaper, more readily available and of better quality.

F. External Debt

159. The external debt of the U.A.R. as at the end of June 1966, is summarized in the following table:

Table 21: EXTERNAL PUBLIC DEBT

(In US$ millions: June 30, 1966)

	Including undisbursed	Disbursed	Undisbursed balance
Long-term debt:			
In convertible currencies	759	626	133
Under bilateral arrangements	903	367	536
Total	1,662	993	669
I.M.F.	121	121	-
Short-term debt	-	250	-
New credit agreements with eastern European countries	-	-	452

160. The figures in this table and those in subsequent tables in this section do not include military credits received from eastern Europe, nor any amount for claims for compensation of sequestered and nationalized foreign property.

161. Of the long-term debt of $1.7 billion, 46% is repayable in convertible currencies and 54% to bilateral agreement countries mainly in eastern Europe. Some $670 million remain undisbursed, mainly because more than half of the loans from eastern Europe have not yet been disbursed. Thus, the disbursed debt outstanding amounts to about $1 billion, which represents an increase of $830 million since the end of 1958, as shown below.

Table 22: DISBURSED EXTERNAL PUBLIC DEBT

	End of 1958		June 30, 1966		Increase
	$ million	%	$ million	%	$ million
Debt repayable:					
In convertible currencies	129	80.1	626	63.0	497
In eastern European currencies	32	19.9	367	37.0	335
Total	161	100.0	993	100.0	832

162. Of the disbursed debt, 63% is repayable in convertible currencies and 37% in eastern European currencies. This relationship may change in the next few years in view of the new credits which have been made by the eastern European countries in recent months. The major creditors of the U.A.R. are listed in the following table, and in detail in Table A 39.

Table 23: EXTERNAL DEBT OUTSTANDING

	Including undisbursed		Disbursed		Undisbursed balance	
	$ million	%	$ million	%	$ million	%
Total debt	1,662	100.0	993	100.0	669	100.0
Debt in convertible currencies	759	45.7	626	63.0	133	19.9
Kuwait	119	7.2	119	12.0	-	-
West Germany	148	8.9	113	11.4	35	5.3
U.S.A.	132	7.9	112	11.3	19	2.9
Italy	123	7.4	89	9.0	34	5.1
Others	237	14.3	193	19.4	44	6.6
Debt to eastern Europe	903	54.3	367	37.0	536	80.1
U.S.S.R.	711	42.8	338	34.0	373	55.8
Czechoslovakia	47	2.8	12	1.2	35	5.2
East Germany	21	1.3	5	0.6	16	2.4
Others 1/	124	7.5	12	1.2	112	16.7

1/ Including Yugoslavia and Communist China.

163. The U.S.S.R. is already the largest creditor. Kuwait, which started lending about two years ago is the second largest creditor on the basis of loans already disbursed. The U.A.R.'s indebtedness towards the U.S. has remained fairly small because most U.S. assistance has been in the form of PL 480 and other project loans repayable in local currency. However, the PL 480 agreement signed earlier this year provides that part of the assistance must be repaid over a number of years in hard currency and, in line with current practice, any future project loans will also be repayable in dollars. The Bank made one loan to the U.A.R. in 1959 for the improvement of the Suez Canal. Of the original amount of $56.5 million, some $17.0 million has been repaid and $39.5 million is still outstanding.

164. The debt service in 1967 is estimated at $168.2 million, which corresponds to about 18% of the gross foreign exchange earnings in 1965. This reflects the whole debt burden on the economy since there is little, if any, private external debt or private foreign investment. However, it does not include any payments on account of compensation of sequestered or nationalized property or for service on the military credits from eastern Europe.

165. The Government made its first compensation settlement in 1964 with Switzerland. Since then, additional agreements have been reached with Italy, Lebanon, Denmark and France. An agreement with the Shell Company, which was one of the principal outstanding claims, has recently been signed. Discussions with Greece and Belgium have been held in recent months but, so far as is known, no agreement has yet been signed. Besides these two, the more important claims which still remain to be negotiated are those with the Netherlands, Sweden, and the United Kingdom. The agreements which have been reached so far are patterned on the Swiss model, which provides a framework for the transfer of indemnities. In this case, full settlement has to be made over a period of eight years, by way of equal annual installments, half of which can be used to pay for tourist expenses in the U.A.R. while the remaining half can be used to pay for 30% of exports other than raw cotton and rice. The annual amounts to be paid for compensation, if this model were followed in all other cases, may correspond to about 5% of the service on the long-term debt.

166. The debt service payable, respectively, in convertible currencies and in eastern European currencies is summarized in the following table and in detail in Table A 40.

Table 24: ESTIMATED SERVICE PAYMENTS ON EXISTING DEBT

(In US$ millions equivalent)

Year	Total	In convertible currencies	In eastern European currencies
1966[1/]	102.1	92.4	9.7
1967	168.2	120.0	48.2
1968	155.0	103.5	51.5
1969	145.1	93.4	51.7
1970	187.1	89.4	97.7
1971	167.3	71.3	96.0
1972	149.5	59.8	89.7
1973	126.7	42.4	84.3
1974	114.1	34.9	79.2
1975	99.6	27.2	72.4

1/ Second half of the year only.

167. The service on the long-term debt will remain high during the next few years; higher in fact than these figures indicate because they do not include the service on some credits amounting to $87.6 million, for which the amortization terms had not yet been determined, nor any service on account of military credits or compensation.

168. As the table shows, in the next few years the debt service in eastern European currencies is much lower than the service in convertible currencies. Debt service in eastern European currencies in 1966 corresponds to approximately 16% of the earnings from eastern Europe. The corresponding ratio for the debt service in freely convertible currencies is estimated to be about 22%.

169. Although the service on the long-term debt is quite substantial the main problem for the immediate future is the short-term debt. Besides repurchase obligations to the IMF, the U.A.R. has accumulated some $250 million in short-term commercial bank credits. Egypt has been using this form of credit for many years but the amount has now grown so large that it is becoming difficult to handle. Finally, there is only a small margin left on bilateral accounts, which show a combined deficit of $300 million. As against these liabilities the U.A.R.'s foreign exchange reserves are negligible but holdings of gold amount to $140 million. Thus the U.A.R. has an acute liquidity problem at the present time and commercial and other arrears have begun to mount. There is therefore an urgent need for a sharp improvement in the balance of payments.

VIII. THE FUTURE

170. As it enters the period of its Second Five-Year Plan the U.A.R. faces a long-term problem which has two aspects; firstly, to maintain a reasonable growth rate such as that achieved under the first plan but relying to a much greater extent on domestic savings and correspondingly less on foreign borrowing, and secondly, to increase the rate of growth of foreign exchange earnings. These are the two areas where the events of the last five years departed from the intentions of the original plan and which have created the present difficulties.

171. A new Plan has been under preparation for several months and many of the proposals for specific sectors have already been mentioned and discussed. There was, however, much discussion regarding the total of investment which was to be attempted during the next five years. At one stage a figure of LE 2.5 billion had been proposed. It has now been announced that investment under the new plan is to be LE 3.2 billion but to be expended over seven years (beginning in 1965/66) instead of five. This makes a significant difference because investment will increase throughout the period and will therefore be substantially greater at the end of the plan than at the beginning. A total investment of LE 3.2 billion over seven years, assuming that it grows steadily from its present level, implies a growth in investment of about 7.15% per year and this would mean a total investment over the first five years of LE 2.1 billion. In effect, therefore, the investment plan has been reduced by LE 400 million over five years.

172. The rate of growth of investment would be significantly less than during the First Plan, but assuming an unchanged capital-output ratio, would nevertheless permit a growth of GNP of about 7.2% per year. Assuming an even growth of investment the ratio of investment to GNP would be maintained at approximately the present level of about 18%. The size of the investment program, taken by itself, is not unreasonable or out of line with economic requirements. The central question, however, is how the investment is to be financed; how much of the program is to be financed by domestic savings and how much by foreign resources. The following table gives a number of alternatives:

Table 25: FINANCING OF INVESTMENT - 1965/66-1969/70 1/

(In LE millions)

	ALTERNATIVE		
	I	II	III
Total investment	2,100	2,100	2,100
Domestic savings	1,721	1,785	1,681
Net capital inflow	379	315	419
Marginal savings rate (percent)			
i) With growth of 7.2%	20.9	23.8	18.7
ii) With growth of 6%	25.7	29.4	-

The Government intends to rely on external financing for 15% of the required investment as compared to 27% for the previous plan. This would mean a net import of capital of LE 379 million over the next five years and would imply a marginal savings rate of about 21%. This is much more realistic than the

1/ For details of the figures underlying Table 25, see Table A 38. These projections were prepared in the spring of 1966. It has since become clear, however, that investment in 1965/66 was somewhat less than the plan called for and, more important, the balance of payments deficit was larger. This means that investment in 1966/67 will have to be cut and will therefore be even further behind the plan. These developments spring from the U.A.R.'s short-term balance of payments difficulties; in effect the resumption of investment on the scale envisaged by the plan will have to be postponed until the short-term problem is overcome.

rate of 43% which was implied in the first plan. Considering the degree of control which the government has over economic processes in the U.A.R., which enables it not merely to adjust the tax structure but also the prices charged by government enterprises and utilities, an increase in the marginal savings rate from 19% to 21% should not be too burdensome. The other alternatives illustrate the effect of changes in savings on the net capital inflow. For example, net capital inflow could be reduced to LE 315 million if the marginal savings rate could be raised 24%. Finally, alternative III shows that if the marginal savings rate remains what it has been during the last five years the net capital inflow required would be LE 419 million. The ease or difficulty of providing the necessary increase in savings depends on the rate of growth of national output. For the purpose of comparison Table 25 also shows what the marginal savings rates would have to be if the national output were to grow at only 6%, as might happen as a result, for example, of an uneconomic choice of projects or of output being held down by an insufficient supply of foreign exchange.

173. The indicated savings target and the required net inflow of capital are, at least in theory, compatible with different rates of growth of foreign trade, from a strong expansion of both sides of the balance of payments to no expansion or even a decline. The First Plan assumed no increase in imports, in spite of an increase in total domestic demand in the order of 40%. Such a development would require a great diversification of new production. But, the possibilities of establishing the production of a wide range of new commodities in a relatively short time is limited. This was demonstrated by what happened during the First Plan; the actual demand for imports greatly exceeded the forecast. It is also questionable to what extent the production of a wide range of commodities for a limited market would have represented an economic use of resources. There is, perhaps, some critical rate of growth of imports below which a growth of around 7% of GNP is very difficult or even impossible to achieve. Unfortunately, nobody knows what the critical rate is, nor what would be the optimal expansion of foreign trade. But it seems certain that the desirability of increasing exports, and thereby the capacity to finance imports, is very great. Since the ratio of imports to GNP in the U.A.R. is fairly high at present (around 20%) and since the Government is trying hard to develop import saving industries, it could be argued that the growth of imports could be somewhat slower than that of GNP. This is an area of economics in which uncertainty is very great.

174. A second reason why a greater increase in exports is desirable is the rising external debt. The U.A.R. already has a substantial external long-term debt with debt service at present amounting to more than 16% of foreign exchange earnings. But the economy still needs to import capital and the external debt will increase. Unless foreign exchange earnings also rise the growing external debt will impose an increasing burden on the balance of payments.

175. The U.A.R. is, however, an export oriented economy; even apart from cotton it produces a number of commodities which can be exported and could produce more. There is no reason to believe that exports could not increase at a satisfactory rate providing the requisite policies are followed. To increase exports requires firstly an increase in production of exportable commodities. Secondly, consumption must be kept under control so that some of the additional production remains available for export; this is a matter of decisive importance in view of the experience in the first plan when this condition was not met. Finally, there are problems of marketing to be overcome and exports of manufactured products must be offered at a competitive price. Assuming, therefore, that these conditions are met a fairly conservative estimate indicates that over the next five years Egypt's annual foreign exchange earnings could increase from LE 400 million to LE 548 million. Details of this estimate are given in an Annex. If exports do increase by this amount, then taking into account the net inflow of capital of LE 379 million as given in Table 25 imports could increase at approximately 6.5% per year, a rate which ought to be sufficient to permit a satisfactory rate of growth of production. If the net inflow of capital were to be only LE 200 million the rate of growth of imports would have to be reduced to only 5.5% per year.

A. Creditworthiness and Conclusion

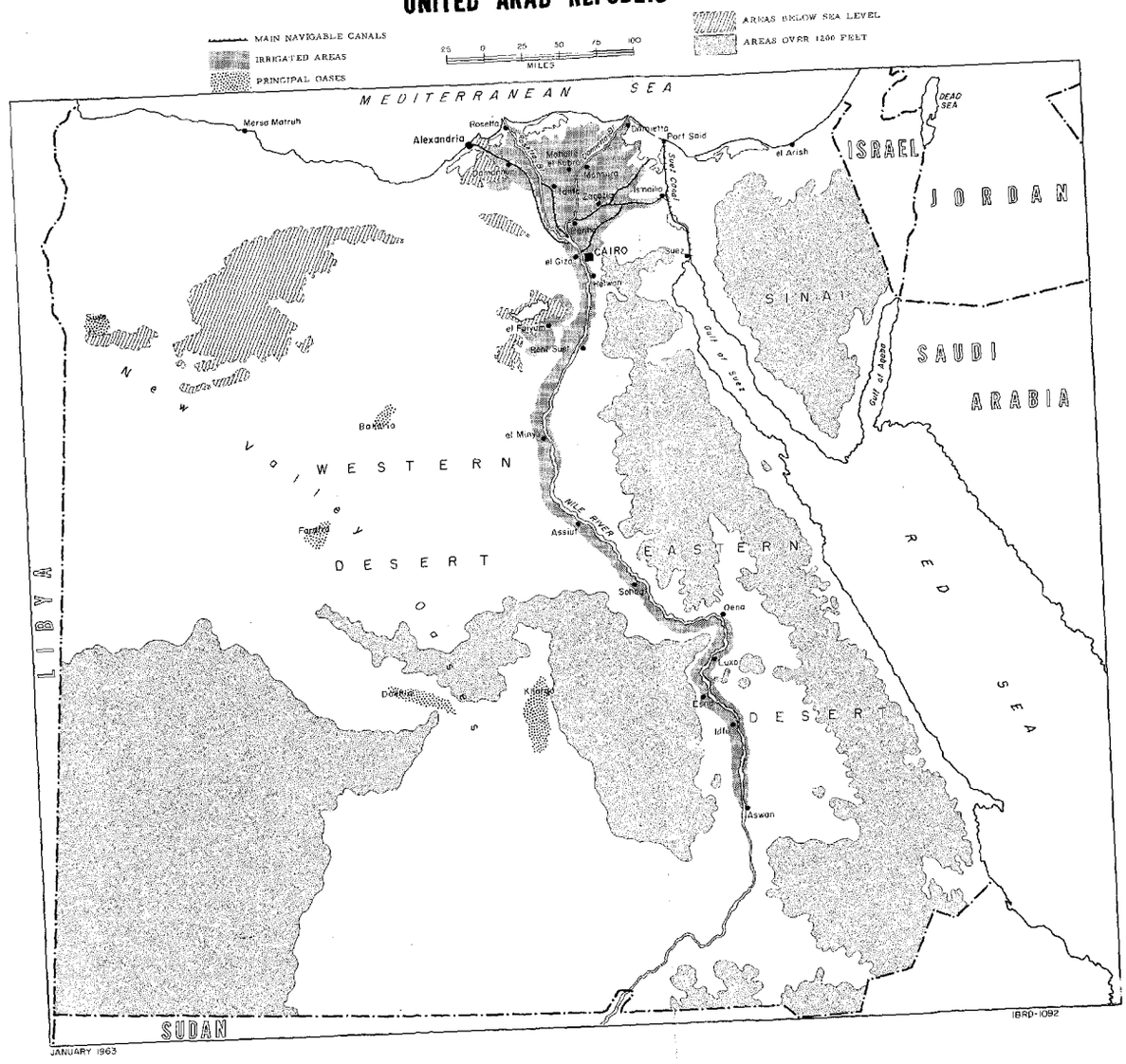
176. At the end of June 1966, Egypt's long-term debt was $1.7 billion of which $993 million were disbursed and outstanding. Debt service on the disbursed debt now amounts to about 18% of foreign exchange earnings. To finance the investment plan on the assumptions made above would require a net capital inflow of $872 million (the equivalent of LE 379 million; see para. 172) over five years or $676 million over four years. This would raise the disbursed debt to $1.7 billion by 1970. The debt service would depend on the terms on which the additional debt were obtained. If the debt service on all the new borrowing (other than that on the present undisbursed debt) were to require service payments of 10% of the principal amount, which is a rough measure of the service on "conventional borrowing," then debt service at the end of four years would be about 17%. However, to assume such terms is, in practice, to assume a considerable improvement in the structure of Egypt's debt since the present debt service amounts to 16.8% of the disbursed debt. If there were to be no improvement in the terms of borrowing debt service in 1970 would be 20.6% of foreign exchange earnings. (Both figures exclude payments for compensation, which are not likely to exceed 1% of foreign exchange earnings, and for military credits.) It is not, of course, possible to foresee the terms on which the new borrowing will take place. A substantial amount is likely to be obtained from eastern Europe on terms which involve debt service which may vary from 10 to 20% of the principal amount. On the other hand Egypt may obtain PL 480 assistance from the United States on terms much more favorable than "conventional borrowing." Loans from Kuwait involve debt service of about 8.9% of the principal amount. There are a great many different possibilities but it is clear that unless the terms of the loans needed for the new plan are more favorable than those which Egypt has obtained hitherto the relative debt burden will, at least for a time, increase. In other words, considering the period as a whole,

the total external debt is rising faster than the growth of exports or GNP. However, on the assumptions made here about the behaviour of savings and investment, this would not be true after 1970.

177. To increase the disbursed debt by $676 million would require a considerably larger amount of gross borrowing. Debt repayment over the next four years amounts to $555 million so that, even without allowing for any repayments on new debt within the period, the gross borrowing requirements would be $1.2 billion. Since Egypt already has a substantial amount "in the pipeline" (about $669 million) the new commitments needed could be less than $1.2 billion to the extent that the amount "in the pipeline" could be reduced. They would be increased, of course, by any repayments of new debt which had to be made during the four-year period. There is also the problem of short-term debt. The U.A.R. has a short-term debt consisting of $250 million of commercial bank credits, repurchase obligations to the IMF of $121 million and some accumulation of commercial arrears the exact amount of which is unknown. There is also the deficit on the bilateral accounts amounting to about $300 million. The short-term debt can be dealt with, in principle, either by reducing it or re-financing the balance of payments while the latter would add to the long-term debt although not by a great deal. The addition of, say, $250 million of long-term debt would add perhaps two percentage points to the debt service ratios given above. However, it seems unlikely that Egypt can count on a major re-scheduling of its short-term debt so that an immediate improvement in the balance of payments becomes highly desirable.

178. The conclusion which may be drawn is that an investment plan of LE 2.1 billion over five years can only be regarded as a reasonable target if certain conditions are met. To sustain such a development, savings will have to be higher than they were in the past if reliance on external borrowing is to be held within manageable limits. It is encouraging to note that the necessary increase in savings should be within the capacity of the economy if the rate of economic growth is maintained at around the 6.5 to 7.5% which it is not unreasonable to expect. Whether the necessary increase will in fact be made is, however, a question of the priority which the Government attaches to it. In the end, the development of the economy, as well as the creditworthiness of the U.A.R. depends, as in all countries, upon a decision by the Government to give sufficient priority to mobilizing the country's own resources and to keeping foreign borrowing within the limits set by the balance of payments and the capacity of the economy to repay.

UNITED ARAB REPUBLIC



JANUARY 1963

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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

THE ECONOMY

OF

THE UNITED ARAB REPUBLIC

(in two volumes)

VOLUME II

Annex 1: Export Possibilities

Statistical Appendix

November 14, 1966

Europe and Middle East Department

CURRENCY EQUIVALENTS

1 Egyptian Pound (LE)	=	2.30 US dollars
1 US dollar	=	LE 0.435
LE 1 = 100 piasters	=	1000 milliemes

Prior to May 7, 1962, the rate was LE 1 = $2.87

WEIGHTS AND MEASURES

1 square kilometer	=	0.386 square miles
1 feddan	=	1.038 acres
1 square kilometer	=	238 feddans

The metric system is used in the United Arab Republic, and all tonnages are expressed in metric tons unless otherwise specified.

FISCAL YEAR

The Government's fiscal year ends on June 30.

FUTURE FOREIGN EXCHANGE EARNINGS

1. The following estimates of possible future earnings of foreign exchange take into account the probable behavior of production and the state of foreign demand. Although there is, of course, some uncertainty in these factors the major unknown influence on exports is the behavior of domestic consumption. Any estimate of foreign exchange earnings must assume that potential exportable surpluses will not be used at home.

2. To a considerable extent, the future movement of exports is dependent on the growth of agricultural production which is expected to increase by about 4% per year, although it would not be unreasonable to hope for a somewhat higher rate. According to the initial estimates of the Second Plan, this would permit a substantial increase in agricultural exports. According to the Ministry of Planning total exports of agricultural products are scheduled to increase from LE 160 million in 1960 to LE 252 million in 1969-70 as shown in the following table.

Table 1: EXPORT TARGETS OF AGRICULTURAL COMMODITIES
(Quantity in thousand tons - Value in LE million)

	Exports			
	1964 a/		1969-1970 b/	
Commodity	Quantity	Value	Quantity	Value
Rice	526.7	30.4	1055	61.0
Beans	51.0	1.4	97	2.6
Sugar 2/	24.3	2.6	228	5.7
Vegetables	67 1/	2.0 1/	635	6.8
Onions	177.7	6.0	310	8.4
Fruits	20.5	0.9	261	8.4
Cotton	291.1	116.6	415	158.6
Total	-	159.9	-	251.5

1/ Estimated
2/ Including confectionery

Source: a/ Central Bank of Egypt Economic Review, Vol. 5, No. 2, 1965.
b/ Ministry of Planning

3. These estimates seem generally reasonable with the exception of that for cotton. They are based on production targets which for some commodities are fairly high, but which could nevertheless be achieved if agricultural development proceeds more or less as planned. The main reservation about these estimates stems from the assumption that prices will remain constant, which is questionable in the case of cotton, as explained below.

4. The decisive commodities are cotton and rice. The U.A.R. is planning a 28% increase in cotton production as a result of increased acreage and improvements in yield. This represents an increase of 143,000 tons over 1964 of which 124,000 tons have been earmarked as additional exports. The limiting factor is the export market, which is growing only slowly. For the U.A.R., much will depend on sales to eastern Europe. World prices are expected to fall by about 10% in the case of medium-staple cotton as a result of recent changes in the selling policy of the United States. There are also reasons for thinking that the premium which long-staple cotton has traditionally enjoyed will tend to decline. For these reasons it would be safer to assume a fall in prices for long-staple cotton of approximately 25% to around 32 cents per pound. At such a price, the total value of cotton exports in 1969/70 may be about LE 144 million ($331 million), instead of LE 158.6 million ($365 million), as planned.

5. Exports of cotton yarn and fabrics are more likely to depend on the development of external markets than on the growth of domestic production, which is expected to be substantial. Again, there may be some fall in unit prices, though not as great as for cotton. It has, therefore, been assumed that exports of cotton yarn and fabrics will continue to increase at the same rate as during the past five years. Consequently, export earnings are estimated to increase from LE 35.4 million in 1964/65 to say, LE 60 million. Altogether, exports of cotton, yarn and fabrics are estimated to reach LE 200-210 million, which represents an increase of 10-15% over 1964/65.

6. Rice exports are expected to double in value over the next five years, assuming that wheat imports continue to be available at favorable terms. Although this is a substantial increase, it does not seem unreasonable since rice production is expected to rise from 2 million to 3 million tons. The assumption is, therefore, that about half the increase in output would be available for export; markets should be able to absorb this amount, provided eastern Europe increases its purchases materially.

7. "Other" exports consist largely of fruits and vegetables. Egypt is eminently suitable for the production and export of fruits and vegetables but the rate of increase will depend on the establishment of an efficient system of grading, packing, marketing, etc. and this will take some time. In practice, the next five years must necessarily be a period of preparation and substantial exports of fruits and vegetables cannot be expected until after 1970.

8. Exports of manufactured goods, other than textiles, did not change much during the past five years. But the outlook is changing now that the Government is placing more emphasis on exports and is trying to induce the enterprises in this field to export, if only a small percentage, of their production. Whenever possible the Government intends to conclude new

agreements for external financial assistance which provide for repayments in kind, through exports from the enterprise which has received external assistance. Admittedly, many of the enterprises in this branch are high-cost producers and arrangements will have to be made for covering any price differential which may exist. The absolute amount of these exports is still small and it has been assumed that they will double in value during the next five years.

9. Suez Canal receipts and earnings from tourism have been assumed to increase at the same price as in the past, and to reach respectively LE 113 million and LE 80 million in 1969/70. All other invisible receipts have been assumed to remain the same, although they may increase by 1969/70 if the Government establishes a free zone in Port Said, as planned.

10. Thus, the total foreign exchange earnings of the U.A.R., excluding oil exports, could increase from LE 398.2 million ($916 million) in 1964/65 to LE 548.2 million ($1,260 million) in 1969/70 as shown in the following table. This represents an increase of 6.5% per year, in comparison with an increase of about 3% during the past five years.

Table 2: ESTIMATED FOREIGN EXCHANGE EARNINGS
(LE million)

Exports: 1/	1964/65		1969/70	
Food:		38.7		96.7
Onion	7.5		10.0	
Rice	21.5		61.0	
Sugar	1.5		5.7	
Other	8.2		20.0	
Raw materials:				
Other than cotton		3.1		4.0
Cotton and cotton fabrics		184.7		210.0
Manufactures other than cotton		9.8		20.0
Other		7.5		7.5
Total exports 2/		243.8		338.2
Invisible receipts				
Suez Canal receipts		82.8		113.0
Travel and other		54.6		80.0
Other		17.0		17.0
Total invisible receipts		154.4		210.0
Total receipts 2/		398.2		548.2

1/ Based on Trade Statistics
2/ Excluding proceeds from fuel exports.

11. Future oil exports have not been included in this estimate. It is not yet possible to estimate to what extent production from the newly discovered field in the Gulf of Suez will result in either increased exports or reduced imports. It seems, however, reasonable to assume that the U.A.R. will become self-sufficient in oil, perhaps as early as 1968. This estimate is based on knowledge of the recently discovered field in the Red Sea. But the limit of this field has not yet been delineated and it is possible that it is larger than is now known. In addition there is the possibility of new discoveries in other parts of the country where considerable exploration is taking place.

12. Against the above total of LE 549 million must be set payments on account of invisibles, principally interest and government services abroad. Such payments amounted to LE 92.1 million in 1964/65 and have been assumed to rise to some LE 105 million in 1969/70; mainly to take into account higher interest payments on a rising external debt. Consequently, this would leave a balance of LE 443 million which would be available for financing imports other than oil from the country's own resources.

STATISTICAL APPENDIX

STATISTICAL APPENDIX

TABLE A1: VALUE ADDED AT 1959/60 CONSTANT PRICES, 1959/60-1963/64 1/
(LE million)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
Agriculture	405.0	402.7	373.0	426.4	452.9	477.0
Industry and mining	256.3	285.6	309.9	329.2	369.6	385.0
Electricity	9.8	12.2	16.3	18.4	18.6	22.4
Construction 2/	47.1	44.2	73.6	83.5	96.0	92.6
Transport, communications, storage, and Suez Canal	92.9	102.2	116.9	127.1	144.0	157.6
Housing	73.0	73.8	76.2	77.6	78.7	80.1
Trade and financial services	129.2	145.1	151.6	154.0	148.3	151.9
Other services	271.9	297.7	297.6	320.5	361.6	398.6
T O T A L	1285.2	1363.5	1411.1	1536.7	1669.7	1762.2

1/ At factor cost, but including excise duties and consumption taxes or subsidies.
2/ At current prices

SOURCE: Ministry of Planning.

Table A2: EXPENDITURE ON GROSS DOMESTIC PRODUCT

(at current prices - LE million)

Years	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
Gross national product[1/]	1,379.0	1,461.1	1,512.8	1,679.0	1,880.9	2,043.9
Factor income from abroad	+3.4	+1.8	-0.5	-5.6	-7.0	-6.7
Gross domestic product[1/]	1,375.6	1,459.3	1,513.3	1,684.6	1,887.9	2,050.6
Total expenditure	1,371.1	1,474.8	1,599.7	1,788.8	2,023.5	2,126.5
Consumption						
Government current expenditure	228.1	255.9	247.1	318.2	401.8	431.3
Personal consumption[2/]	971.6	993.3	1,101.5	1,171.0	1,249.3	1,330.9
Sub-total	1,199.7	1,249.2	1,348.7	1,489.2	1,651.1	1,762.2
Investment						
Government investment[3/]	n.a.	45.1	76.4	64.6	39.2	46.9
Other investment	n.a.	180.5	174.7	235.0	233.2	317.4
Sub-total	171.4	225.6	251.1	299.6	372.4	364.3
Domestic savings[1/]	175.9	210.1	164.7	195.4	236.8	288.4
Current account deficit	4.5	-15.5	-86.4	-104.2	-135.6	-75.9

1/ At market prices
2/ Estimated as a residual
3/ Excluding investment in the business sector

Source: Ministry of Planning

Table A3: Gross Investment, Public and Private Sectors Combined, 1959/60-1964/65 1/
(LE million)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1960/61-1964/65 2/ Plan	Actual
Agriculture	16.7	16.6	17.8	20.6	30.9	32.5	117.1	118.4
Irrigation and drainage	8.6	14.8	19.7	29.2	36.4	37.9	183.0	138.0
High Dam 3/	4.2	6.8	14.4	24.0	34.8	18.6	47.4	98.6
Industry	49.3	67.8	50.3	80.5	105.4	99.9	444.7	403.9
Electricity	6.2	5.6	6.3	11.9	35.6	53.2	144.2	112.6
Transport, communications	35.8	68.9	66.5	48.6	45.1	49.3	279.0	294.2
Suez Canal		5.9	4.7	5.2				
Housing	31.1	19.1	37.8	37.6	37.4	29.6	199.0	161.5
Public utilities	7.5	7.7	10.2	13.5	8.2	10.9	50.4	50.5
Services	12.0	12.4	23.4	28.5	38.6	32.4	112.2	135.3
Total	171.4	225.6	251.1	299.6	372.4	364.3	1,577.0	1,513.0
Cost of land	5.6	7.4	11.3	11.7	8.7	5.9	60.5	45.0
Total investment, excluding land	165.8	218.2	239.8	287.9	363.7	358.4	1,516.5	1,468.0

1/ Excluding investment in stocks
2/ Plan figures are at 1959/60 constant prices, whereas annual figures are at current prices
3/ Investments in the High Dam do not include all deliveries of Soviet equipment
Source: Ministry of Planning

Table A4 : Gross National Product at Current Prices, 1950 to 1958[1]
(LE million)

	1950	1951	1952	1953	1954	1957	1958
Business Sector							
Agriculture	368.5	352.4	272.4	277.5	312.0	369.1	371.2
Ginning and pressing	2.2	2.3	2.5	2.8	2.9	2/	2/
Mining and quarrying	2.4	2.5	2.9	2.9	7.2	11.9	10.2
Manufacturing industries	64.3	69.2	62.6	65.9	90.5	150.0	162.0
Construction 3/	25.1	25.1	25.0	20.3	25.4	45.7	51.4
Gas, electricity and water	2.0	2.2	2.4	2.6	4.7	2.2	2.8
Trade (wholesale and retail)	126.0	149.0	120.0	129.4	69.3	89.4	118.8
Brokerage, real estate and financial activities 4/	18.6	32.7	22.7	18.1	13.8	24.9	26.4
Insurance	2.2	2.8	2.4	2.7	2.8	5.7	7.3
Transport	45.7	52.7	49.6	52.1	56.5)	27.2	23.3
Storage	5.3	6.1	4.0	2.9	1.6)		
Services	46.8	63.1	45.6	53.5	38.3)	63.8	73.3
Other professions	23.0	25.7	26.1	25.0	25.5)		
Rent of buildings 4/	47.7	55.4	60.2	57.7	62.5	70.5	74.0
Sub-total	779.8	841.2	698.4	713.4	713.0	860.4	920.6
Household Sector 5/	25.3	28.3	28.8	27.5	28.1	6.8	7.0
Government Sector 6/	94.8	113.6	124.1	128.3	141.4	217.1	257.4
Rest of the World	-11.2	-12.5	-12.1	-11.1	-13.1	+ 1.9	+ 2.8
Total	888.7	970.6	839.2	858.1	869.4	1,086.2	1,187.8

1/Estimates at factor cost. Current prices estimates for 1955 and 1956 are not available.
2/Included in the figures for manufacturing industries.
3/Includes construction in the government sector
4/For 1957 and 1958, real estate services are included under "rent of buildings"
5/Estimate for the years 1950-1954 were worked out on a very rough basis, while those for 1957 and 1958 are based on the information available from a Family Budget Survey
6/Includes government enterprises

Source: Department of Statistics and Census

Table A5 : Gross National Product at Constant Prices, 1950 to 1958 [1]
(at 1954 prices; LE million)

	1950	1951	1952	1953	1954	1955 [2]	1956 [2]	1957	1958
Business Sector									
Agriculture	302.9	303.9	334.4	314.7	312.0	321.4	333.2	342.2	366.9
Ginning and pressing	2.2	2.3	2.5	3.2	2.9	[3]	[3]	[3]	[3]
Mining and quarrying	2.4	2.5	2.9	3.3	7.2	7.5	7.2	10.7	9.7
Manufacturing industries	64.3	69.2	62.6	73.6	90.5	102.5	104.4	132.5	131.7
Construction [4]	25.1	25.1	25.1	20.3	25.4	32.8	28.9	37.3	43.2
Gas, electricity and water	2.0	2.2	2.4	2.9	4.7	5.3	6.5	2.0	2.6
Trade (wholesale and retail)	56.7	67.0	54.0	59.7	69.3			66.7	107.8
Brokerage, real estate and financial activities [5]	12.8	22.6	15.7	12.5	13.8			23.4	24.8
Insurance	2.2	2.8	2.3	2.7	2.8	209.0	210.1	5.4	6.9
Transport	45.7	52.7	49.6	52.1	56.5			25.6	21.9
Storage	5.4	6.1	4.0	2.8	1.6				
Services	38.8	52.4	37.9	44.6	38.3			59.9	69.0
Other professions	23.0	25.7	26.1	25.0	25.5				
Rent of buildings [5]	46.4	54.4	59.2	56.5	62.5	75.0	81.0	66.3	69.7
Sub-total	629.9	688.9	678.7	673.9	713.0	753.5	771.3	772.0	854.2
Household Sector [6]	25.3	28.3	22.8	27.5	28.1	28.5	29.1	6.4	6.6
Government Sector [7]	95.2	112.5	124.1	128.7	141.4	146.0	152.0	200.4	239.6
Rest of the World	-11.2	-12.5	-12.1	-11.1	-13.1	- 9.8	- 5.1	+ 1.9	+ 2.8
TOTAL	739.2	817.2	813.5	819.0	869.4	918.2	947.3	980.7	1,103.2

1/ Estimates at factor cost
2/ Estimates prepared by the National Planning Commission
3/ Included in the figures for manufacturing industries
4/ Includes construction in the government sector
5/ For 1957 and 1958, real estate services are included under "rent of buildings"
6/ Estimate for the years 1950-56 were worked out on a very rough basis, while those for 1957 and 1958 are based on the information available from a Family Budget Survey
7/ Includes government enterprises

Source: Department of Statistics and Census

TABLE A6: POPULATION BY AGE GROUPS

Age Groups	1937 Census 1/ (thousands)	(%)	1947 Census 1/ (thousands)	(%)	1960 Census (thousands)	(%)
0 - 4	2,108	13.2	2,585	13.6	4,132	15.9
5 - 9	2,209	13.9	2,400	12.7	3,799	14.6
10 - 14	1,909	12.0	2,214	11.7	3,179	12.2
15 - 19	1,346	8.4	1,901	10.0	2,154	8.3
20 - 29	2,414	15.2	2,856	15.1	3,709	14.3
30 - 39	2,334	14.7	2,623	13.8	3,378	13.0
40 - 49	1,605	10.1	1,979	10.4	2,419	9.3
50 - 59	945	5.9	1,214	6.4	1,636	6.3
60 and over	1,014	6.4	1,137	6.0	1,577	6.1
Unstated	37	0.2	58	0.3	1	-
T O T A L	15,921	100.0	18,967	100.0	25,984	100.0

1/ Excluding Bedouins in desert areas (population estimated at 12,000 in 1937, 55,000 in 1947 and 78,000 in 1960).

SOURCE: Central Agency for Public Mobilization and Statistics.

TABLE A7: EMPLOYMENT

	1959/60 (thousands)	(%)	1964/65 (thousands)	(%)	Annual Rate of increase (%)
Agriculture	3245,0	54.0	3780,0	51.6	3.1
Industry	601,8	10.0	825,0	11.2	6.5
Electricity	11,9	0.2	18.0	0.2	8.6
Construction	185,0	3.1	345.2	4.7	13.3
Total commodity sectors	4043,7	67.3	4968,2	67.7	4.2
Transport and Storing	218,6	3.6	277,7	3.8	4.9
Money and Trade	635,7	10.6	729,7	10.0	2.2
Housing	16,0	0.3	21,0	0.3	5.6
Utilities	25.2	0.4	30,3	0.4	3.8
Other services	1066,8	17.8	1306,5	17.8	4.1
Total service sectors	1962,3	32.7	2365,2	32.3	3.8
T O T A L	6006,0	100.0	7333,4	100.0	4.0

SOURCE: Ministry of Planning

TABLE A8 : AVERAGE ANNUAL WAGES
(Egyptian pounds)

Sectors	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
Agriculture	30,2	27,5	32,5	34,8	37,9	44,3
Industry	147,6	125,3	132,7	172,3	174,9	181,3
Electricity	201,7	251,9	251,7	241,4	251,4	261,1
Construction	161,1	164,5	159,3	150,1	156,1	155,6
Total commodity sectors	54,2	47,2	55,5	64,6	69,4	75,6
Transport and Storage	179,8	171,3	195,2	195,8	215,6	218,6
Money and Trade	110,4	116,0	120,6	120,6	134,1	139,4
Housing	62,5	112,5	105,6	88,4	86,5	85,7
Utilities	214,3	197,5	217,7	216,0	216,9	254,1
Other services	167,1	164,4	163,3	189,0	193,5	211,4
Total service sectors	149,9	150,0	153,3	169,2	176,6	189,5
T O T A L	85,5	80,5	86,3	97,7	103,8	112,3

SOURCE: Ministry of Planning

TABLE A9 : AREA CULTIVATED AND CROPPED
(thousand feddans: crop year ended October 31)

C R O P	1945/49	1950/54	1957	1958	1959	1960	1961	1962	1963	1964	1965 (estimate)	1970
Cotton	1316	1765	1819	1906	1760	1873	1986	1657	1627	1611	1900	2000
Berseem	1967	2184	2363	2380	2398	2414	2448	2442	2434	2480	2493	
Cereals (total)	4708	4395	4595	4457	4671	4584	4102	4702	4530	4532	4042	4746
Maize	1636	1746	1769	1955	1859	1821	1603	1832	1721	1660	1430	1660
Wheat	1559	1571	1514	1425	1475	1456	1384	1455	1345	1295	1144	1372
Rice	706	519	731	518	729	706	537	830	959	962	842	1200
Millet	561	437	448	423	467	453	457	454	484	494	501	367
Barley	246	122	133	136	141	148	121	131	121	121	125	147
Pulses (total)	559	480	531	519	520	544	456	536	528	576		605
Beans 1/	395	328	355	360	354	362	328	369	360	408	402	405
Lentils	74	74	83	73	79	85	63	79	78	79	89	100
Fenugreek	60	53	65	59	58	62	44	60	59	56	n.a.	65
Lupins	14	12	17	17	18	20	14	18	19	19	n.a.	20
Chickpeas	16	13	11	10	11	15	7	10	12	14	n.a.	15
Vegetables (total)	284	300	435	400	536	555	495	521	564	596	624	650
Onions 2/	31	37	50	49	56	56	64	60	52	48	46	50
Fruits (total) 3/	78	93	111	115	126	131	138	145	152	167	173	266
Oranges	--	--	33	35	42	46	51	59	65	76	81	--
Other citrus	--	--	18	19	20	20	21	21	21	20	19	--
Grapes	--	--	19	19	20	21	21	20	20	20	22	--
Mangoes	--	--	14	15	16	16	17	19	19	21	24	--
Sugarcane	92	96	109	113	112	111	112	121	133	134	129	220
Oilseeds (total) 4/	75	73	--	--	96	105	89	--	--	--	--	--
Groundnuts	24	28	36	38	40	41	33	53	53	50	n.a.	87
Sesame	39	37	--	41	42	52	27	42	59	55	n.a.	60
Linseed	12	8	--	--	14	22	29	--	--	--	--	--

1/ Excludes areas the production of which was consumed green.
2/ Excludes inter-planted crop.
3/ Excluding palm trees.
4/ Excluding cotton seed.

SOURCES: Central Statistical Committee, Ministry of Agriculture, and Ministry of Planning.

Table A10: AGRICULTURAL PRODUCTION
(thousand metric tons: crop years ended October 31)

CROP	1945/49	1950/54	1957	1958	1959	1960	1961	1962	1963	1964	1965 (est.)	1970
Cotton												
Lint	318	378	405	446	457	478	336	457	442	504	546	647
Cereals												
Maize	1,436	1,535	1,495	1,758	1,500	1,691	1,619	2,004	1,867	1,934	1,954	2,160
Wheat	1,277	1,216	1,467	1,412	1,443	1,499	1,436	1,593	1,493	1,499	1,283	1,699
Rice	1,111	830	1,709	1,027	1,616	1,486	1,142	2,029	2,219	2,036	2,070	2,964
Millet	592	547	566	537	630	603	631	659	729	740	744	609
Barley	183	103	131	135	142	155	133	146	134	141	148	n.a.
Pulses												
Beans	295	222	254	242	208	290	150	305	245	340	351	355
Lentils	--	--	53	42	48	50	34	56	47	52	61	80
Fenugreek	--	--	43	38	37	43	24	44	42	42	52	49
Lupins	8	7	11	11	11	13	9	12	13	13	18	16
Chickpeas	--	8	--	6	--	--	5	7	8	10	9	11
Vegetables	--	--	--	2,803	--	--	3,571	3,917	4,320	4,378	n.a.	4,855
Onions	233	283	481	428	558	544	470	600	659	647	n.a.	n.a.
Fruits												
Oranges	--	--	194	225	197	210	157	280	337	329	n.a.	--
Mandarine and lime	--	--	113	127	95	101	79	117	98	140	n.a.	--
Grapes	--	--	91	88	99	102	106	120	105	91	n.a.	--
Mangoes	--	--	73	87	64	63	118	86	90	97	n.a.	--
Sugarcane	2,534	3,308	4,130	4,221	4,322	4,357	4,186	4,808	5,153	5,150	4,943	8,919
Oilseeds												
Cottonseed	--	--	776	852	850	888	658	857	858	939	912	1,170
Groundnuts	--	--	31	33	34	35	25	49	45	46	49	65
Sesame	--	--	14	15	16	15	10	17	26	23	24	23
Linseed	--	--	--	5	6	--	12	11	11	14	n.a.	n.a.

Sources: Central Statistical Committee, Societe des Sucreries et de Distillerie, Central Bank of Egypt, Economic Review, Volume II, No. 1, 1962 and Statistical Handbook 1964, and Ministry of Planning.

TABLE A11 FERTILIZERS - PRODUCTION[1] AND USE
(thousand tons)

Year	Nitrogenous 2/		Superphosphates 3/		Potassium Sulphate 4/
	Production	Use	Production	Use	Use
1955		734		137	--
1956		655		157	--
1957		849		177	1.3
1958		886		177	1.7
1959		993		175	3.7
1959/60	244	1,100	175	209	5.1
1960/61	590	1,152	185	254	4.3
1961/62	762	1,296	172	248	2.2
1962/63	692	1,322	158	254	2.0
1963/64	931	1,466	165	269	1.7
1964/65	949	1,584	242	283	1.5

1/ Estimated local production.
2/ 15.5% N before 1959/60, 15% N since 1959/60.
3/ 15% P_2O_5
4/ 48% K

SOURCE: Ministry of Agriculture and Fertilizer Support Fund.

TABLE A12: PRODUCTION AND USES OF COTTON

Production year ended October 31	Total production	Percentage of production			Consumption year ended August 31	Exports and local factory consumption		
		Extra long	Medium long	Medium		Exports	Consumption	Consumption as percentage of exports
	(thousand tons)	(%)	(%)	(%)		(thousand tons)	(thousand tons)	(%)
1950	381.9	33.8	19.4	44.5	1951	288.7	60.7	21.0
1951	362.8	38.6	15.5	43.0	1952	261.5	65.3	25.0
1952	445.8	45.0	13.4	39.5	1953	319.0	68.7	21.5
1953	318.2	34.6	27.3	35.8	1954	324.5	73.2	22.6
1954	348.0	33.1	25.6	39.0	1955	247.1	80.2	32.5
1955	334.1	35.8	18.8	42.9	1956	292.5	87.2	29.8
1956	324.8	41.0	18.2	38.5	1957	230.9	90.7	39.3
1957	405.3	45.3	12.7	39.8	1958	254.5	100.1	39.3
1958	445.9	58.6	7.8	31.3	1959	327.3	106.0	32.4
1959	457.2	51.1	15.0	31.8	1960	381.8	110.9	29.0
1960	478.2	47.4	22.2	28.5	1961	337.0	119.2	35.4
1961	335.7	41.2	24.7	31.7	1962	229.4	142.5	62.1
1962	457.3	50.3	22.5	25.7	1963	303.0	137.5	45.4
1963	441.7	46.6	22.9	28.9	1964	291.8	139.9	47.9
1964	504.1	45.8	24.5	28.1	1965	342.2	153.0	44.7

SOURCE: Central Statistical Administration

TABLE A13: U.A.R. PRODUCTION, EXPORTS, AND IMPORTS OF COTTON YARN
(thousand tons)

Year	Production	Exports	Imports	Local Consumption
Average 1950/51-1954/55		7.7	0.1	
Average 1955/56-1959/60		12.0	0.1	
1960/61	102.0	19.4	--	82.6
1961/62	111.0	21.1	--	89.9
1962/63	121.0	20.8	--	100.2
1963/64	123.0	31.6	--	91.4
1964/65	131.0	33.1	--	97.9
Average 1960/61-1964/65	117.6	25.2	--	92.4

SOURCE: Ministry of Planning

TABLE A14: U.A.R. PRODUCTION, EXPORTS, AND IMPORTS OF COTTON FABRICS
(thousand tons)

Year	Production	Exports	Imports	Local Consumption
Average 1950/54	--	1.1	2.3	--
Average 1955/59	--	4.4	0.2	--
1960/61	64.0	11.9	1.1	53.2
1961/62	73.0	13.8	2.9	62.1
1962/63	79.0	13.3	0.2	65.9
1963/64	80.0	14.1	0.2	66.1
1964/65	88.0	14.4	--	73.6
Average 1960/61-1964/65	76.8	13.5	0.9	64.2

SOURCE: Ministry of Planning

TABLE A15: U.A.R. PRODUCTION, EXPORTS AND IMPORTS OF RICE

Year	Area Planted (thousand feddans)	Yield (kg. per feddan)	Production (thousand)	Exports (thousand)	Imports (thousand)	Domestic Consumption (thousand)
Average 1935/39	446	1.53	685	--	--	--
Average 1950/54	519	1.56	830	111.0	--	428.4
Average 1955/59	654	2.11	1385	227.8	9.5	682.1
1960/61	706	2.10	1486	299.1	--	666.8
1961/62	537	2.13	1142	70.6	--	671.7
1962/63	830	2.46	2038	386.1	--	938.6
1963/64	952	2.32	2213	532.6	--	905.9
1964/65	988	2.12	2070	352.5	--	993.0
Average 1960/61-1964/65	803	2.23	1790	328.2	--	835.3

SOURCE: Ministry of Planning.

Table A16: INDICES OF INDUSTRIAL PRODUCTION
(1952 = 100)

	1952	1954	1956	1957	1958	1959	1960	1961	1962	1963	1964 5/
A. Group indices and the general index 1/											
Manufacturing industries	100	179	176	200	233	281	332	398	413	475	523
Extractive industries	100	152	114	150	172	206	197	242	311	373	428
Electricity and gas	100	126	156	172	192	214	266	365	413	449	514
All industries	100	178	174	198	230	277	325	382	418	479	535
B. Detailed indices 2/											
Spinning and weaving 3/	100	172	157	175	186	218	224	245	270	273	292
Cotton ginning and pressing	100	69	103	86	107	109	83				
Food products	100	135	101	126	121	155	152	155	200	237	268
Beverages	100	67	82	70	81	112	135	140	220	230	251
Tobacco	100	124	108	119	137	154	143	175	200	217	249
Petroleum and coal products	100	109	135	134	100	85	76	106	114	258	203
Chemicals	100	373	486	500	566	787	907	1269	1212	1369	1478
Products of non-metallic minerals	100	238	119	330	247	175	208	299	316	364	383
Transportation equipment	100	205	63	67	152	157	148	209	521	922	780
Electricity and gas	100	126	156	172	192	214	266	365	413	449	514
Printing and publishing	100	117	154	179	147	142	209	229	263	304	288
Basic metal industries	100	92	152	203	183	260	477	489	614	710	767
Footwear and apparel	100	100	107	107	114	91	99	150	379	439	395
Leather (excluding footwear)	100	147	97	115	85	109	108	129	129	131	133
Extraction of metals	100	20	70	54	63	144	177	165	132	133	143
Extraction of oil and gas	100	84	74	99	133	130	138	259	209	251	283
Extraction of non-metallic minerals	100	364	216	306	396	437	338	219	660	852	1114
Fabricated metal products 4/	100	257	177	144	208	140	133	196	186	188	223
Paper products	100	144	165	226	251	298	502	531	715	793	924
Furniture and fixtures	100	111	146	171	142	150	174	195	227	330	381
Wood and cork products	100	120	106	101	81	149	141	232	313	648	1283
Electrical equipment	100	242	151	207	275	239	337	738	1315	2231	2424
Non-electrical equipment	100	165	239	125	327	465	845	1659	2999	3906	4208
Rubber products	100	151	234	340	1522	1643	2444	2746	2185	2875	2925
Miscellaneous products	100	107	67	96	73	132	180	133	141	250	352

1/ Based on statistical reports of production in enterprises employing 10 or more workers.
2/ Based on statistical reports of production in enterprises employing 50 or more workers.
Industries are listed roughly in order of importance (i.e., gross value added) in 1952; however, there has been some regrouping to keep cotton ginning with textiles; beverages with food products; leather with footwear and apparel; and non-electrical equipment with electrical equipment industries. The extractive industries have also been grouped together. Classification of industries is according to the standard international procedure.
3/ Ginning and pressing is combined with spinning and weaving for 1961.
4/ Excluding electrical, non-electrical and transportation equipment, etc., which are shown separately.
5/ Preliminary figures.

TABLE A17: ELECTRICITY: INSTALLED CAPACITY, PEAK LOAD AND GENERATED ENERGY (EXCLUDING THE ASWAN HYDRO-ELECTRIC STATION) 1/

Year	Installed Capacity (Megawatts)	Peak Load		Generated Energy		Annual Load Factor (Percent)
		Megawatts	Percent Increase	'000 MWH	Percent Increase	
1952	384	---	---	992	---	--
1953	446	---	---	1,121	13.0	--
1954	469	237	---	1,237	10.3	60
1955	564	276	16.4	1,422	15.0	60
1956	595	283	2.5	1,548	8.9	62
1957	723	310	9.5	1,712	10.6	63
1958	785	346	11.6	1,905	11.3	63
1959	828	378	9.2	2,125	11.5	64
1960	874	417	10.3	2,388	12.4	65
1961	963	461	10.6	2,719	13.9	67
1962	963	500	8.5	2,939	8.1	66
1963	960	555	11.0	3,190	8.5	68
1964	960	572	3.1	3,444	8.0	69
1965	1,247	606	5.9	3,560	3.4	67

1/ The Aswan hydro-electric station (with an installed capacity of 345 megawatts) began generating electricity during 1960 and produced 250,000 megawatt hours in that year; production increased to about 1.2 million megawatt hours in 1962.

SOURCE: General Electricity Authority.

Table A18: U.A.R. - TRAFFIC VOLUMES BY INLAND TRANSPORT

Freight Traffic	Million tons		Million ton-kms.	
	1959/60	1964/65	1959/60	1964/65
Railways	8.5	13.3	2,256	3,458
Roads (motor vehicles only)	n.a.	45.5	1,521	2,032
Waterways (motor powered vessels only)	2.1	2.3	772	1,265
Pipelines	-	5.4	-	488
	n.a.	66.5	4,549	7,243

*Passenger Traffic	Million passenger-kms.	
	1956/60	1964/65
Railways	3,634	5,788
Roads (excluding private cars and taxis)	8,315	13,142
	11,949	18,930

*Passenger traffic by air and water is relatively insignificant.

Source: Ministry of Transport

Table A19 : Egyptian Railways: Financial Results (LE 000)

Year ending June	Gross receipts	Expenditure			Net revenue
		Operating expenses	Depreciation	Total	
1961	22,886	19,073	3,358	22,431	455
1962	24,640	18,983	4,268	23,251	1,389
1963	28,407	20,288	4,782	25,070	3,337
1964	34,720	21,053	4,615	25,668	9,052
1965	35,989	22,208	4,897	27,105	8,884
1966	39,428	24,390	4,287	28,677	10,751

Source: Ministry of Transport

TABLE A20: THE TOURIST MOVEMENT - 1952-1965

YEAR	ARABS	EUROPEANS	AMERICANS	OTHERS	TOTAL	IN-TRANSIT
1952	21,012	26,681	18,216	9,673	75,582	130,487
1953	34,425	37,597	10,690	7,881	90,593	159,466
1954	37,676	49,467	20,335	6,634	114,112	230,375
1955	42,695	70,616	27,411	8,737	149,459	250,539
1956	61,881	75,576	23,608	9,181	170,245	197,945
1957	66,589	40,809	10,728	9,402	127,528	97,037
1958	80,132	44,202	16,641	21,837	162,812	153,692
1959	129,414	69,175	18,156	23,518	240,263	157,170
1960	126,500	91,073	37,459	30,418	285,450	176,121
1961	107,316	106,054	42,581	28,006	283,957	234,259
1962	116,112	87,280	40,347	47,441	291,180	224,575
1963	151,393	132,682	60,984	59,050	404,109	289,550
1964	208,205	165,091	66,353	57,733	497,382	322,402
1965	246,027	179,299	62,723	54,051	542,100 1/	

1/ Preliminary estimate.

Source: Ministry of Tourism

TABLE A21: TOURIST NIGHTS - 1954-1965

YEAR	ARABS	EUROPEANS	AMERICANS	OTHERS	TOTAL
1954	458,658	621,263	126,218	48,304	1,254,443
1955	1,773,847	2,198,035	298,245	126,370	4,396,498
1956	2,084,534	2,676,509	349,793	120,005	5,230,841
1957	2,155,164	3,182,997	154,335	404,425	5,896,921
1958	1,959,631	1,121,169	200,475	371,777	3,653,052
1959	2,771,089	1,453,540	261,679	437,653	4,923,961
1960	2,291,319	1,530,772	331,320	406,868	4,560,279
1961	2,256,483	1,667,880	358,096	362,608	4,645,067
1962	1,963,812	1,349,149	303,095	550,421	4,166,477
1963	1,869,223	1,311,303	434,377	608,472	4,223,375
1964 1/	3,856,175	1,986,236	425,955	755,898	7,024,264
1965	7,067,519	2,327,777	395,006	610,429	10,400,731

1/ Preliminary estimate.

Source: Ministry of Tourism

Table A22: SERVICES BUDGET: CURRENT REVENUES [1]
(LE million)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65 (Prov.)	1965/66 (Est.)	1966/67 (Est.)
TAX REVENUE	175.3	187.0	179.4	213.8	271.9	298.7	345.1	356.0
Property Taxes and Duties	16.8	16.2	3.5	4.7	7.6	6.7	8.8	13.4
Personal Income Taxes	11.7	12.3	11.8	12.4	14.5	15.7	16.9	21.0
Business Profits Taxes	19.7	22.3	20.0	22.4	32.8	39.0	68.4	71.9
Estate and Succession Duties	3.0	3.1	2.5	3.2	3.6	1.9	3.5	1.9
Customs Revenue	80.7	88.4	98.8	121.1	144.3	164.5	169.7	168.1
Excise Duties	18.5	18.1	18.4	23.2	31.9	33.9	40.1)	64.8
Other	17.5	18.4	15.9	18.3	26.2	24.0	23.0)	
Stamp Duties	7.4	8.2	8.5	8.5	11.0	14.0	14.7	14.9
NON-TAX REVENUE	78.6	79.4	127.9	77.5	97.0	126.6	104.5	182.3
Services Revenue	31.4	34.2	38.9	33.5	43.4	36.5	63.5	73.3
Miscellaneous Receipts	25.7	29.8	64.2	24.2	39.2	57.6	19.2	85.1
Extraordinary Receipts [2]	21.5	15.4	24.8	19.8	14.4	32.5	21.8	23.9
SURPLUS OF ENTERPRISES	41.9	43.1	44.7	67.6	70.8	84.3	118.4	123.1
TOTAL	295.8	309.5	352.0	358.9	439.7	509.6	568.0	661.4

1/ Central Government only.

2/ Mostly profits from foreign exchange transactions and receipts from confiscated land and properties.

Source: Ministry of Treasury

Table A23: STRUCTURE OF TAX REVENUES [1]
(as % of total tax revenue)

	1960/61	1961/62	1962/63	1963/64	1964/65	Average 1960/61-1964/65	1965/66	1966/67
Property Taxes and Duties	8.6	2.0	2.2	2.8	2.2	3.4	2.5	3.8
Income Taxes	6.6	6.6	5.8	5.3	5.3	5.8	4.9	5.9
Business Profits Taxes	11.9	11.2	10.5	12.1	13.1	11.9	19.8	20.2
Estate and Succession Taxes	1.6	1.4	1.5	1.3	0.7	1.3	1.0	0.5
Customs Revenue	47.3	55.1	56.6	53.1	54.7	53.6	49.2	47.2
of which:								
Import Duties on Tobacco and Cigarettes	(25.7)	(29.9)	(28.2)	(26.1)	(27.7)	(27.4)	(22.9)	-
Consumption Duties	4.0	5.6	5.6	6.5	4.6	5.3	4.1)	18.2 [2]
Excise Duties	9.6	10.3	10.9	11.7	11.3	10.9	11.6)	
Stamp Duties	4.4	4.7	4.0	4.0	4.7	4.4	4.3	4.2
Other	6.0	3.1	2.9	3.2	3.4	3.4	2.6	-
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Based on Table A22.
2/ Includes other revenues.

Source: Ministry of Treasury

Table A24: SERVICES BUDGET: CURRENT EXPENDITURES 1/
(LE million)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65 (Prov.)	1965/66 (Est.)	1966/67 (Est.)
Organizational Service	107.9	127.0	133.7	167.5	238.5	226.9	216.7	248.2
Defense	76.1	83.7	87.4	115.0	176.8	165.0	142.4	171.4
Security and Justice	19.4	20.9	25.3	31.9	37.3	36.1	42.7	43.9
Others 2/	12.4	22.4	21.0	20.6	24.4	25.8	31.6	32.9
Other Services	83.7	118.7	128.6	150.9	177.5	198.6	248.8	261.4
Agricultural Services & Irrigation & Drainage	10.3	10.9	26.5	20.8	23.8	24.5	29.9	32.2
Educational Services	44.7	62.3	58.2	72.6	82.0	91.4	98.5	101.7
Health Services	8.6	10.3	13.0	16.7	20.9	23.9	27.4	29.7
Cultural & Entertainment Services	3.1	6.7	3.0	9.2	11.2	12.2	13.0	12.1
Others 3/	17.0	28.5	27.9	31.6	39.6	46.6	80.0	85.7
Interest & Transfers to Sinking Fund	9.9	12.3	16.0	27.0	28.7	30.2	40.5	60.0
Pensions & Other Remunerations	14.1	18.1	19.0	13.3	15.8	17.6	19.7	20.2
Subsidies towards Reducing Cost of Living	8.9	9.0	27.6	39.1	32.4	45.0	35.0	36.0
Cost of Living Allowances to Employees 4/	27.6	25.4	44.5					
TOTAL	252.1	310.5	369.4	397.8	492.9	518.3	560.7	625.8

1/ Central Government only.
2/ These include expenditures for the Presidency, the National Assembly, Foreign Affairs, etc.
3/ These include expenditures for supply and storage, scientific research, etc.
4/ After 1961/62 cost of living allowances to employees were distributed over various heads as salary expenditures.

Source: Ministry of Treasury

Table A25: SERVICES BUDGET: CURRENT EXPENDITURES [1]

(as percent of total expenditures)

	1960/61	1961/62	1962/63	1963/64	1964/65	1960/61-1964/65	1965/66 [1]	1966/67
Defense	27.0	23.7	28.9	35.9	31.8	30.0	25.4	27.4
Security and Justice	6.7	6.8	8.0	7.6	7.0	7.3	7.6	7.0
Educational Services	20.1	15.8	18.3	16.6	17.6	17.5	17.6	16.3
Health	3.3	3.5	4.2	4.2	4.6	4.1	4.9	4.7
Cost of Living Allowances	11.1	19.5	9.8	6.6	8.7	10.7	6.2	5.8
Sub-Total	68.2	69.3	69.2	70.9	69.7	69.6	61.7	61.2
Others [2]	31.8	30.7	30.8	29.1	30.3	30.4	38.3	38.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Based on Table A 24.
2/ These include, among others, interest and transfers to sinking funds, pensions, scientific research, etc.

Source: Ministry of Treasury

Table A26: INVESTMENT IN THE PUBLIC SECTOR

(LE million)

	1962/63	1963/64	1964/65 (Prov.)	1965/66 (Est.)	1966/67 (Est.)
BUSINESS BUDGET					
Agriculture	24.9	48.6	43.0	42.0	51.0
Electricity	5.5	18.8	19.8	40.0	24.2
High Dam	42.0	62.9	47.8	49.0	61.9
Industry	83.4	109.8	80.2	94.7	93.4
Transport & Communications	26.7	20.2	20.4	33.0	42.0
Suez Canal	7.1	5.6	7.1	6.0	6.8
Housing & Public Utilities	12.5	16.5	12.8	16.0	19.4
Health	2.8	2.1	1.1	2.7	1.8
Culture & Tourism	4.2	11.7	9.2	6.0	4.6
Supply & Storage	2.3	2.8	3.2	13.1	9.6
Financial & Commercial	17.4	3.3	2.2	3.3	2.0
Sub-Total	228.8	302.3	246.8	305.8	316.7
SERVICES BUDGET 1/	44.3	67.1	47.4	39.7	51.4
TOTAL	273.1	369.4	294.2	345.5	368.1

1/ Including investment expenditures of Governorates

Source: Ministry of Treasury

Table A27: SUMMARY OF FACTORS AFFECTING LIQUIDITY:
MONEY SUPPLY AND QUASI-MONEY
(LE millions)

	1962/63	1963/64	1964/65	1965/66
Money Supply	15.9	94.4	60.5	61.8
Quasi-Money 1/	43.8	16.5	18.2	17.1
TOTAL	59.7	110.9	78.7	78.9
1. Foreign Assets (net) 2/	-36.6	-30.1	11.2 2/	-33.2
2. Claims on Government (net) 2/	50.0	139.1	30.4	115.1
Claims on Government (gross)	65.8	183.0	61.6	108.1
Government deposits	5.9	-26.1	-32.5	17.0
Counterpart funds	-21.7	-17.8	1.3	-10.0
3. Claims on Non-government Sector	42.1	6.9	17.6	6.0
Claims on specialized banks	16.4	8.0	20.2	1.3
Claims on other non-government sector	25.7	-1.1	-2.6	4.7
4. Other Factors	4.4	-5.0	19.5	-9.0
Unclassified assets	15.8	4.1	9.5	-6.1
Unclassified liabilities	-14.3	-13.9	0.0	10.5
Float	6.8	6.8	3.8	3.3
Capital accounts	-3.9	-2.0	6.2	-16.7
5. Total Credit Expansion (2+3+4)	96.5	141.0	67.5	112.1
Change in cotton financing outstanding (- increase)	-17.6	4.6	-0.1	5.4
6. Credit Expansion Adjusted for Cotton Financing	78.9	145.6	67.4	117.5

1/ Including postal savings deposits
2/ Including changes in net IMF position, but not adjusted for the revaluation profits of LE 15 million in December 1964.

Source: IMF

Table A28: COST OF LIVING AND WHOLESALE PRICES
(1939 = 100)

		Cost of Living Index	General Wholesale Price Index	Foodstuffs	Industrial Products and Materials
December	1959	304	418	383	457
December	1960	306	418	388	451
December	1961	309	425	416	435
December	1962	296	420	403	438
December	1963	302	425	403	448
December	1964	337	453	445	462
January	1965	342	454	446	464
February	1965	350	456	449	464
March	1965	350	456	448	465
April	1965	350	457	449	466
May	1965	350	470	471	470
June	1965	352	472	475	470
July	1965	353	474	478	471
August	1965	359	475	478	472
September	1965	364	478	485	472
October	1965	363	479	487	472
November	1965	363	480	488	472
December	1965	377	490	499	480
January	1966	380	496	510	481
February	1966	385	498	513	483
March	1966	381	499	515	482
April	1966	385	502	521	483

Source: Central Agency for Defense Mobilization and Statistics.

TABLE A29: WHOLESALE AND RETAIL PRICES OF SELECTED COMMODITIES

A. WHOLESALE PRICES

(in Egyptian pounds)

ITEMS	UNIT	DECEMBER													
		1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Wheat flour (extract 82%)	100 kg.	--	3.42	4.41	4.41	3.43	3.43	3.4	3.42	3.42	3.43	3.43	3.48	3.49	3.49
Rice bleached	100 kg.	2.99	2.99	2.99	2.99	3.08	3.02	3.02	3.02	3.02	3.02	3.02	3.03	3.03	3.03
Maize	140 kg.	2.12	2.44	2.26	3.00	3.41	3.30	3.30	3.30	3.30	3.30	3.30	3.63	3.64	3.36
Beans (whole)	155 kg.	4.00	--	5.05	5.46	7.77	6.81	6.33	7.52	7.12	9.17	7.85	8.73	7.71	6.63
Woollen textiles (imperial)	Meter	3.40	3.12	2.54	3.09	--	2.85	3.00	2.94	2.94	2.84	2.84	3.13	3.13	3.53
Cotton, ginned (Menoufi/good)	50 kg.	--	--	13.55	13.31	--	16.49	13.27	14.40	14.86	13.50	14.60	14.40	15.50	15.50
Sugar (granulated)	45 kg.	--	5.69	4.07	4.07	4.07	4.50	4.50	4.14	4.14	4.09	4.09	4.10	4.55	5.04
Tobacco (Hemmy, Syrian)	kg.	3.57	3.65	3.64	3.58	3.80	4.58	4.67	5.41	4.71	5.27	5.79	--	--	--
Tea (India, unpacked)	kg.	0.72	0.61	0.85	0.76	1.10	0.91	0.91	0.91	0.91	0.91	--	1.04	1.04	1.04
Coffee beans (of Yemen, crible)	45 kg.	27.95	30.14	35.95	29.86	40.54	36.00	36.00	36.00	36.00	37.62	37.62	37.62	37.62	37.62
Kerosene (36 litre)	Two tins	0.38	0.38	0.37	0.37	0.44	0.58	0.58	0.51	0.51	0.50	0.50	--	--	--
Coal (cardiff)	Ton	--	11.00	10.18	11.94	14.92	16.30	--	--	--	--	--	--	--	--
Fertilizers (nitrate of soda natural)	Ton	25.00	25.00	26.04	25.97	28.25	33.00	33.00	33.00	26.00	26.00	26.00	23.75	23.75	23.75
Diesel	Ton	11.31	11.32	13.32	13.32	15.20	15.20	15.20	15.20	15.20	15.20	15.20	12.90	12.90	12.90
Benzine (36 litre)	Two tins	1.28	1.40	1.40	1. 0	1.52	1.52	1.52	1.52	1.52	1.52	1.69	1.72	1.72	1.72
Mazout oil	Ton	4.90	6.62	6.62	6.62	7.00	7.00	7.00	7.00	7.00	7.00	7.50	6.90	6.90	6.90
Solar oil	Ton	--	--	--	--	15.50	15.50	15.50	15.50	15.50	15.50	15.50	13.07	13.07	13.07

B. RETAIL PRICES

(in piasters: 100 piasters = LE 1)

ITEMS	UNIT	DECEMBER													
		1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Mutton (baladi)	kg.	27.6	26.0	25.8	25.9	25.9	25.9	25.9	25.9	25.9	25.7	28.0	28.0	53.0	63.8
Beef (baladi)	kg.	21.2	24.4	24.8	24.8	18.5	20.3	20.3	18.9	20.3	20.3	23.5	23.5	40.3	53.8
Fish, fresh (Bolti)	kg.	10.0	11.2	15.3	14.4	15.8	12.0	11.2	12.0	16.0	21.2	15.0	15.0	20.8	27.2
Eggs	Ten	8.4	7.7	7.3	7.0	7.7	8.2	8.3	9.0	8.5	9.0	8.8	12.0	13.0	15.0
Fresh butter	kg.	31.5	29.2	31.5	30.4	30.4	33.4	35.1	36.0	36.0	37.0	36.0	43.8	53.9	60.4
Melted butter	kg.	40.5	--	40.0	43.4	45.7	--	49.5	50.0	47.0	48.5	48.0	57.6	69.7	80.4
Local cheese	kg.	--	16.0	--	--	16.9	23.2	23.2	22.4	24.0	23.0	27.0	24.8	28.6	34.6
Potatoes (baladi)	kg.	2.6	1.7	1.7	2.0	1.6	2.0	2.4	2.0	2.0	2.1	2.1	2.7	3.0	4.2
Onions	kg.	1.8	2.1	1.4	1.1	2.0	1.8	3.2	1.1	5.2	3.4	2.6	1.3	2.7	3.9
Beans (whole)	kg.	--	--	--	--	6.5	--	--	7.5	6.5	7.0	6.5	6.8	9.6	7.0
Bananas	kg.	5.6	--	10.8	9.3	5.3	8.2	6.0	9.6	8.4	7.2	9.3	8.8	9.3	10.0
Dates dry	kg.	6.4	6.7	5.6	--	7.2	6.2	7.4	8.8	7.6	6.6	6.2	8.5	9.1	11.4
Electricity	Kwh	--	--	--	--	--	2.6	2.6	2.6	2.6	2.8	2.8	3.0	3.0	3.0
Soap, olive oil	Piece, 225 gms.	8.0	8.0	--	9.0	7.8	7.3	6.2	6.2	8.2	6.2	6.0	6.0	6.0	6.0
Soap for laundry	Piece, 400 gms.	--	--	--	--	--	4.5	4.5	4.5	4.5	4.5	3.8	4.0	4.0	4.0

Table A30: BALANCE OF PAYMENTS
(LE million)

	1952/53	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
Current Account								
Exports	136.8	165.6	197.9	183.4	155.4	199.7	243.1	244.8
Suez Canal receipts	27.2	45.5	47.0	50.7	51.7	69.8	74.4	82.8
Travel and other receipts	34.5	29.8	31.6	28.2	27.9	38.4	43.7	54.6
Other receipts	14.2	17.4	19.8	18.5	14.8	22.5	17.2	16.9
TOTAL	212.6	258.3	296.3	280.8	249.8	330.4	378.4	399.1
Imports	177.5	211.9	263.9	235.7	265.9	367.0	429.3	394.0
Interest and dividends	17.5	2.1	2.6	3.6	6.2	11.7	14.1	14.7
Government expenditure	5.3	25.7	22.9	35.1	21.1	26.4	27.1	35.3
Other expenditures	33.3	35.2	32.9	38.2	33.0	40.5	48.6	42.1
TOTAL	233.6	274.9	322.3	312.6	326.2	445.6	519.1	486.1
Balance	-21.0	-16.6	26.0	-31.8	-76.4	-115.2	-140.7	-87.0
Capital Account								
Grants and local currency loans	-	-	28.6	28.3	48.6	56.0	63.0	49.7
Foreign currency loans and other receipts	0.6	3.1	10.3	11.8	21.1	51.1	103.7	111.8
Total receipts	0.6	3.1	38.9	40.1	69.7	107.1	166.7	161.5
Debt amortization and other payments	-2.2	-8.0	-35.2	-10.6	-10.9	-27.2	-63.5	-86.5
Balance	-1.6	-4.9	+3.7	+29.5	+58.8	-79.9	+103.2	+75.0
Financial Balance	-22.6	-21.5	-22.3	-2.3	-17.6	-35.3	-37.5	-12.0
Foreign exchange reserves[1/]	-27.3	-13.9	-26.6	-15.3	-7.3	-19.7	-0.8	-15.1
IMF[2/]	-	-	3.3	-5.2	-16.4	-7.0	-8.1	-0.9
Non-resident accounts[3/]	2.7	-17.2	3.6	9.7	-0.5	-8.4	-23.9	7.0
Errors and omissions	2.0	9.6	-2.6	8.5	6.6	-0.2	-4.7	-3.0

1/ Minus signs indicate decrease in assets.
2/ Net use of resources; minus signs indicate drawings
3/ Net change; minus signs indicate increase in UAR liabilities

Source: Central Bank of Egypt

Table A31: BALANCE OF PAYMENTS, 1964 and 1965
(LE million)

	1964	1965
Current Account		
Exports	227.6	246.8
Suez Canal receipts	78.4	86.2
Travel and other receipts	51.0	46.7
Other receipts	16.7	22.9
TOTAL	373.7	402.6
Imports	399.4	413.3
Interest and dividends	15.0	17.2
Government expenditure	36.8	35.5
Other expenditures	45.6	46.6
TOTAL	496.8	512.6
Balance	-123.1	-110.0
Capital Account		
Grants and local currency loans	69.1	38.8
Foreign currency loans and other receipts	116.1	94.1
Total receipts	185.2	132.9
Debt amortization and other payments	-74.1	-52.0
Balance	111.1	80.9
Financial balance	-12.0	-29.1
Foreign exchange reserves 1/	-9.1	-41.4
IMF 2/	-1.9	+3.7
Non-resident accounts 3/	+2.3	+13.6
Errors and omissions	-3.3	-5.0

1/ Minus signs indicate decrease in assets
2/ Minus sign indicates drawings
3/ Net change; plus signs indicate decrease in UAR liabilities

Source: Central Bank of Egypt

Table A32: Foreign Assets and Liabilities [1/]
(LE million)

End of year	Foreign Exchange Assets				Payments Agreements			Total Foreign Exchange
	Gold (1)	Securities (2)	Foreign currency holdings (3)	Total (4)=(1)+(2)+(3)	Assets (5)	Liabilities (6)	Net Balance (7)=(5)-(6)	(8)=(4)+(7)
1952	60.6	154.1	33.6	248.3	-	-		248.3
1953	60.6	147.5	31.3	239.4	-	0.1	-0.1	239.3
1954	60.6	139.9	39.7	240.2	4.8	16.5	-1.7	228.5
1955	60.6	136.5	7.4	204.5	10.4	19.5	-9.1	195.4
1956	60.6	95.5	18.5	174.6	13.7	27.2	-13.5	161.1
1957	60.6	69.7	15.0	145.3	16.7	56.6	-39.9	105.4
1958	60.6	61.3	9.0	130.9	17.5	84.1	-66.6	64.3
1959	60.6	35.5	10.0	106.1	21.4	84.1	-62.7	43.4
1960	60.6	21.3	10.1	92.0	38.9	89.1	-50.2	41.8
1961	60.6	4.3	5.7	70.6	33.7	87.9	-54.2	16.4
1962	60.6	5.0	12.0	77.6	35.2	106.8	-71.6	6.0
1963	60.6	2.2	12.3	75.1	28.4	97.1	-68.7	6.4
1964	60.6	2.2	26.9	89.7	31.9	133.7	-101.8	-12.1
1965	60.6		19.2	79.8	41.0	137.1	-96.1	-16.3
1966 [2/]	60.6		11.0	71.6	48.9	155.7	-106.8	-35.2

1/ The conversion rate used is the par value of LE=$2.87, except the gold reserves in 1964 and 1965, which have been converted at the rate of LE = $2.30

2/ April

Source: Central Bank of Egypt

Table A33: FOREIGN TRADE

Year	Exports (LE million)	Exports ($ million)	Imports (LE million)	Imports ($ million)	Balance (LE million)	Balance ($ million)
1951/52	151.3	423.6	275.9	772.5	124.6	348.9
1952/53	157.6	441.3	189.6	530.9	32.0	89.6
1953/54	148.0	414.4	166.7	466.8	18.7	52.4
1954/55	131.8	369.0	177.7	497.6	45.9	128.5
1955/56	166.7	466.8	205.7	576.0	39.0	109.2
1956/57	145.2	406.6	168.4	471.5	23.2	65.0
1957/58	167.6	469.3	213.8	598.6	46.2	129.4
1958/59	161.7	452.8	235.9	660.5	74.2	207.7
1959/60	189.9	531.7	225.9	632.5	36.0	100.8
1960/61	189.0	529.2	224.7	629.2	35.7	100.0
1961/62	151.0	422.8	261.7	732.8	110.7	310.0
1962/63	197.8	454.9	353.8	813.7	156.0	358.8
1963/64	238.2	547.9	418.7	963.0	180.5	415.1
1964/65	265.2	610.0	400.8	921.8	135.6	311.9
1965/66 1/	258.6	594.8	455.5	1047.7	196.9	452.9

1/ Preliminary

Source: Central Bank of Egypt

Table A34 : Commodity Composition of Exports: 1952/53-1964/65 [1]

(LE million)

	1952/53	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
FOODSTUFFS								
Fish	0.1	0.4	0.4	0.6	0.6	0.9	0.7	0.8
Onions, raw	3.5	3.7	2.7	3.6	4.9	4.4	4.6	6.3
Onions, dehydrated	0.4	0.7	0.2	0.6	1.4	1.9	1.3	1.3
Potatoes	0.1	2.0	2.1	1.2	2.5	2.7	1.4	1.3
Fruits	0.1	0.7	1.3	0.8	0.6	0.7	0.9	0.7
Rice	-	3.9	4.7	12.5	2.8	19.0	31.2	21.6
Groundnuts	-	1.6	1.1	1.3	0.4	0.5	1.1	0.7
Sugar, molasses, etc.	0.6	1.6	2.1	2.1	2.5	2.2	3.9	1.5
Others	0.5	0.8	0.8	1.1	1.2	1.9	1.9	4.6
TOTAL	5.2	15.3	16.0	23.7	18.0	34.2	46.8	38.8
RAW MATERIALS								
Manganese	-	0.9	1.2	1.1	0.7	0.9	1.1	0.9
Lime phosphate	1.3	1.4	1.6	2.4	1.1	1.4	1.5	1.5
Raw cotton	132.4	115.1	134.3	121.5	88.6	103.7	117.4	148.3
Flax and hemp, raw	0.5	0.5	0.4	1.0	0.8	1.6	1.3	0.6
Others	0.3	0.1	0.4	0.4	0.5	0.5	0.5	0.4
TOTAL	134.5	118.0	137.9	125.4	91.6	102.0	121.8	151.4
FUELS								
Crude oil	-	4.1	3.2	4.0	7.2	13.6	14.8	10.5
Benzine and kerosene	-	0.2	1.1	1.0	1.4	1.9	2.4	4.1
Mazout, diesel, solar oil	1.4	0.2	0.2	0.9	1.0	2.2	4.1	6.6
Others	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.1
TOTAL	1.8	4.6	4.7	5.9	9.7	17.9	21.6	21.3
FINISHED & SEMI-FINISHED PRODUCTS								
Oil and cake (cotton used and others)	0.9	0.9	0.9	0.4	0.4	1.0	0.9	1.0
Cements	0.3	1.3	1.5	2.0	2.9	1.4	1.1	1.5
Chemicals, medicines, pharmaceuticals	0.2	0.7	0.7	0.8	0.9	0.9	1.3	1.4
Rubber, tyres, tubes	-	0.6	0.9	1.1	0.3	0.4	0.7	0.3
Books, news prints and periodicals	0.3	1.0	0.9	0.8	1.2	1.2	1.5	1.8
Artificial silk, yarn and fabrics	1.9	1.2	2.0	1.9	1.4	1.1	1.2	1.0
Cotton yarn	2.5	7.6	7.6	0.7	10.0	12.0	21.0	23.5
Pure cotton, piece goods	0.8	3.6	7.1	7.7	8.0	7.7	9.0	10.4
Clothings, made-up cotton pure or mixed hosiery and linen	0.2	0.1	0.5	0.3	0.5	0.5	1.0	1.5
Footwear	0.7	0.4	0.9	0.6	0.3	0.2	0.2	0.4
Others	0.2	0.6	1.0	2.3	0.9	1.9	2.8	3.4
TOTAL	8.0	18.0	24.1	27.7	26.8	28.4	40.7	46.2
Other Exports (unspecified)	8.2	5.8	7.2	6.3	5.9	9.3	7.4	7.5
TOTAL EXPORTS [1]	157.6	161.7	189.9	189.0	151.0	197.8	238.3	265.2

1/ Totals may not add because of rounding

Source: Central Bank of Egypt

Table A 35: Commodity Composition of Imports, 1952/53-1964/65
(LE million)

	1952/53	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
CONSUMER GOODS								
Living Animals	1.0	1.9	1.1	1.7	1.0	1.8	3.9	2.6
Meat, Fish & Preparations	1.5	1.7	1.8	2.3	2.1	2.0	1.9	5.3
Milk, Dairy Products, Eggs & Honey	1.8	0.5	0.7	0.6	0.6	2.9	1.4	2.5
Vegetables	1.3	0.9	1.2	1.3	1.7	1.3	1.1	0.8
Edible Fruits	3.6	1.7	1.7	1.5	1.3	1.3	2.0	0.5
Coffee	2.1	2.0	0.6	1.2	1.3	0.9	1.0	0.3
Tea	7.1	5.5	8.1	9.0	7.9	12.0	11.0	11.6
Wheat	29.6	18.3	13.4	9.3	22.2	25.4	33.4	31.4
Wheat flour	9.2	10.9	10.7	8.0	16.3	24.7	28.4	28.0
Maize	-	0.9	1.9	1.1	5.2	4.6	10.2	6.4
Sesame	-	0.2	0.7	0.3	1.1	0.8	1.0	0.4
Oils and butter	1.4	1.9	1.3	2.3	3.8	11.6	5.0	13.7
Sugar	0.7	2.1	0.4	2.2	2.6	1.6	6.4	4.7
Kerosene	6.6	4.1	5.2	4.2	3.1	3.3	1.1	0.4
Medicines and pharmaceuticals	4.4	7.3	5.5	1.7	5.1	8.8	15.2	5.0
Insecticides and disinfectants	0.1	2.3	1.4	0.8	3.6	7.0	5.4	9.2
Textiles, (silk, cotton and wool)	7.0	1.2	4.4	3.0	0.3	-	-	-
Woven fabrics	0.4	0.4	0.7	0.5	0.9	1.7	1.2	0.7
Pottery	0.8	1.2	1.3	1.3	0.6	0.6	0.9	0.9
Others	3.2	4.9	6.3	3.3	2.7	1.2	1.6	2.4
TOTAL	81.7	70.0	68.6	55.5	83.3	113.3	131.9	126.9
Intermediary Goods								
Oils, fats, butter for Industry	2.2	3.3	2.7	2.4	1.4	0.2	0.6	-
Tobacco	5.0	5.6	4.9	5.2	5.3	6.7	7.3	7.9
Coal	0.8	0.9	1.4	1.8	3.0	2.5	2.5	5.0
Crude Oil	0.7	12.5	11.8	11.1	9.8	26.2	37.9	29.9
Lubricating oils	1.4	1.8	1.8	2.2	1.3	2.2	2.4	3.0
Mazout, diesel and solar oil	4.3	3.7	4.1	4.0	2.3	1.3	1.6	0.3
Chemical salts and products	6.5	11.9	13.1	7.3	7.0	13.9	19.1	12.0
Fertilizers	12.1	8.8	8.8	7.8	6.0	6.4	4.6	12.2
Hides and Skins	0.3	0.7	1.0	0.8	0.6	0.6	1.0	0.6
Rubber	1.6	1.8	1.6	1.7	1.2	1.9	2.7	2.2
Wood	7.0	9.3	7.8	8.7	8.9	9.9	11.3	15.6
Pulp for paper	0.2	1.4	1.4	1.8	2.6	2.7	3.4	2.5
Cardboard and paper	4.7	7.2	7.2	8.6	7.6	6.2	4.2	3.3
Wool (raw)	1.8	3.5	3.7	3.5	3.0	4.8	5.0	6.0
Jute (raw)	0.1	0.6	0.5	2.6	2.8	2.0	1.9	1.8
Jute sacks (empty)	1.8	2.0	2.0	3.4	2.3	1.8	1.0	6.1
Pig-iron, haematite and spiegle iron	0.1	0.4	0.4	0.9	2.4	1.8	1.5	1.8
Bars and corners of iron and steel	2.3	1.9	3.2	2.9	3.4	6.9	6.3	5.7
Rails, railway sleepers of iron and steel	0.5	1.5	0.4	0.8	1.9	0.9	0.9	1.0
Sheets of iron or steel	1.5	2.8	2.4	3.4	3.1	4.3	4.6	7.3
Tubes, pipers and points of iron or steel	1.9	2.2	4.0	3.2	3.3	4.2	3.8	2.9
Others	5.3	4.9	5.6	4.4	3.5	5.7	6.9	6.5
TOTAL	62.0	88.4	89.2	88.6	82.2	113.3	130.6	133.6
Investment Goods								
Structures of iron or steel	0.9	1.3	0.8	1.8	2.8	7.2	10.7	6.2
Boilers and auxiliary parts	0.4	0.5	0.1	0.2	0.8	2.2	3.7	2.2
Pumps, engines and parts	2.8	3.8	4.8	5.2	3.8	7.8	10.7	7.9
Locomotives and tenders	0.5	0.8	0.5	4.8	14.5	3.3	3.6	4.9
Tractors	0.5	1.8	2.2	1.8	3.3	4.5	2.6	1.7
Lifting and loading apparatus	0.7	0.6	0.7	0.7	0.9	0.6	1.4	1.0
Machine tools	0.8	2.1	1.5	1.5	1.1	3.4	3.8	1.6
Machinery and looms for weaving and parts	3.0	6.3	6.5	6.3	3.8	4.1	5.6	2.0
Machinery and apparatus for industry or agriculture	2.5	9.1	11.4	7.5	3.2	4.7	9.8	4.7
Parts of Machinery, mechanical and transmission apparatus	2.0	3.0	2.5	3.2	1.5	3.1	6.4	8.1
Generators, motors, transformers	0.8	1.5	1.1	1.2	1.6	2.5	3.8	7.0
Electric cable and wire (insulated)	1.7	3.1	1.4	1.1	1.4	1.0	2.2	2.4
Electric apparatus and parts	4.3	6.4	5.1	4.7	6.6	10.9	14.1	12.2
Parts, accessories, motors and chassis for automobiles, buses, lorries and passenger cars	3.2	6.1	4.5	3.4	4.0	10.2	16.8	12.1
Buses, lorries and passenger cars	2.6	3.2	5.6	2.9	2.8	4.1	7.2	5.0
Airplanes	0.5	0.7	1.2	0.6	5.8	2.3	1.4	3.0
Ships	0.1	1.8	-	2.3	2.3	2.4	0.6	1.3
Others	7.1	10.5	8.4	8.8	7.6	8.3	9.7	9.0
TOTAL	34.3	62.0	58.0	57.9	68.1	82.8	114.2	92.3
Other imports (unspecified)	11.7	15.5	10.1	22.7	28.1	44.5	42.0	47.9
TOTAL IMPORTS 1/	189.7	235.9	225.9	224.7	261.7	353.9	418.7	400.7

1/ Totals may not add because of rounding.

Source: Central Bank of Egypt

Table A36: Destination of Exports

	1952/53		1958/59		1959/60		1960/61		1961/62		1962/63		1963/64		1964/65	
	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%
Arab countries	9,652	6.1	15,434	9.5	21,548	11.3	23,501	12.3	19,407	12.9	19,561	9.9	21,659	9.1	18,886	7.1
Eastern Europe	24,559	15.6	80,939	50.0	80,260	42.3	87,216	46.2	59,992	39.7	79,334	40.1	104,432	43.8	126,827	47.8
Western Europe	77,163	49.0	35,845	22.2	39,738	20.9	30,619	16.2	38,968	25.8	52,583	26.6	59,601	25.0	58,980	22.2
The Americas	11,818	7.5	3,229	2.0	10,530	5.5	16,400	8.7	13,003	8.6	12,769	6.5	15,490	6.5	13,240	5.0
Far East	28,652	18.2	23,101	14.3	34,516	18.2	27,992	14.8	14,419	9.6	27,344	13.8	29,492	12.4	40,563	15.3
Other countries	5,768	3.6	3,170	2.0	3,326	1.8	3,237	1.7	5,199	3.4	6,227	3.1	7,653	3.2	6,705	2.6
TOTAL	157,612	100.0	161,718	100	189,918	100	188,965	100	150,988	100	197,818	100	238,237	100	265,201	100

Source: Central Bank of Egypt

TABLE A37: SOURCE OF IMPORTS

	1952-53		1958-59		1959-60		1960-61		1961-62		1962-63		1963-64		1964-65	
	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%	LE '000	%
Arab Countries	13,026	7.0	14,702	6.2	20,601	9.1	19,391	8.6	12,549	4.8	24,191	6.8	36,470	8.7	34,368	8.6
Eastern Europe	17,161	9.0	78,015	33.1	57,385	25.4	60,906	27.1	57,266	21.9	76,345	21.6	71,494	17.1	78,561	19.6
Western Europe	83,455	44.0	92,862	39.4	82,447	36.4	70,652	31.5	87,341	33.4	118,600	33.6	145,385	34.7	134,046	33.4
The Americas	59,179	31.2	26,645	11.3	40,339	17.9	43,163	19.2	68,317	26.1	92,701	26.2	122,700	29.3	110,639	27.6
Far East	9,937	5.2	20,552	8.7	20,731	9.2	27,377	12.2	26,968	10.3	33,378	9.4	29,650	7.1	33,588	8.4
Other Countries	6,869	3.6	3,107	1.3	4,443	2.0	3,175	1.4	9,259	3.5	8,608	2.4	13,022	3.1	9,558	2.4
T O T A L	189,627	100.0	235,883	100.0	225,946	100.0	224,664	100.0	261,700	100.0	353,823	100.0	418,720	100.0	400,760	100.0

Table A38: PROJECTION OF INVESTMENT AND RESOURCE GAP
(LE million at 1964/65 prices)

S = Savings
G = Resource gap, i.e., balance of payments deficit

	All Alternatives		Alternative					
	Production	Investment	I		II		III	
			S	G	S	G	S	G
Base Year (1964/65)	1884	340	253	87	253	87	253	87
1965/66	2020	364	279	85	283	81	278	86
1966/67	2166	390	308	82	316	74	305	85
1967/68	2322	418	340	78	352	66	334	84
1968/69	2459	448	377	71	394	54	364	83
1969/70	2668	480	417	63	440	40	399	81
Total		2100	1721	379	1785	315	1681	419
	1970/71	515	461	54				
	1971/72	551	509	42				
Total over 7 years		3166	2691	475				
Growth Rates:								
Production:	7.2							
Investment:		7.15						
Savings:			10.5		11.7		9.5	
Average Savings Rate:		1965/66	13.4		13.4		13.4	
		1969/70	15.6		16.5		14.9	
Marginal Savings Rate:		1965/66	19.1		22.0		18.7	
		1969/70	22.3		25.7		18.7	
Average Marginal Savings Rate over Five Years:			20.9		23.8		18.7	

Table A38: PROJECTION OF INVESTMENT AND RESOURCE GAP

(LE million at 1964/65 prices) (cont'd)

Notes: All alternatives provide for total investment of LE 3,166 million over seven years increasing at a constant rate each year. Assuming a constant capital/output ratio of 2.5 gives a growth rate of production of 7.2% per year.

Alternative I assumes the use of external resources will amount to LE 475, or 15% of total investment over the seven-year period, as planned.

Alternative II assumes that the use of external resources would be LE 315 million or 15% of total investment over the first five years.

Alternative III assumes that the marginal savings rate would remain the same as it was during the past five years.

If production were to grow at only 6% the savings rates would naturally have to be higher in order to keep the balance of payments deficit down to the target amount. The relevant figures are as follows:

		I	II
Average Savings Rate:	1965/66	13.4	13.4
	1969/70	16.5	17.4
Marginal Savings Rate:	1965/66	23.0	26.6
	1969/70	28.2	32.4
Average Marginal Savings Rate over Five Years:		25.7	29.4

Figures for the base year were derived from estimates provided by the Ministry of Planning.

The calculations given in this table are not forecasts; they are intended only to give some idea of how much savings will have to be increased if the plan is to be carried out with a manageable balance of payments deficit.

Table A39: UNITED ARAB REPUBLIC - EXTERNAL MEDIUM- AND LONG-TERM /1 PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

Item	Debt outstanding June 30, 1966		
	Including undisbursed	Net of undisbursed	Undisbursed balance
TOTAL EXTERNAL PUBLIC DEBT/2	1,661,789	993,082	668,707
Debt in convertible currency	758,957	626,115	132,842
Australia	267	267	-
Austria	957	635	322
Belgium	1,198	156	1,042
Canada	4,092	2,231	1,861
Denmark	5,290	2,875	2,415
Finland	1,378	1,378	-
France	36,961	28,143	8,818
Germany	148,460	112,895	35,565
Italy	123,018	89,136	33,882
Japan	35,199	19,831	15,368
Kuwait	118,788	118,788	-
Mexico	22,108	22,108	-
Netherlands	3,353	3,353	-
Norway	7	7	-
Saudi Arabia	5,996	5,996	-
Singapore	21	21	-
Spain	18,467	18,467	-
Sweden	13,908	9,159	4,749
Switzerland	5,283	1,966	3,317
United Kingdom	40,816	34,852	5,964
United States	131,890	112,351	19,539
IBRD loan	41,500	41,500	-
Debts to Eastern countries	902,832	366,967	535,865
Bulgaria	350	350	-
China	7,130	7,130	-
Czeschoslovakia	46,547	12,367	34,180
East Germany	20,734	5,338	15,396
Hungary	29,210	938	28,272
Poland	48,072	1,923	46,149
Rumania	10,769	161	10,608
U.S.S.R.	710,677	338,284	372,393
Yugoslavia	29,343	476	28,867

See footnotes at end of table.

Table A39: UNITED ARAB REPUBLIC - EXTERNAL MEDIUM- AND LONG-TERM /1 PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966
(CONT.)

/1 Debt with an original or extended maturity of one year or more.
/2 Does not include the following items:

a) U.A.R. quota in the African Development Bank
b) IMF purchases
c) £ 10 million compensation to Shell Oil Company. Terms of the agreement are not available
d) Uncommitted portions of frame agreements:

Bulgaria	LE 5,244,000
China	LE 31,400,000
Czechoslovakia	LE 48,675,000
East Germany	LE 41,640,000
Hungary	LE 19,036,000
U.S.S.R.	LE 42,313,000
Yugoslavia	LE 8,435,000
Total	LE 196,743,000

Sources: Tables prepared by the Economic Cooperation Department of U.A.R. For IBRD and U.S. Government loans, creditor sources were used.

Statistics Division
IBRD-Economics Department
October 7, 1966

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

GRAND TOTAL

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	1,574,170	91,778	10,353	102,131
1967	1,482,392	140,429	27,778	168,206
1968	1,341,963	126,767	28,188	154,955
1969	1,215,196	119,253	25,834	145,087
1970	1,095,943	153,794	33,344	187,138
1971	942,149	138,499	28,755	167,254
1972	803,650	127,044	22,478	149,523
1973	676,605	107,799	18,914	126,714
1974	568,806	98,917	15,220	114,138
1975	469,889	87,333	12,268	99,601
1976 and after	382,556	382,556	n.a.	n.a.

DEBT IN CONVERTIBLE CURRENCY

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	738,037	82,998	9,562	92,560
1967	655,140	102,099	17,950	120,049
1968	553,040	85,740	17,792	103,532
1969	467,301	78,467	14,900	93,367
1970	388,834	72,342	17,032	89,374
1971	316,492	57,367	13,934	71,301
1972	259,125	49,988	9,854	59,841
1973	209,137	34,779	7,573	42,352
1974	174,358	29,142	5,749	34,891
1975	145,216	22,636	4,524	27,160
1976 and after	122,580	122,580	n.a.	n.a.

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

AUSTRALIA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	267	18	7	25
1967	248	37	14	51
1968	212	37	9	46
1969	175	37	9	46
1970	138	37	7	44
1971	101	37	5	41
1972	64	37	5	41
1973	28	28	2	30

AUSTRIA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	759	191	-	191
1967	568	117	39	156
1968	451	117	18	136
1969	333	117	16	133
1970	216	106	9	115
1971	110	110	5	115

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

BELGIUM

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	1,198	207	14	221
1967	991	225	46	271
1968	766	223	41	264
1969	543	200	30	230
1970	343	200	23	223
1971	143	143	7	149

CANADA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	4,092	281	-	281
1967	3,811	446	230	676
1968	3,365	446	216	662
1969	2,919	446	202	649
1970	2,472	446	189	635
1971	2,026	446	175	621
1972	1,580	446	161	607
1973	1,134	446	147	593
1974	688	446	133	580
1975	241	241	60	301

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

DENMARK

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	5,290	734	136	869
1967	4,556	1,217	235	1,451
1968	3,340	1,242	177	1,419
1969	2,098	837	120	957
1970	1,260	839	69	908
1971	421	421	7	428

FINLAND

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	1,378	78	14	92
1967	1,299	414	62	476
1968	885	439	41	481
1969	446	446	23	469

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

FRANCE

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	36,961	15,969	69	16,038
1967	20,992	7,137	122	7,259
1968	13,855	4,076	163	4,239
1969	9,780	3,970	104	4,073
1970	5,810	3,176	58	3,234
1971	2,633	1,334	28	1,362
1972	1,299	1,299	12	1,311

GERMANY

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	148,460	8,193	2,995	11,187
1967	140,268	14,347	5,945	20,293
1968	125,920	17,577	5,750	23,327
1969	108,344	18,927	4,828	23,754
1970	89,417	17,643	3,802	21,445
1971	71,774	14,274	2,914	17,188
1972	57,500	13,784	1,493	15,277
1973	43,716	10,660	862	11,523
1974	33,056	7,116	481	7,597
1975	25,939	7,072	304	7,376
1976 and after	18,867	18,867	n.a.	n.a.

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

ITALY

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	102,297	13,469	2,268	15,727
1967	88,837	18,014	3,231	21,245
1968	70,824	20,937	3,510	24,447
1969	49,887	18,257	2,470	20,728
1970	31,630	12,422	1,654	14,076
1971	19,207	9,770	1,251	11,022
1972	9,437	6,148	184	6,332
1973	3,289	966	129	1,095
1974	2,323	966	74	1,040
1975	1,357	966	18	984
1976 and after	391	391	n.a.	n.a.

JAPAN

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	35,199	2,256	409	2,666
1967	32,943	7,424	1,412	8,837
1968	25,518	6,997	1,212	8,209
1969	18,522	5,239	897	6,136
1970	13,282	3,997	658	4,655
1971	9,285	2,518	389	2,907
1972	6,767	2,231	271	2,502
1973	4,536	1,667	172	1,840
1974	2,868	1,523	90	1,612
1975	1,345	672	37	708
1976 and after	673	673	n.a.	n.a.

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

KUWAIT

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	118,788	3,579	-	3,579
1967	115,209	704	-	704
1968	114,505	1,918	908	2,827
1969	112,587	2,852	1,414	4,266
1970	109,735	9,892	6,714	16,606
1971	99,843	9,892	6,079	15,971
1972	89,951	10,366	5,435	15,801
1973	79,585	10,366	4,772	15,139
1974	69,218	10,366	3,977	14,343
1975	58,852	10,366	3,457	13,823
1976 and after	48,486	48,486	n.a.	n.a.

MEXICO

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	22,108	9,517	-	9,517
1967	12,590	12,590	-	12,590

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

NETHERLANDS

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	3,353	2,691	-	2,691
1967	662	662	-	662

NORWAY

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	7	7	-	7

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

SAUDI ARABIA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	5,996	1,407	-	1,407
1967	4,589	2,815	-	2,815
1968	1,774	887	-	887
1969	887	887	-	887

SINGAPORE

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	21	21	-	21

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

SPAIN

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	18,467	1,863	-	1,863
1967	16,604	3,685	-	3,685
1968	12,919	3,685	-	3,685
1969	9,234	3,685	-	3,685
1970	5,550	3,685	-	3,685
1971	1,865	1,865	-	1,865

SWEDEN

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	13,908	3,524	-	3,524
1967	10,384	3,402	-	3,402
1968	6,983	3,303	-	3,303
1969	3,680	1,502	-	1,502
1970	2,178	1,212	-	1,212
1971	966	966	-	966

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

SWITZERLAND

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	5,283	943	14	957
1967	4,340	927	18	945
1968	3,413	1,132	5	1,136
1969	2,282	570	-	570
1970	1,711	570	-	570
1971	1,141	570	-	570
1972	570	570	-	570

UNITED KINGDOM

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	40,816	10,000	692	10,693
1967	30,815	10,460	1,097	11,557
1968	20,355	6,675	816	7,491
1969	13,680	4,759	639	5,398
1970	8,922	3,236	504	3,740
1971	5,686	2,486	400	2,886
1972	3,199	2,245	223	2,468
1973	954	954	-	954

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

UNITED STATES

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	131,890	5,960	1,701	7,661
1967	125,930	13,476	3,188	16,663
1968	112,454	12,051	2,854	14,904
1969	100,404	11,735	2,317	14,052
1970	88,669	9,379	1,779	11,158
1971	79,290	7,033	1,437	8,470
1972	72,257	7,361	1,163	8,524
1973	64,896	4,190	909	5,100
1974	60,706	3,225	747	3,972
1975	57,480	3,319	649	3,967
1976 and after	54,161	54,161	n.a.	n.a.

IBRD LOAN

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	41,500	2,000	1,244	3,244
1967	39,500	4,000	2,310	6,310
1968	35,500	4,000	2,070	6,070
1969	31,500	4,000	1,830	5,830
1970	27,500	5,500	1,568	7,068
1971	22,000	5,500	1,238	6,738
1972	16,500	5,500	908	6,408
1973	11,000	5,500	578	6,078
1974	5,500	5,500	248	5,748

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

DEBTS TO EASTERN COUNTRIES

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	836,133	8,880	791	9,671
1967	827,252	38,329	9,828	48,157
1968	788,923	41,027	10,396	51,423
1969	747,896	40,786	10,934	51,720
1970	707,110	81,452	16,312	97,764
1971	625,657	81,132	14,821	95,954
1972	544,525	77,057	12,625	89,682
1973	467,468	73,020	11,341	84,362
1974	394,448	69,775	9,471	79,246
1975	324,673	64,697	7,744	72,441
1976 and after	259,976	259,976	n.a.	n.a.

BULGARIA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	350	117	-	117
1967	232	138	-	138
1968	94	94	-	94

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

CHINA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	7,130	-	-	-
1967	7,130	-	-	-
1968	7,130	-	-	-
1969	7,130	-	-	-
1970	7,130	-	-	-
1971	7,130	-	-	-
1972	7,130	713	-	713
1973	6,417	713	-	713
1974	5,704	713	-	713
1975	4,991	713	-	713
1976 and after	4,278	4,278	n.a.	n.a.

CZECHOSLOVAKIA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	46,547	1,203	336	1,539
1967	45,344	8,018	1,253	9,271
1968	37,327	7,385	1,056	8,441
1969	29,941	6,861	828	7,689
1970	23,080	6,854	513	7,367
1971	16,226	5,998	430	6,428
1972	10,228	3,250	262	3,512
1973	6,978	1,847	172	2,019
1974	5,131	1,635	115	1,750
1975	3,496	1,635	53	1,688
1976 and after	1,861	1,861	n.a.	n.a.

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

EAST GERMANY

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	20,734	1,256	87	1,343
1967	19,479	1,753	294	2,047
1968	17,726	1,736	237	1,973
1969	15,990	1,962	547	2,509
1970	14,028	2,394	377	2,771
1971	11,633	2,210	310	2,521
1972	9,423	1,769	246	2,015
1973	7,654	1,702	195	1,897
1974	5,952	1,171	241	1,412
1975	4,782	1,157	120	1,276
1976 and after	3,625	3,625	n.a.	n.a.

HUNGARY

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	29,210	757	55	812
1967	28,453	3,137	327	3,464
1968	25,316	4,133	425	4,559
1969	21,183	4,020	414	4,434
1970	17,163	3,827	409	4,237
1971	13,335	3,767	333	4,101
1972	9,568	2,811	223	3,034
1973	6,757	2,811	154	2,965
1974	3,947	2,061	90	2,150
1975	1,886	1,065	39	1,104
1976 and after	821	821	n.a.	n.a.

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

POLAND

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	48,072	902	170	1,072
1967	47,171	1,205	175	1,380
1968	45,965	1,212	154	1,366
1969	44,753	1,212	136	1,348
1970	43,541	5,154	1,035	6,189
1971	38,387	5,021	922	5,943
1972	33,366	4,851	810	5,660
1973	28,515	4,841	701	5,543
1974	23,674	3,942	552	4,494
1975	19,732	3,942	460	4,402
1976 and after	15,790	15,790	n.a.	n.a.

RUMANIA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	10,769	25	-	25
1967	10,743	361	46	407
1968	10,382	1,256	202	1,458
1969	9,126	1,523	218	1,741
1970	7,604	1,513	186	1,700
1971	6,090	1,513	152	1,665
1972	4,577	1,513	48	1,562
1973	3,064	1,504	-	1,504
1974	1,559	1,267	-	1,267
1975	292	292	-	292

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollar equivalents)

U.S.S.R.

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966 /2	643,977	3,443	48	3,491
1967	640,534	22,423	7,601	30,024
1968	618,111	22,995	8,052	31,048
1969	595,116	22,995	8,579	31,574
1970	572,120	58,372	13,393	71,765
1971	513,749	58,372	12,137	70,509
1972	455,377	58,213	10,624	68,837
1973	397,164	56,913	9,800	66,714
1974	340,250	56,506	8,236	64,743
1975	283,744	53,592	6,918	60,511
1976 and after	230,152	230,152	n.a.	n.a.

YUGOSLAVIA

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
1966/2	29,343	1,178	94	1,272
1967	28,166	1,295	131	1,426
1968	26,871	2,215	269	2,484
1969	24,656	2,213	212	2,424
1970	22,443	3,337	398	3,735
1971	19,106	4,250	536	4,786
1972	14,856	3,938	412	4,349
1973	10,918	2,689	317	3,006
1974	8,229	2,479	237	2,716
1975	5,750	2,300	154	2,454
1976 and after	3,450	3,450	n.a.	n.a.

See footnotes at end of table.

Table A40: UNITED ARAB REPUBLIC - ESTIMATED CONTRACTUAL SERVICE PAYMENTS ON EXTERNAL MEDIUM- AND LONG-TERM PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1966 /1 (CONT.)

Debt Repayable in Foreign Currency

/1 Includes service on all debts listed in Table 1 prepared October 7, 1966 except the following loans, for which the amortization terms are not available:

Austria	$ 198,000
Italy	$20,721,000
U.S.S.R.	$66,700,000
	$87,619,000

/2 Amounts outstanding are as of June 30, 1966; payments in 1966 are for the second half of the year only.

Sources: Tables prepared by the Economic Cooperation Department of U.A.R. for IBRD and U.S. government loans, creditor sources were used.

Statistics Division
IBRD-Economics Department
October 7, 1966

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

Economics Department Working Paper No. 11

THE FOREGONE BENEFITS AND COSTS OF A PREVENTED BIRTH: CONCEPTUAL PROBLEMS AND AN APPLICATION TO THE U.A.R.

January 23, 1968

This paper was completed by Mr. Zaidan before joining the service of the Bank. It is issued for the information of staff members in this form because it deals with a subject of considerable interest to the Bank. This draft has been submitted for publication and it is expected that the final version will be reissued by the Harvard Center for Population Studies, who supported the research on which the paper is based. The paper is not to be quoted without the author's permission.

Applied Quantitative Research Division

Prepared by: George C. Zaidan

THE FOREGONE BENEFITS AND COSTS OF A PREVENTED BIRTH:

Conceptual Problems and an Application to the U.A.R.*

Introduction:

1. Among the chief problems that many underdeveloped countries face today, is the "problem of overpopulation." As a result of the large drop in death rates following World War II, the rate of population growth has accelerated to an extent which seriously imperils the success of many efforts at economic development. Since the manipulation of death rates cannot be considered a policy variable, various studies have tried to investigate the effect of a lower fertility on economic development. Attempts to quantify this relationship have taken two forms. The first is that of Coale and Hoover,[1/] who use various assumptions which enable them to trace the path of per capita income with and without a reduction in fertility.

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* This paper is an abbreviated version of part of my unpublished Ph.D. dissertation, "Benefits and Costs of Population Control with Special Reference to the U.A.R. (Egypt), "Harvard University, 1967. (Henceforth this source is referred to as BCPC). It is Contribution No. 37 from the Harvard Center for Population Studies. I wish to thank Professor H. Leibenstein for many helpful comments. This research was supported with a grant from the Harvard Center for Population Studies, for which grateful acknowledgment is made.

1/ A.J. Coale and E.M. Hoover, Population Growth and Economic Development in Low Income Countries, Princeton University Press, 1958.

The second, introduced by Enke,[1] is to treat investment in population control as any other economic project, and to work out a benefit-cost analysis of such an investment. Very briefly, the essence of this approach is to work out the consumption and productivity streams of an unborn child, and - after appropriate discounting - to subtract the latter from the former to get the net economic benefits of preventing a birth. These benefits are measured in terms of the income stream that becomes available to the economy as a whole, as a result of preventing one birth. Taking this approach as our starting point, the object of this paper is (a) to refine and extend this analysis, both by working out the upper and lower limits of the above benefits, as well as trying to include additional effects that are capable of being quantified, and (b) to explicitly analyze the assumptions and hence limitations of such a procedure. To this end, we can conveniently break down the discussion of this paper into three separate parts. The first is a description of the various effects and their combination in a benefit-cost criterion. The second considers the conceptual problems arising out of the application of such a criterion, and the third applies our framework to the case of the U.A.R., in order to get an estimate of the various magnitudes involved.

1/ S. Enke, "The Gains to India from Population Control: Some Money Measures and Incentive Schemes," The Review of Economics and Statistics, Vol. XLII, No. 2, May 1960, pp. 175-181, and also "The Economics of Government Payments to Limit Population," Economic Development and Cultural Change, Vol. VIII, No. 4, July 1960, pp. 339-348. The conceptual framework is also outlined in Economics for Development, Prentice-Hall Inc., 1963, Chapter 20 and in "The Economic Aspect of Slowing Population Growth, "Economic Journal, Vol. LXXVI, March 1966.

I - The Benefit -Cost Criterion:

2. The effect of preventing a specified number of births can affect per capita income through several possible paths. First, and almost by definition the per capita income is increased because the unborn child would have added nothing to production, whereas he would have been a consumer. Thus, the same national output is divided among a smaller population. This is so in the short-run[1] when the size of the labor force is unaffected by what is happening to fertility. In a longer perspective, however, the unborn child would have joined the labor force, so that output is smaller in the lower fertility case. This reduction is measured by the marginal product of labor. Thus the net benefits of this initial effect can be measured by the difference between the consumption stream and productivity stream of an unborn child.

3. Second, as a result of the initial increase in per capita income, either consumption per worker and/or savings per worker will rise. This in turn will increase the rate of growth of income. Hence, not only is the same national output being divided among fewer people, but also the national output itself may be larger, as a result of a lower fertility. Let us look at how this can occur.

4. First it can occur through the wage productivity effect, which has been analyzed by H. Leibenstein.[2] The basis of this effect is that the increased food consumption resulting from the initial increase

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1/ The "short-run" is defined here as the length of time between birth and the average age at which persons enter the labor force.

2/ H. Leibenstein, Economic Backwardness and Economic Growth, New York, 1957, Ch. 6, pp. 62-69.

in per capita income will lead to an increased supply of effort resulting in a greater output. The strength of the relationship between increased income per capita and greater output depends on the following intervening links: It depends on (i) the marginal propensity to consume food, (ii) the resulting increased calorie intake, (iii) the increased supply of effort, (iv) the marginal product of effort.

5. The greater the magnitude of relationships (i) through (iv), the greater the magnitude of the wage productivity effect. In the context of underdeveloped countries, the existence of such an effect implies that (i) the per capita consumption is below the minimum calorie requirements and (ii) that the marginal product of effort is not zero. Even when this effect is present, one must allow for the fact that it is only the consumption of workers that adds to output. Thus one must only take into account the proportion of the initial increase in income that goes to members of the labor force, and only in those periods of the year where there is no seasonal unemployment.

6. Next, turning to the savings effect, we note that the total output may be larger because of changes in savings patterns resulting from the initial increase in income. Here it is worth noting that the relevant changes are those that occur in savings per worker and not savings per head. (Since, in the short-run the size of the labor force is constant, requiring more savings per worker is the same as requiring larger total savings). Because the population is smaller in the low

fertility case, a higher savings per head need not imply more capital per worker.1/ It is the latter which is necessary to secure a higher rate of growth of output. Thus, in the short-run what is necessary are larger total savings, and not merely more savings per head whereas in the long-run - when the labor force is smaller in the low fertility case - even the same total savings result in more capital per worker and which is beneficial.

1/ Here it is worth noting the difference between the wage productivity and the savings effect. In the former if the marginal propensity to consume (out of the increased per capita income) is the same as the average one, then there will still be an increase in output, because workers will be getting more food per head. With the savings effect, however, a marginal propensity to save (out of the increased per capita income) that is equal to the average one, will only lead to an increase in savings per head, but not to an increase in savings per worker. Hence, there are no benefits of increased output. The latter arise only if, and to the extent that, the marginal propensity to save exceeds the average one. The reason for this difference is that all capital is used by the labor force, whereas it consumes only part of total consumption. This means that in order to increase capital per worker, total savings must increase, (which in turn means that marginal savings must exceed average ones), whereas it is not necessary for total consumption to increase, in order to raise consumption per head. The latter can occur by switching food from the "non-labor" force to the labor force. In the case of a prevented birth, this would occur because part of the consumption that the unborn child would have used up, is diverted to the labor force. Hence, food intake per worker is increased, even with the same total consumption.

7. Combining the above three effects[1] we shall measure the net foregone benefits of a prevented birth by applying the following formula:

$$\sum_{i} \frac{y_i}{(1+r)^i} + f.k.h. \frac{\bar{i}\cdot y_i}{(1+r)^{\bar{i}}} + r(s-S) \sum_{i} \sum_{\substack{j \\ i \neq j}} \frac{y_i}{(1+r)^j} + r \sum_{i} \sum_{\substack{j \\ i \neq j}} \frac{x_i}{(1+r)^j}$$

where $y_i = (c_i - mp_i)(1-q_i)$ and where the summation extends to the end of our time horizon.

8. In this expression the symbols have the following meanings:

c_i = annual foregone consumption of the unborn child between ages i and (i + 1).

mp_i = annual foregone production (the marginal product of labor) of the unborn child between ages i and (i + 1).

q_i = probability of death between ages i and (i + 1). "1 - q_i" is therefore, the probability of survival.

y_i = is, therefore, the net income stream of an unborn child, allowance being made for the possibility that that unborn child may have died at various ages.

1/ One other effect which we do not consider is the possibility that different fertility patterns will affect the capital-output ratio. The argument here is that a reallocation of resources away from sectors with a high capital-output ratio (such as housing) will lead to a faster rate of growth of output. The reason for not considering such an effect is threefold: First, only a small proportion of total investment can be thought of as being linked to population. Second, even here the relationship is not clear. Housing for instance is related to urbanization as well as changes in family size, and the relationship between the latter two and a reduction in fertility is not direct. Finally, even if there is a reallocation of investment, the time lag is so long that even moderate discounting would make this effect quantitatively negligible.

f = marginal propensity to consume food by the labor force in periods of the year when there is no seasonal unemployment.

k = a constant that converts expenditures on food into an extra supply of effort via increased calorie intake.

h = the marginal product of effort.

x_i = the cost of education between ages i and (i + 1).

r = discount factor = marginal product of capital.

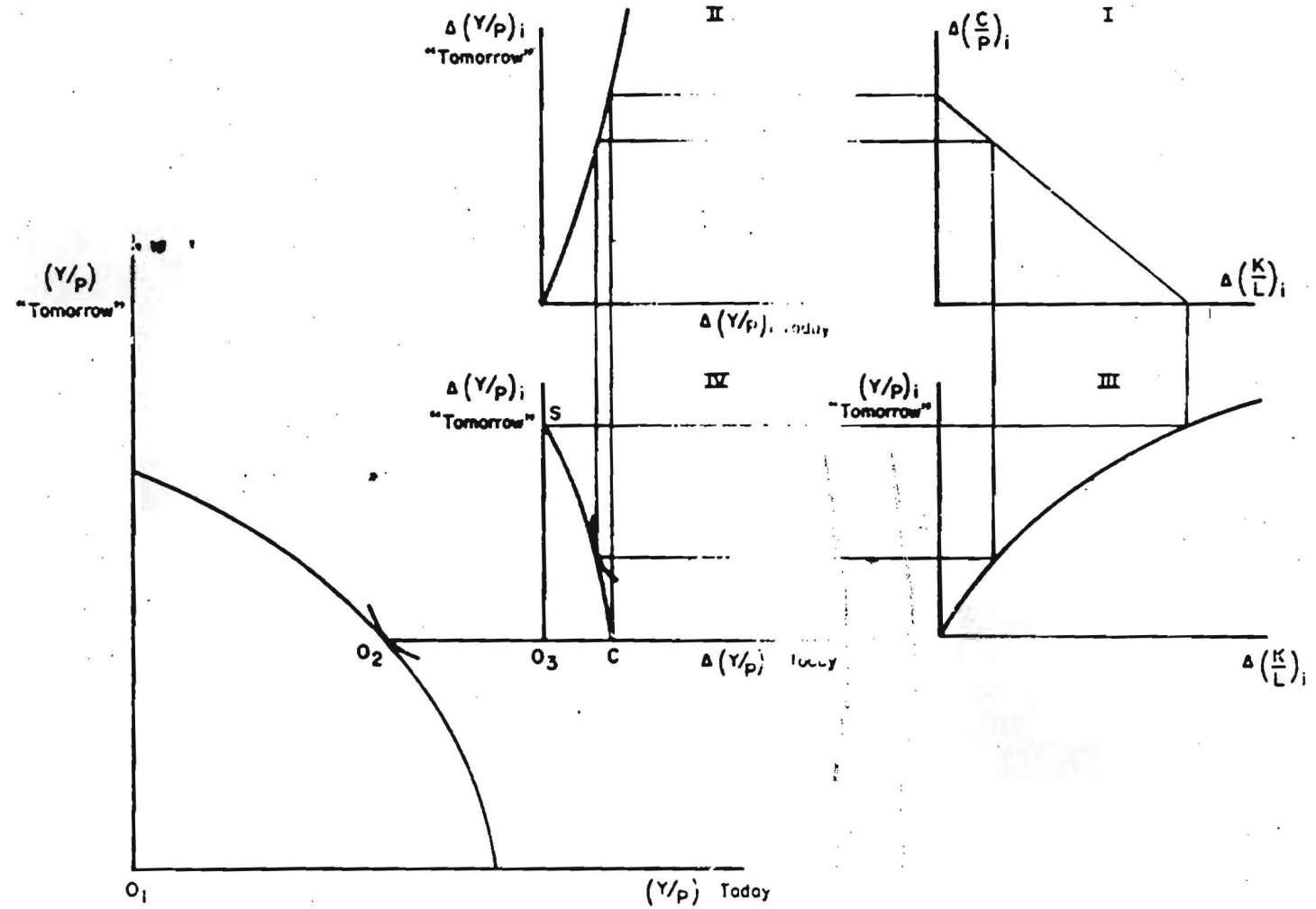
S = propensity to save before the reduction in fertility.

s = propensity to save out of the increased per capita income.

8. This expression is the net income stream made available to the economy as a result of preventing one birth. Its first term is the net discounted consumption stream minus productivity stream of an unborn child, which is our first effect. The second term is the wage-productivity effect, whereas the last two terms are the savings effect for individuals and the government respectively. The reason for making a distinction between both, is that different assumptions may be justified in each case. For individuals there is very little information as regards the relationship between demographic trends and savings behavior.1/

1/ The theoretical relationships between savings behavior and the rate of the population growth have been analyzed by P. Demeny in "Demographic Aspects of Saving, Investment, Employment and Productivity", Paper No. 460, United Nations World Population Conference, Belgrade, 1965. The discussion is inconclusive and there are no empirical studies at the micro-level of the relationship between family size and savings in less developed countries. However, some unpublished work shows that the dependency burden is an important explanatory variable in accounting for differences in gross domestic savings among a large sample of developed and less developed countries.

9. To return to our expression, it is seen that each of its terms correspond to one of our effects. It may be helpful to see the interaction of these effects with the aid of a diagram. In Part I of Figure One the increased consumption per head resulting from the prevention of a specified number of births, is measured on the vertical axis while the increased savings per worker is measured on the horizontal axis. In Part II we show the effect of the increased consumption per head on the increased income per head during the current period--i.e. income per head today. This curve subsumes many relationships behind it, that have already been mentioned. In particular the following leakages account for the fact that it exhibits diminishing returns: (1) Only part of the increased consumption per head results in increased food intake per head. (2) Not all of the increased food intake per head goes to people who are in the labor force. (3) Because of seasonal unemployment in agriculture the increased food intake during some parts of the year does not result in an increased supply of effort. (4) Because of diminishing returns to factor equal increases in the supply of effort lead to less than proportional increases in output. In Part III, assuming all savings are invested, the increased capital per worker is plotted against the increased income per head that it is likely to generate in all future time periods. Here, too, diminishing returns to capital are shown. Finally in Part IV we see the alternatives that are possible between income today or in the future, and time preference will determine what proportion of the increased income is saved and what proportion is consumed. Enlarging Part IV we can think of O_2 as the point at which the economy would have been if there had been no reduction in fertility.


II
$\Delta (Y/P)_i$
"Tomorrow"
$\Delta (Y/P)_i$ Today
I
$\Delta \left(\frac{C}{P}\right)_i$
$\Delta \left(\frac{K}{L}\right)_i$
IV
$\Delta (Y/P)_i$
"Tomorrow"
S
O_3
C
$\Delta (Y/P)_i$ Today
III
$(Y/P)_i$
"Tomorrow"
$\Delta \left(\frac{K}{L}\right)_i$
(Y/P)
"Tomorrow"
O_2
O_1
(Y/P) Today

The initial increase in per capita income can be thought of as providing O_2O_3 more of present income. Then this increased income could be either wholly consumed or saved. If it were all consumed, the increased income would be O_3C. If on the other hand it were all saved, the income increase in the future would be O_3S. Note that all the sequence portrayed in figure one refers to the foregone consumption and production stream of the unborn child during one year (all variables have an i subscript). If we sum these benefits over all years, and discount appropriately we would get our previous expression.

10. In conclusion, it may be helpful to point out that underlying all the above effects, is the change in the age distribution of the population, that accompanies the lower fertility. In the short-run our initial impact effect is a consequence of this, since it is the fact that (a) the labor force is unchanged while (b) the proportion of young people who consume but do not work decreases, that allows output per worker to remain unchanged while output per person increases. This initial increase in per capita income is in turn the basis of the wage productivity effect. Also the lower dependency burden is often one of the reasons for expecting larger total (private) savings. Finally, this changed age-distribution may influence both the total amount of government savings - because it allows resources that are devoted to the "consumption" of the young such as education to be diverted to material capital formation - as well as its allocation between different sectors. Thus the altered age-distribution turns out to be a major factor underlying all our effects.

II - The Applicability of our Criterion:

11. Before proceeding to apply our framework to the case of the U.A.R., it is well to discuss explicitly the assumptions, and hence limitations of the criterion developed above. At the outset, three points are worth emphasizing. The first is that our criterion views children exclusively as investment goods - no account being taken of the satisfaction of the parents derived from the "consumption " of their children. In an overpopulated and underdeveloped country, it can safely be assumed that the "social welfare function" - as opposed to the individual one-should not pay attention to such aspects. This brings us to the second point which is related, but distinct from, the above. This is that the returns from investment are viewed exclusively from the point of view of the country rather than the family.1/ The discrepancies between both approaches can be large. For instance, from the point of view of the family, the two main returns from "investing" in a child are (a) the earnings of the child, once he starts to work, and (b) the child as a source of old-age security. As far as (a) goes, what an individual is paid may be very different from the marginal product

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1/ For an analysis of the child as a consumption good, see G. Becker, "An Economic Analysis of Fertility", in Demographic and Economic Change in Developed Countries, Universities - National Bureau of Economic Research, Princeton, New Jersey, Princeton University Press, 1960. For an analysis of the child from the point of view of the family see H. Leibenstein, Economic Backwardness and Economic Growth, New York, 1957, Chapter 10, pp. 161-165.

of labor - which is his contribution to society. As far as (b) goes, preventing a birth may increase rather than diminish old-age security, from the point of view of society. This is so because a lower fertility reduces the proportion of dependents to the labor force.[1/] This means that the former (both the older groups and the "unprevented" or remaining young ones) can get more expenditure per head in the form of old-age security in the low fertility case.

12. The third point is that the benefits of our criterion assume that the birth is permanently prevented. If it is delayed, the benefits would be smaller depending on the form of the delay. This point is worth making because the benefits computed according to our criterion are often compared with the costs of a family planning program and the latter ones are found to be relatively insignificant. However, this comparison is legitimate only if the birth is permanently prevented. If it is merely delayed (as for instance if the initial acceptors in a family planning program are middle class urban women, who have not yet had the number of children they desire), then the costs of a family planning

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1/ For a general treatment of the determinants of the age distribution see A.J. Coale, "The Effects of Changes in Mortality and Fertility on Age Composition," Milbank Memorial Fund Quarterly, January 1956.

program are unchanged, but the net foregone benefits may be greatly affected, depending on the form of the delay.[1/]

13. Having cleared these points, there remains one disturbing aspect about our criteria which should be cleared up. This is that there is a built-in bias in our criterion that ensures that benefits will always exceed costs. This is as it should be for the case of the overpopulated and underdeveloped countries of today, but what is troubling is that this should also be the case for both (a) the developed countries of today and (b) those same countries in their early period of industrialization in the nineteenth century. In the latter case, our criterion would have shown large benefits from population control, whereas the subsequent development of these countries shows their economic growth to have been highly successful, partly <u>because</u> of the stimulating effects of

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1/ As a simple but unrealistic example, consider a woman who in the absence of a family planning program had a child every three years. Assume that she joins the program for one year, drops out, and then immediately has a child. As a result of this, there is a four year gap between her latest births. If it is further assumed that her next child follows after two years and that all following births are unaltered, then all that has happened is that the birth has been delayed for one year. The foregone benefits are the income stream of the unborn child minus the income stream of the born one. The absolute magnitude of both streams is the same, but discounting introduces a difference and determines the benefit. Other forms of delay can be imagined in which women do not catch up on lost time, but simply go on to have the same children over a longer total span of time. Here the benefits would be larger because several children are delayed. In general, the influence of discounting is such, that even "minor" forms of delay, result in benefits that are quantitatively larger than the government expenditures required to prevent one birth.

population growth. True, we have no way of checking whether these rates of population growth were "optimal," but at the very least they did not appear to hinder economic development. Under the circumstances, there appears to be an inconsistency between our criterion and the observed historical experience. It is this that has lead us to spell out the reasons and implications of the bias in our criterion. To this we now turn.

14. The large positive bias in expression (1)[1/] arises because the initial effect is always large and positive (as a consequence of this the wage-productivity and/or savings effects are also positive and further add to the benefits). This is due to three reasons.[2/] The first is that the average consumption is being compared with marginal product. In the long-run, average consumption and average production are identical. However, whereas an unborn child consumes, through his lifetime, as much as the average person, his marginal output falls short of the average.

1/ In the following paragraphs, and as was pointed out above, the child is viewed exclusively as an investment good. If the consumption aspects were also allowed for, and assuming that children are a joy to their parents, we would have to include the satisfaction that parents would have derived from their children, as well as the satisfaction of the latter from "being alive," to the cost side of preventing a birth. In practice, this presents insuperable problems of putting a subjective value on human life, as well as interpersonal and intertemporal comparisons of utility. In principle, however, this point may reduce the positive bias in our criterion.

2/ Besides these, S. Enke lists other (minor) reasons for this bias. See, "The Economic Aspects..." op. cit., footnote to p. 56.

Insofar as the difference between the average and marginal output is a measure of the extent of the pressure on limited resources, this source of bias is legitimate. If it were the only source of bias, it would not lead to the inconsistencies noted at the end of the previous paragraph. However, there are two other reasons for a large positive bias. The first is that the consumption and productivity streams are discounted. Since consumption starts immediately after birth, whereas production is delayed for at least ten to fifteen years, even moderate discounting greatly exaggerates the difference between the present value of both streams. The second is that throughout, consumption is treated as a cost - and, hence, the foregone consumption of the unborn child as a benefit. In general, it is not clear why this should be so, although it is certainly legitimate in some instances. Let us then look at the implications of (a) discounting and (b) treating foregone consumption as a benefit.

15. The discount rate that is used is meant to reflect both the time preference of society, as well as the productivity of capital. The existence of a preference for the present as given by Bohm-Bawerk is in terms of (i) the shortness of life, (ii) the deficiency of the imagination and (iii) limited willpower. Of these three, we may assume that the last two are not present in the farsighted leaders of a society - i.e. that, if at all present, they are limited to the "private" rather than social time preference. As for the first reason, its presence depends essentially on what exactly we mean by "society." If we take this to mean the individuals that compose it, then the first reason is a valid

basis for time-preferance. On the other hand, if we view society as an abstract entity that never dies - although the individuals that compose it do - then even the first basis of time-preference is invalid. This may explain to some extent the paradox outlined above. From the point of view of the persons living in the nineteenth century in countries that subsequently experienced rapid economic growth, it may have been valid to advocate a policy of population limitation. Viewing the matter from the present, however, and looking at a certain country as an abstract entity, it is doubtful whether we could endorse such a policy. Thus our criterion does not lead to inconsistencies so long as it is remembered that the benefits that are being considered are those accruing to the people that are living at the time the policy recommendation is made. Taking this point a step further, we can say that by specifying which age group within a population we are particularly interested in, will determine the length of our time horizon. For instance, if our time horizon extends to the average expectation of life at birth, then our net benefits are those that accrue to children being born today. Those who are older will reap only part of those benefits. Alternatively, if we take the time horizon to be, say only ten years, then those benefits accrue to all those who have a remaining expectation of life, exceeding ten years. We may, therefore, conclude, that the use of a (high) discount rate implies that we are considering the benefits for people alive today, rather than for society in an abstract sense, and that the length of the time horizon implicitly determines which age group we have in mind.

16. Turning next to the treatment of foregone consumption as a benefit, it is to be noted that this is by no means obvious or necessary. Indeed, there are various circumstances in which consumption could be assumed to exert a stimulating effect on economic growth. The crucial point is whether and to what extent insufficient demand constitutes a bottleneck on economic growth. If insufficient demand is a serious bottleneck, then population growth may be beneficial by stimulating consumption. This stimulating mechanism can take one of three forms. Faster population growth leads to a larger total consumption (even with no changes in per capita consumption), which by allowing the full exploitation of economies of scale, may make the introduction of certain industries profitable. Second, by leading to a faster rate of growth of total consumption, faster population growth can, via the acceleration mechanism, lead to a faster rate of growth of output. Finally, differentials in the rate of growth may have beneficial effects on consumption. This latter argument is that of Kuznets,[1/] and it can be summarized as follows: because the differential rate of population growth both as between urban and rural areas, and as between the higher and lower income groups, has moved historically in an opposite direction to the growth in economic opportunities, economic growth, when it had succeeded, was accompanied by a tremendous geographical and social mobility. A migrant into the cities is likely to consume a higher proportion of his income than his counterpart in the country because of the different values

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1/ S. Kuznets, "Population Growth and Aggregate Output," in Demographic and Economic Change in Developed Countries, Universities National Bureau of Economic Research, Princeton University Press, 1960.

prevailing in urban areas. He is also likely to respond and switch more quickly to the new and expanding industries. Both factors have a stimulating effect on economic growth.

17. In the light of the foregoing we may ask in what cases insufficient demand is a bottleneck to economic growth. Taking the case of the developed countries of today first, we observe that by looking at the various theories of growth that are an outgrowth of the Keynesian framework (Harrod-Domar and their offshoots) we see aggregate demand occupying a central position. Here we would argue that the opportunity to invest is an important bottleneck. Modern corporations have huge amounts of capital at their disposal in the form of undistributed profits. Alternatively they are able to raise all the capital they require if the investment opportunity is there. This is so from a long-term point of view even though they may experience temporary difficulties of financing in times of credit restriction. They also have the necessary skilled manpower and the managerial abilities of organization, so that their chief problem is one of finding an outlet for their products rather than satisfying a pre-existing demand.[1/] In this creation of demand, population growth is an important stimulating factor, although less so than at the time A. Hansen was developing his stagnation thesis.[2/] This is because of the increasing rate of technological progress during the postwar

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1/ This is the thesis of J.K. Galbraith, The Affluent Society, New York, 1958. See especially Chapter XI, on "The Dependence Effect."

2/ A. Hansen, "Economic Progress and Declining Population Growth," American Economic Review, Vol. XXIX, No. 1, Part 1, March, 1935.

period. Without wishing to assign a particular weight to the population factor, the point that the faster rate of growth of consumption associated with a faster rate of population growth has both cost and benefit elements which are not readily separable remains valid.

18. Next taking the case of underdeveloped countries of the nineteenth century and comparing them with those of today, we observe that they differ in one fundamental respect. The best summary of this difference is in a paper by H. Wallich.1/ Very briefly put, the thesis is that in the development of the advanced countries of today the driving force was the entrepreneur, the process was innovation and the goal was the enrichment of the entrepreneur. This picture, which is portrayed in Schumpeter's theory of economic development, no longer reflects the situation as it is today. Instead the impetus comes from the government, the process is imitation and the goal is the higher living standard of the masses. The former mechanism is production or supply oriented, the latter is demand or consumption oriented. Production and consumption are, of course, interdependent and each has a place in both outlooks, but there is nevertheless a genuine difference of where the impetus originates. In the former case the problem is to ensure that what is produced is sold. In the latter case consumption is present (and most would say "overpresent" pointing to the efforts of underdeveloped countries today to curb their excessive consumption) and it is a question of

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1/ H. Wallich, "Some Notes Towards a Theory of Derived Development," Paper reproduced in The Economics of Underdevelopment, New York, Oxford University Press, 1963, edited by A.N. Agarwala and S.P. Singh.

breaking through another bottleneck. What this other bottleneck is, is immaterial from our point of view. Whether it is the low levels of capital formation (savings) according to Nurkse,[1] the small share of profits in national income--all savings coming only from profits--as in the theory of Lewis[2] or the "inability to invest" as developed by Hirschman,[3] or finally any of a multitude of other reasons, insufficient demand is never the culprit.

19. We may, therefore, conclude that in both the case of the developed countries of today and these same countries in their early phase of industrialization, consumption had a different role than in that of most underdeveloped countries today. In the former cases, consumption - through the mechanisms outlined above - had stimulating, as well as braking effects, and it is impossible to disentangle the two. In such cases it is illegitimate to treat foregone consumption exclusively as a cost. This is yet another reason which resolves the paradox between our criterion and observed historical experience. Thus, even if we were looking exclusively at the interests of the people then living in countries about to embark on industrialization (i.e. even if we were discounting), it may have been of no benefit to them to have a policy of population limitation. We cannot say for sure, for it is impossible to

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1/ R. Nurkse, Problems of Capital Formation in Underdeveloped Countries, Oxford University Press, New York, 1961, pp. 57-70.

2/ A. Lewis, "Economic Development with Unlimited Supplies of Labor," The Manchester School of Economic and Social Studies, 23, May 1955, pp. 153-160; and The Theory of Economic Growth, Homewood, Illinois, 1955, pp. 225-244.

3/ A.O. Hirschman, The Strategy of Economic Development, Yale University Press, 1958, pp. 33-38.

disentangle the stimulating from the retarding effects of consumption. However, the major point of this whole analysis serves to emphasize that the applicability of our criterion is limited only to those situations in which insufficient demand is not an impediment to economic growth.

III - A Case Study of the U.A.R.:

20. The application of formula (1) requires information which can sometimes be obtained from the relevant data, and also some assumptions that must be made when the necessary data is unavailable. In the latter case, the net benefits will largely depend on these assumptions. For instance, no perfect capital market exists, and assuming social time-preference to lie between 10% and 15%, we made calculations for these two extremes. As far as the other assumptions go, these differ for each of our effects. Let us briefly look at them and their implications for the magnitude of the net benefits.

A. The Initial Effect:

21. The information that is required here is the consumption and marginal product of the average person at every age, together with the probability of survival to various ages. The latter can be deduced from vital and census statistics, which though inaccurate, do not greatly affect the final net benefits. Let us, therefore, concentrate on the former.

22. On the consumption side two problems arise. The first is the definition of "consumption." In his study for India, Enke defines this as GNP minus gross capital formation. This is the standard definition in the national accounts, but as a measure of benefits of an unborn

child, it can be criticized on three grounds: (1) that a lot of what is consumption is really investment from the point of view of economic growth. Examples of this are expenditures on education, health and other investment in human capital. (2) There is an element of grossness in consumption. Some government expenditures (such as maintaining law and order) as well as the higher costs of urban living resulting from greater concentration rather than because the goods are different from their counterpart in the country - both these forms of expenditures can be regarded as intermediate goods rather than final output. (3) Finally, some consumption expenditures are made independently of the rate of population growth and are, therefore, non-marginal. An example of this is defense expenditures. Adjusting for some of the above factors has a sizable effect, since for the U.A.R. it would reduce average consumption by about 25%. It can be argued that such a figure is a better measure of benefits because increased intermediate goods, as well as more (human) capital formation, does not increase the present welfare of the reduced population. However, increased (human) capital formation does increase the productivity of the labor force, but we have (a) no measure of this increase, and (b) the benefits accrue so far into the future that any discounting makes them negligible. Hence, it can plausibly be argued that the second definition - or an intermediate one - is more plausible. Our calculations take both definitions into account as possible upper and lower limits of the benefits.

23. The second problem on the consumption side concerns the allocation of this consumption figure to different age groups. No data is available for this. Enke assumed that persons aged 35 consume 13 to

14 times as much as children in their first year.[1] By looking at actual studies in developed countries[2] (for a "typical" middle class family), or alternately by looking at food requirements and assuming that actual expenditures at different ages are made in proportion to the requirements of these ages, we arrived at a different conclusion. In both the latter cases the ratio of children's consumption to adults varied by a ratio of between 1:2 and 1:2.5. Since the future is heavily discounted, adopting our ratios substantially increases the benefits, as we shall see below.

24. Turning next to the production side, we were confronted with exactly analogous problems as on the consumption side. The determination of the marginal product of labor is a question which has received a lot of attention in the literature, but on which no agreement has emerged. Opinions range from a zero marginal product - usually based on either actual experiments[3] or a calculation of labor requirements which are shown to be well below the actual number of laborers[4] - to a marginal product not substantially different from the wage-rate - based on the

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1/ See his calculations for India, in "The Gains to India...," op.cit.

2/ See A. Sauvy, Theorie Generale de la Population, Paris, 1952, Vol. 1, Ch. 23, and references therein. In particular see L.I. Dublin and A.J. Lotka, The Money Value of a Man, New York, 1930, Ch. 4, for the estimate of the actual expenditures of a "typical" middle class family in the U.S.

3/ Such as W. Cleland's study ("Egypt's Population Problem," L'Egypte Contemporaire, January 1937), which estimates that 3/5 of Egypt's rural population is redundant.

4/ Such as the study by M.R. El Ghonemy, "Resource Use and Income in Egyptian Agriculture before and after the Land Reform, with particular reference to Economic Development," unpublished Ph.D. dissertation, North Carolina State College, 1953. The conclusion here is that 50% of the agricultural labor force is redundant.

fitting of production functions to the data,[1] on the observation that the hypothesis of zero marginal productivity is inconsistent with profit maximization, and on the analysis of the geographical, seasonal, and male vs. female and child wage differentials.[2] Since the debate on this issue is far from settled,[3] and although our inclination in this debate is that a lot of labor is redundant,[4] we have taken for purposes of calculation the national marginal product to be equal to the agricultural wage-rate, in order to ensure that our net benefits may be regarded as a minimal figure.

1/ See for instance M.M. El Imam, 'The Production Function for Egyptian Agriculture, 1913-55, "Institute of National Planning, Memo. No. 259, Cairo, 1962, and H. Kcheir el Dine, "The Cotton Production Function and its Relation to Technical Progress and Disguised Unemployment," Institute of National Planning, Memo. No. 370, Cairo, 1963.

2/ B. Hansen, "Marginal Productivity Wage Theory and Subsistence Wage Theory in Egyptian Agriculture," Journal of Development Studies, July 1964.

3/ For the latest word in this controversy see R. Mabro, "Industrial Growth, Agricultural Underemployment and the Lewis model: The Egyptian Case: 1937-1965, "Journal of Development Studies, July 1967. The author argues that considerable surplus labor exists in small farms, while none exists in large ones. This is the result of regional immobility, and explains the fact that seasonal wage variations may exist together with a labor surplus.

4/ This redendancy does not necessarily mean that if part of the labor force were suddenly withdrawn output would not be reduced, but rather that if we compare two situations, one with constant fertility and the other with declining fertility (and hence a slower rate of population growth), then the "withdrawals" from the labor force in the latter case (actually the slower ratesof addition to the labor force), which are very gradual, can be accommodated by adjustments that would leave total output unaltered in both situations. It is worth noting that the concept of marginal product as it is discussed in the literature - namely, as a (i) sudden withdrawal of labor, with (ii) all other factors remaining constant - is not strictly relevant to our case of comparing a high with a low fertility situation. In this case rather than sudden withdrawals there is a gradual transition which allows the adjustments necessary to leave total output unchanged.

25. From the previous discussion it will be seen that taking maximum and minimum values for the level of consumption (marginal productivity), the allocation of the consumption (production)[1] stream to different ages and the discount rate gives eight different possible consumption (production)streams. Table I summarizes the result of these eight different benefit streams.[2] It also gives the same eight possibilities for the year 1947 - only mortality having changed between 1947 and 1960. From this table we notice that the benefits of a prevented birth [illegible] 4.5 to 1.2 times the per capita income--i.e. when all factors are allowed to vary at the same time the difference between the maximum and minimum varies by a factor of nearly 4. But before it is concluded that this measure suffers from a great degree of imprecision, it should be pointed out that it is unlikely that we would want, in any particular situation, to vary all the factors at once. What particular ones we would want to vary would depend on the use we would want to make of our figure and in this context it is well to distinguish between two possible uses.

26. First we may wish to compare the value of a prevented birth in one year with that value in another year, to get an indication of how far the situation has improved or deteriorated. In this case we would use the same definition of the level of consumption (production), and the

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1/ As far as the allocation of the marginal product to different age groups goes, we arbitrarily assumed that children start work at age 10, and that the productivity of children aged 10-14 and 15-19 was one-third and two-thirds, respectively, of those aged 20 and over. By contrast Enke's figures (S. Enke, Economics for Development, op. cit., Ch. 20) vary by a factor of 7 between ages 10 and 35.

2/ This is the result of applying formula (1) to the eight different streams. The method is set out clearly in S. Enke, "The Gains to India from Population Control," lac. cit.

TABLE I. THE INITIAL IMPACT EFFECT

	10%							15%						
	(1)	(2)	(3)	(4) =(1) minus (3)	(5) =(2) minus (3)	(6) =(4) div. by 58	(7) =(5) div. by 58	(1)	(2)	(3)	(4) =(1) minus (3)	(5) =(2) minus (3)	(6) =(4) div.by 58	(=(
PRESENT MORTALITY (1960)														
1. Our Consumption and Productivity Stream	351	281	91	260	189	4.5	3.3	206	165	31	175	134	3.0	2
2. Enke's Consumption and Productivity Stream	278	222	79	198	143	3.4	2.5	136	109	24	112	85	1.9	1
PAST MORTALITY (1947)														
3. Our Consumption and Productivity Stream	294	235	71	223	164	3.9	2.8	175	140	25	151	116	2.6	
4. Enke's Consumption and Productivity Stream	223	179	61	162	118	2.8	2.0	113	90	19	94	71	1.6	

Column 1: Discounted Consumption Stream. Consumption defined according to standard procedures.
Column 2: Discounted Consumption Stream. Our revised definition of consumption.
Column 3: Discounted Productivity Stream.
Column 4: Net benefits according to first definition of consumption.
Column 5: Net benefits according to second definition of consumption. Figures in cols. 1 to 5 are in Egyptian pounds.
Column 6: Net benefits (first definition) as a proportion of per capita income (=58 Eg.P.).
Column 7: Net benefits (second definition) as a proportion of per capita income.

same method of allocation between different age groups in both years. In addition we would use the same discount factor, so that the main variable in such a comparison would be the different number of survivors in the various age brackets. For instance, comparing the year 1947 with 1960 we could say that the effect of reduced mortality has been to increase the net value of a prevented birth by something between 15% and 25%. We may further argue that this is an underestimate if we believe that either (a) the productivity of labor has declined between both dates because population has been growing faster than other resources, and/or (b) a higher rate of interest should be used in 1960 than in 1947, because with a greater international demonstration effect and more government propaganda leading to a rising level of expectation of the masses, time preference for the present has increased. Thus although (a) and (b) cannot be measured, it can be concluded that as a minimum the value of preventing a birth has substantially increased, which makes a population program correspondingly more urgent now.

27. Alternately we may wish to compare investment in population control with investment in other projects. In this case we would be using the same interest rate to discount the benefits and costs of both a prevented birth and of other projects.[1/] Hence we would allow only for

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1/ If we do not want to take into account the scale of the alternative investment choices we can take the ratio of benefits to costs. But if the scale does matter then we have to specify a size for the population control program, and multiply the difference between benefits and costs of one prevented birth by the number of prevented births, before comparing this figure with that of alternative investment opportunities.

a change in our concept of consumption and the allocation of both consumption and production to different age groups. Here the range between maximum and minimum values of a prevented birth would vary by a factor of 2. (4.5/2.5 for a 10% discount rate and 3.0/1.5 for a 15% rate). Given the uncertainty about the future, the difficulty of calculating shadow prices and many other difficulties that beset the evaluation of returns on industrial projects our range of variability does not seem to be, by comparison, excessive.

The Wage Productivity Effect:

28. By referring back to the second term of expression (1), it will be seen that the benefits to be derived via the wage-productivity effect are a proportion of the initial effect. This proportion depends on (1) the marginal propensity to consume food, (2) the proportion of that food consumption that goes to members of the labor force, (3) the proportion of the year for which this labor force is employed, (4) the increased calorie intake resulting from higher per capita food consumption, (5) the increased supply of effort due to a higher calorie consumption, and finally (6) the marginal product of effort. Various upper and lower bound estimates can be made for each of these factors. Items (1) to (3) need not detain us here, for their variability is not very large. As far as items (4) to (6) go, we note the following: In (4) we assume that calories increase in proportion to the increased expenditure on food. This implies that diets remain unchanged, which for (a) marginal changes, and (b) low levels of income (implying diets that are restricted to one or two staples) is realistic. In addition, it is implicitly assumed that malnutrition exists. Calorie requirements depend on various factors

such as age, sex, weight temperature and especially work. Although these requirements are periodically revised, if we assume an eight hour day of agricultural work, then they all point to an average well above that of 2500, which is the present daily average consumption of the U.A.R.[1/] Because of the large calorie requirement for basic metabolism, small increases in calorie intake lead to large increases in the supply of effort. Estimates vary widely, from 100 to 200 extra calories[1/] required to produce the equivalent of an extra hour's work. Together with total extra number of calories consumed, this allows us to determine the total number of extra hours of work. This does not mean that workers actually work more hours, but that during the same workday, they produce - in terms of effort - the equivalent of more hours of work. It remains to convert this increased supply of effort into an increased output. Here "the marginal product of effort of the equivalent of an hour's work," is calculated by assuming the marginal product of labor to be equal

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1/ For instance, taking the requirements (for a full eight hour working day), listed in H. Correa, The Economics of Human Resources, (Contributions to Economic Analysis, 34), Amsterdam, 1963, Table IV, p. 36, for each of the agricultural, industrial and service sectors, and weighting these requirements by the corresponding proportions in the U.A.R. gives a nation-wide requirement of 3150 daily calories. By contrast the actual consumption is 2500. See, also S. Shehata, "Co-operative Efforts and Food Consumption in the U.A.R.," L'Egypte Contemporaire, January 1964. The author mentions the figure of 3000, as the minimum calorie requirement for the U.A.R.

2/ We may mention the following three sources: (a) H. Leibenstein, Economic Backwardness...op. cit., and references therein, where the conclusion is that 100 extra colonies are required to produce the equivalent of an hour's work, (b) S. Shehata, op. cit., who gives 1700 calories required for basic metabolism and 3000 as the minimum for an eight hour day. This implies that around 150 calories are required per hour, and (c) H. Correa, op. cit., Ch. 4, from which we deduced a figure of around 200.

to the wage-rate. (=35 Eg.P. per year). In addition, it was assumed that at present the labor force worked the equivalent (in terms of effort) of a four-hour day. This was deduced from the fact that the average daily calorie consumption was 2500 calories and that at this level of calorie intake, one is working at 50% of full capacity in both the agricultural and industrial sectors.[1/] A four-hour day gives 1200 hours per year (assuming 300 working days). Dividing this figure by the yearly wage-rate, gives an approximation to the marginal product of the equivalent of an hour's effort (found to be 0.03 Eg. P. in our case). Thus, we have all the required information, and on this basis it turns out that the wage-productivity effect varies between 4.5% and 18% of the initial effect,[2/] with 8% being a "likely" or reasonable value.

29. Before proceeding, it may be worth pointing out that the above calculations are marginal in the sense that large increases in the supply of effort may affect (and lower) the marginal product of effort, and also in the sense that after income has increased to a certain level, there is no longer any malnutrition. In the latter case the wage-productivity effect would no longer hold, whereas in the former it may be reduced. On the other hand, we may note that not only is the total number of calories important, but also their distribution among proteins,

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1/ H. Correa, op. cit., Table IV-2-3, p. 36.

2/ The initial effect which we are referring to is that defined on the assumption that consumption is defined as GNP minus gross capital formation (i.e. as a proportion of Col. 4 of Table 1). It is a higher proportion of the minimum definition of consumption (Table 1, Col. 5). Similar comments apply below, in our discussion of both private and government savings as a proportion of the initial effect.

carbohydrates and fats. The present diet of the U.A.R. is far from balanced,[1] so that even after daily consumption reaches the minimum requirement level, there is still room for increases in productivity. A final comment is that the productivity of the labor force can improve because of increased consumption of other factors besides food. In particular, improvements in health could have tremendous effects,[2] but we have not included these.

C- Increases in Private Savings:

30. As a matter of arithmetic, the magnitude of the savings effect as a proportion of the initial increase in income depends on, and is in fact equivalent to the assumed marginal propensity to save. In other words, a propensity to save of n% leads to an increase in benefits equivalent to n% of the initial effect. Thus, if all the income were saved, the benefits would be doubled. The interesting question is whether

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1/ S. Shahata, "Co-operative Effects and Food Consumption in the U.A.R.," op. cit. In the U.A.R. carbohydrates (grains) account for 80% of the diet, while fats and proteins account for 20%. By contrast the ideal balance is 50%, 35% and 12% respectively. This may be an explanation for the results obtained by W. Galenson and G. Pyatt, (The Quality of Labor and Economic Development in Certain Countries, International Labor Office, Geneva, 1964), who found that both in the case of developed (who were well above the minimum requirements) and underdeveloped ones, the quantitatively largest and statistically most significant factor explaining the rate of growth of labor productivity was calories per head (twelve quality improvement factors were tested altogether).

2/ H. Correa, op. cit., pp. 43-47, calculates that for Egypt the slack in output due to deficient health is larger than that arising from undernutrition. Correa's estimate of the former is biased downward because he only takes account of illnesses that result in death while a lot of the loss in output results from chronic illnesses that reduce vitality, but do not lead to death (e.g. bilharzia).

total savings will in fact increase. In theory the interrelationships between population growth and savings behavior are complex and no empirical studies are available of the influence of family size on actual savings. On a speculative basis we would argue that unless there were positive government efforts to mobilize this saving, no increases should be expected. This argument is based on a point made by S. Kuznets[1/] which is that if the only problem in economic growth was to curb consumption, then this could be achieved very easily. Calculations show[2/] that a (linear) increase in savings proportions from 9% to 15% of national income over a ten-year period, and with no reduction in fertility, can be achieved by a decrease in the absolute level of consumption by an average of 1.2% of GNP in the first seven years (and by a maximum of 2.2% of GNP in any one year). After this initial period, saving proportions are increased by foregoing some increases in the absolute level of consumption. Put in these terms, the increase in savings proportions can be achieved at a remarkably low sacrifice.

31. It is, of course, true that if fertility were reduced, then no reduction in the absolute level of consumption would be necessary to raise savings proportions. But the difference between both cases seems so small that it would be unwise to believe that a fall in fertility would automatically raise total savings. Rather, it seems that the causes which make the raising of saving proportions so difficult even when fertility is not reduced, would also be present in the case of a fertility reduction.

1/ S. Kuznets, "Demographic Aspects..." op. cit.
2/ See Table IV, p. 75 in BCPC, op. cit.

These will differ from case to case, but perhaps a common basis is the consumption oriented form of economic development today. The demands of the population for higher living standards today (enhanced by propaganda and an international demonstration effect) may be an explanation for the vain efforts of many governments at curbing consumption. If this explanation is correct, it would be wrong to infer that a reduction in fertility will stimulate savings, unless it can be shown how fertility reduction will affect these underlying factors. It may be that the desire for smaller families is the result of a desire for more consumption (this is often the basis of the propaganda of many family planning programs), in which case no larger savings can be expected. We may then conclude as follows. In order to be conservative, we have argued that it is preferable not to expect any benefits from the savings side. However, the magnitude of this effect shows the large potential benefits that can be expected if government policies of taxation etc., are successful in mobilizing the released income resulting from lower fertility.

D - Government Savings:

32. As noted in section one, the only assumed increase in government savings as a result of a reduced fertility are the increased savings resulting from the reduced expenditure on primary education. This is so because the government is committed to universal primary education so that - assuming the marginal costs of education are the same as the average ones - a reduction in fertility may reduce such expenditures. The further assumption is made that these expenditures will be invested rather than directed to government consumption. This assumes a high priority on the part of the government for development. In addition

several other benefits can be expected which we have not taken into account. These arise because either fewer persons will be educated on other levels than primary education (if educational policy is determined by a given proportion of students in each age-group) and the sums of money thus saved may also be invested, and/or because a higher proportion of persons will be educated (if educational policy is formulated in terms of a fixed sum of money) with a resulting improvement in the quality of the labor force. The existence of such benefits that we will not take into account, may counteract the fact that some of the reduced expenditures on primary education may end up in increased government consumption.

33. With all the above provisos in mind, we find that the magnitude of this effect is substantial. It amounts from 14% to 19% of the initial effect which in terms of the income stream generated per prevented birth is equal to about two thirds the per capita income.

Conclusions:

34. We may conclude as follows: the magnitude of the initial effect of permanently preventing one birth was found to give rise to a net income stream equal to somewhere between 2.5 and 4.5 times the present per capita income when a 10% discount rate was used and to between 1.5 and 3.0 times per capita income when a 15% discount rate was used. To this effect we can add the wage productivity effect and the effect of increased government saving. These amount to somewhere between

18.5% to 37%[1] of the initial effect. This is a minimum, for other possible benefits include: (1) The increase in private savings, which can be sizable (as large as the initial effect if all increases in per capita income are saved), but not likely without positive government policy.

35. (2) The possible increase in government savings as a result of reduced expenditures on forms of education other than primary, and for the improvement in the quality of the labor force because of more education per head.

36. (3) The improvement in the quality of the labor force because of larger expenditures on health, per head, by both the private and government sector.

37. Finally we re-emphasize the limitations of this calculation. First these benefits are the result of looking at the child exclusively as (a) an investment good and (b) from the point of view of society. Second, the "benefit for society" is simply defined as the sum of the benefits accruing to the people that are alive today. More precisely, our calculations refer to the benefits of persons born today since our time-horizon was of the same length as the average expectation of life at birth. Older sections of the population would reap only part of those benefits. Third, the treatment of consumption exclusively as a cost is

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1/ As previously noted, this percentage refers to the income stream computed on the basis of the maximum definition of consumption (Col. 5, Table 1). Since both effects are defined in absolute terms, they amount to a larger proportion (23% to 46%) of the lower estimate of consumption.

based on the premise that the development of the U.A.R. is of the consumption-oriented type, and that whatever the obstacles to growth, insufficient consumption is not one of them. Finally, these benefits are those of permanently preventing a birth. A delayed birth would have led to only a part of these benefits, this proportion depending on both the exact form of the delay and the discount rate that is being used.

RESTRICTED
Report No. EMA10a

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

CURRENT ECONOMIC POSITION AND PROSPECTS OF THE UNITED ARAB REPUBLIC

August 18, 1969

Europe, Middle East and
North Africa Department

CURRENCY EQUIVALENTS

1 Egyptian Pound (£F)	=	2.30 US Dollars
1 US dollar	=	L.E. 0.435
1 L.E. = 100 piasters	=	1,000 milliemes
1 tallarie	=	20 piasters

WEIGHTS AND MEASURES

1 hectare	=	2.379 feddans
1 feddan	=	1.038 acres
1 acre	=	0.963 feddan
1 sq. kilometer	=	238 feddans
1 ardeb (metric)	=	198 liters
	=	150 kilograms (kg) of wheat, lupine, fenugreek
	=	155 kg of beans, sesame, lentils, chick peas, clover
	=	140 kg of maize, millet, groundnuts
	=	120 kg cottonseed, barley
1 kantar	=	157.5 kg of seed cotton
	=	20.2 kg onions
	=	45 kg sugarcane
1 dariba (metric)	=	945 to 935 kg of rice (paddy)

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This report was prepared by a mission which visited the UAR in January 1969. The mission consisted of Messrs. A. Karaosmanoglu (Chief), K. Bahr, G. Pennisi, G. Sciolli and L. T. Sonley.

BASIC DATA

Area: Total - 1,002,000 square kilometers

Populated - 35,580 square kilometers

Population: (1966 census) - 30,294,000

Rate of growth : 2.8%

Density : 845 per square kilometers populated area

Political Status: Republic. Member of Arab League

Gross National Product (1966/67)

At current market prices : £E 2747.5 million

At constant prices of 1964/65 : £E 2306.0 million

Gross National Product per capita (1966/67)
At constant prices of 1964/65 : £E 74

Gross Domestic Product (1966/67) :

At constant prices of 1964/65 : £E 2325.0 million

Rate of growth 1964/65 - 1966/67 : 2.6%

Composition of Gross Domestic Product (1966/67) :

At current factor cost	%
Agriculture	28
Industry and Mining	22
Construction	4
Electricity	1
Transportation, communication and storage	9
Commerce and Finance	9
Housing	4
Services	22

Expenditures 1966/67 :

Percent of G.N.P. at market prices

Personal consumption	67.3
Government consumption	19.7
Total domestic investment	14.5
Inventories	1.5
Exports of goods and services	16.9
Imports of goods and services	18.4
Current account deficit	1.5

Resource gap of % of gross fixed investment:	1966/67	1964/65-1966/67
Not including interest payments	17	22
Including interest payments	22	26

Money and credits: (£E million)	End of 1968	1965-1968 Increase per annum
Total money supply	1012.3	3.5
Time and savings deposits	222.7	4.1

Cost of living index, rate of increase: July 1965- July 1968 (annual average) 2.6%

Public sector operations: (£E million)	1967/68	1964/65-1967/68 Increase per annum
Government current revenue	514.6	6.2
Government current expenditure	631.8	3.1
Balance	-117.2	-
Public Investments	218.8	-10.4

External Public Debt, including undisbursed: (US$ million)

As of June 30, 1968: 1.687.6

Balance of payments, 1967/68 (U.S.$ million):

Exports	582.8
Imports	889.6
Net services and current transfers	-49.0
Current account balance	-355.8

Commodity concentration of exports

Raw cotton	44.8
Rice	16.0
Cotton yarns and textiles	18.2

Foreign exchange reserves 1968/69 (U.S. $ million) :

Net: 305
Gross: 356

IMF position (as of January 1, 1969 U.S. $ million) :

Quota : 150
Drawings : 96.5

SUMMARY AND CONCLUSIONS

1. In the last three years, after an inflationary period which resulted in serious problems in internal finance and the balance of payments, the UAR has followed policies of stabilization which have improved the financial situation and also, to some extent, strengthened the external position.

2. As a result of stringent application of stabilization measures and the June 1967 war, the economy has shown signs of stagnation. In the current fiscal year the Government has started to take steps to activate the economy. To achieve expansion without creating inflation and its undesirable consequences will be one of the main concerns of the UAR Government in the near future.

3. In the longer run, the country is faced with three main groups of development problems, namely, (a) the rapid population increase and the limitation of land and water resources, (b) weaknesses in the organization and management of the economy, and (c) the balance of payments problem.

4. Ability to cope with these problems should be analyzed against the existence of highly qualified manpower, the high level of technical knowhow and past performance in agriculture, new develcpments in the discovery and the utilization of natural resources (oil, natural gas, phosphates), the ability of certain branches of Egyptian industry tc export significant amounts of semi-manufactured and manufactured goods, and finally, the tourism potential of the country.

5. The acuteness of the population problem has been recognized by the UAR authorities, but due to a variety of factors (weak organization, lack of technical knowhow and financial constraints) an effective family planning program has not been started. In recent months, however, the Government has renewed its efforts in this direction.

6. Despite explicit policies of full employment, unemployment has been rising in recent years. Furthermore, there are signs of widespread disguised unemployment. The lack of coordination between employment, wage and educational policies resulted in an abundance of university trained manpower and an acute shortage of technicians. Recent changes in policies regarding manpower and educational planning and proposed changes in the educational structure show that the Government has now recognized the importance of relating educational programming more closely to the economic needs of the country.

7. Agriculture provides about half of employment, 28 percent of GDP and four-fifths of exports. The recent performance of the sector has led to concern, the virtual stagnation in yields per acre being particularly disturbing.

8. Land development already underway or planned - reclamation (new land), conversion of basin irrigation to perennial irrigation, and drainage - is unlikely to expand the cropped area through 1975 as rapidly as the growth of population. This puts the burden of agricultural development on yield

increases. But these have been unimpressive of late, perhaps because of (a) a rise in the water table and associated salinity and other problems; (b) the relatively long time required to reach acceptable yield levels on new land brought into production for the first time; and (c) a slowing down of the rate of modernization of the agricultural sector, associated in part with the rapidly deteriorating drainage conditions. This last factor may be closely related to organizational aspects and pricing policies and to the shortage of foreign exchange available for the purchase of imported inputs. Yield levels, however, vary greatly between different parts of the country. The strikingly favorable results obtained from some experiments in concentrating extension services, and the scope for increasing fertilization levels are bases for a hopeful outlook for future increases in agricultural production. The current effort in agriculture should be geared first of all to increasing yields both by improved drainage and modernization. Secondly, new lands should be brought into cultivation to assure full utilization of the available water supply. The possibilities of increasing available water and the optimal utilization of all water resources should be studied. International market conditions should be taken into account, more than in the past, in decisions on allocating agricultural resources and price policies. The general aim should be to establish a closer relationship between real cost and the prices paid by consumers and farmers.

9. Industry has played a leading role in the development strategy of the country and a wide range of industries have already been built up. After the 1961 nationalization measures most industrial activity was put under government control. At present about 80 percent of industrial production is within the public sector. Recently, due largely to problems of organization and management but also due to the shortage of foreign exchange, industrial output has shown little growth and many plants have been working below capacity. The Government seems to have recognized the need for reform. During the last year and a half several committees have been established to study the problems of industry and to propose changes. These efforts are a welcome beginning, but no significant changes have so far been proposed.

10. Organization and management problems of industry are related to a variety of factors including allocation of decision making responsibilities, plant size, employment policies, foreign exchange shortages, etc. If these difficulties could be overcome many industries would have a significant growth potential for both local and export markets. This is especially the case of petroleum, chemicals, engineering and, in the longer run, mining. More traditional activities, such as textiles and food processing, while retaining the protected local market will need to improve their efficiency to increase their sales to competitive export markets.

11. During the last few years the Government has concentrated its efforts, with some success, on improving the budgetary situation and overcoming short-term balance of payments difficulties which had led to an accumulation of arrears and defaults of external debt payments. Ensuring an adequate increase in public investment is the main long-run target of fiscal policy. Balance of payments constraints require that a substantial effort

should be made to mobilize domestic resources. Improvements in the balance of payments will depend on the success of government in implementing a more effective trade policy and an improvement in the terms of borrowing.

12. Exports consist mostly of products of agricultural origin, cotton and cotton products being the most important. In recent years, rice has also become more important. If world prices of these commodities decline as projected by the Banks Commodity Specialists, exports will need to expand in quantity by 20 - 30 percent in the coming five to six years to maintain present levels of foreign exchange earnings. Prospects for other exports are however more promising and, political conditions permitting, earnings from tourism could increase rapidly.

13. Projections have been made to present the prospects for the economy for the next six years in quantitative terms. When the extent of uncertainties affecting the economy (political conditions in the Middle East, uncertainty about earnings from the Suez Canal, even when reopened, future trends of defense expenditures) are considered, these can only be regarded as showing one of a variety of possible patterns of growth.

14. If all opportunities were used to good advantage, GDP could expand at a rate of 6.5 percent per annum in the period. Total investment over the period is projected to reach £E 2,720 million (increasing by 8 percent annually). Foreign exchange earnings projections add up to an increase of about 6 percent per annum in the aggregate. The projected resource gap for the period is about £E 200 million, but the gross capital requirements (including service payments on existing and future debt) reach more than £E 1,000 million. The debt service ratio (including all foreign exchange earnings) after a hump in 1970 would be around 24 percent during the rest of the period.

15. In view of the weak balance of payments position, the UAR should aim to borrow, as much as possible, on concessional terms. Even if it could borrow readily on such terms, major changes in economic policy would be necessary to bring about a radical improvement in the balance of payments. This is greatly needed if the UAR is to be in a position to plan the development of the economy free from the persistent problems of foreign exchange shortage.

I. INTRODUCTION

1. The UAR economy has been undergoing a series of structural changes during the 16 years since the revolution in 1952. In this period several major events and developments have taken place, each affecting the economic and the social structure. These included an extensive land reform, the Suez crisis, nationalization of industry and foreign trade, the Yemen war and the June 1967 war. Despite all these, the economy has demonstrated its vitality by sustaining reasonably high rates of growth.

2. During this period the composition of output has changed significantly; the shares of agriculture and industry respectively changed from 42 percent and 8 percent in 1951 to 27 percent and 22 percent in 1967. 1/ Industry and trade were transformed from being predominantly private sector activities to predominantly public sector activities. Land tenure changed substantially. Whereas before the 1952 land reform, 94 percent of land owners owned only 35 percent of land and 0.2 percent of land owners controlled 27 percent of the land, in 1965 94 percent owned 57 percent of the land and 0.1 percent owned 6.5 percent. Between 1952 and 1967 the cropped area increased from 9.3 million feddans to 10.5 million feddans (13 percent). During the same period the population increased from 21.4 million to 31.1 million (45 percent).

3. At the present juncture the major development problems of the UAR may be summarized in three groups: These are (a) population increase and the growth of agricultural production; (b) the organization and management of the economy, and, (c) the balance of payments. Agriculture is not the only source of livelihood for the increasing population, but for the dominantly agricultural economy of Egypt the balance between the population increase and agricultural production demonstrates the limits for future growth and the choice of the directions of development.

4. These problems which are discussed later must be set against the elements of strength in the economy. Among these is the outlook for an increasing agricultural output. Between 1960 and 1965 the value of agricultural production is estimated to have been increased between 3 and 3.5 percent per annum. In the near future the investments in the High Dam and the associated land development including drainage should favorably affect output. The use of modern inputs and improved cultivation practices will expand, in part as a result of crop consolidation schemes aimed at installing cropping patterns on a village-wide basis. Under this arrangement, fairly large blocks of contiguous plots are required to be planted to the same crop regardless of the land ownership pattern. Although there may be at times some resentment on the part of some farmers, since the specific use to which they can put a specific plot is restricted, the system enables a measure of land use control and permits better use of irrigation water as well as facilitating pest control and other measures to improve yields. Another source of output gain

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1/ Unless otherwise stated years are fiscal years ending June 30. In this case July 1, 1966 - June 30, 1967.

is a shift to high value crops such as fruits and vegetables as markets permit. Progress in this direction is taking place but its full exploitation will require skilled merchandising and effective foreign market penetration.

5. Prospects for oil production also appear very favorable. It has already increased from about 3 million tons in 1960 to about 6 million in 1968 and is expected to reach 12 million tons or more in 1969 and 36 million tons in 1975. This would provide Egypt in 1975 with perhaps US $133 million of net foreign exchange earnings net of oil imports a year as compared to a net expenditure of $30 million in 1967. A deposit of natural gas has recently been found in the Delta, which together with the new electric power from the High Dam, means that there may be an abundance of energy for some years.

6. The development of modern industry in Egypt dates from the depression of the 1930's. It now provides about one-fifth of the national product as compared to somewhat less than one-third provided by agriculture. Most of the industries are based on the processing of agricultural raw materials, of which the cotton textile industry is by far the most important. The relative shares of chemicals, steel and steel-based industries are likely to increase in the near future as a result of projects under consideration and implementation. Egypt has been exporting significant quantities of industrial products amounting to an average of LE 63 million during the last three years and this is likely to increase.

7. The Suez Canal, when reopened, will again be one of Egypt's important assets, although the development of super tankers poses some questions for future expansion. The negative effects of super tankers on the return from oil transport may however be mitigated to some extent by revenues from a new pipeline from Suez to Alexandria. Finally, tourist attractions brought Egypt a substantial foreign exchange income until the June 1967 war. This has a good potential for the further growth provided political events do not discourage potential visitors.

The Growth of Population and Agricultural Output

8. The population of the UAR is growing at about 2.8 percent per year. The total population is estimated at 31 million almost wholly concentrated in the valley and the delta of the Nile, where irrigated agriculture is possible. The population density in the inhabited area is around 2,200 per square mile which is one of the highest in the world. In November 1965 the Government officially introduced a program of population control. The coverage of the program so far has been too limited to expect any measurable effects on the birthrate and hence on the rate of population growth. There is a need for more determined effort; the Government so far appears not to have given the necessary priority to the family planning program.

9. As a result of the increasing population and the composition of the agricultural production, the balance of payments of the UAR shows significant deficits in food. In 1967 and 1968 net food imports ranged around LE 80 million and constituted on the average about 74 percent of the trade deficit. For the future, however, there are some possibilities to improve

this. Improved drainage throughout the Nile Valley would increase food production substantially and most of the new areas that will be reclaimed will be used for food crops.

10. Even since the time of the Pharaohs, the Egyptians have been concerned with the problem of making the best use of the water from the Nile. Beginning in the early nineteenth century a series of barrages have been constructed on the Nile to hold back some of the flood water for irrigation. The High Dam at Aswan is the culmination of this process in that it will enable the whole present flow of the river to be utilized. It is expected to permit a 25 percent increase in the cropped area. This would offset some eight or ten years of population growth at the present rate. In addition to the High Dam there is still some scope for increasing the amount of Nile water by constructing works on the Upper Nile in Sudan and Uganda. This could at most add about 15 percent to the water now available to the UAR. There is also the possibility of utilizing significant quantity of underground water. However, extensive study is required to determine how much can be done in these ways. Apart from these resources, the future growth of agricultural production in Egypt will depend on making more efficient use of the presently available water, at least until the cost of desalinization has been reduced to make the use of desalted water economic for agricultural purposes.

The Organization and Management of the Economy

11. In Egypt all the major utilities and industrial enterprises are Government-owned. Much of the country's external trade has been centralized and is carried on by Government agencies. Central control has been further increased because of the acute shortage of foreign exchange which inevitably places important economic decisions in the hands of the government.

12. Although most of the farmland is privately owned and operated, the agricultural activity is under rigorous government control. For example, farmers are assigned target acreages for major crops; deviations can be penalized. The kinds and amounts of farm inputs supplied to farmers are set by the Government, and they are sold by a public monopoly. Many input and product prices are set by the Government, with the need for both revenue and foreign exchange ranking high as determinants. Irrigation water is publicly managed and free to farmers. Almost all of the farmers are members of agricultural cooperatives through which they receive agricultural credits in amounts and terms publicly determined. With this organizational set up and concentration of power, one of the major tasks facing government today is to assure that its machinery produces and implements the flow of decisions needed to capitalize fully upon the expanding production capacity of the agricultural sector.

13. A virtual absence of competition and an uneconomic employment policy has led to problems of inefficiency and lack of incentives in many industrial enterprises. The solution of these problems requires that more autonomy may be given to individual enterprises. Although this is generally recognized in principle there does not seem to be clarity in practice as to how it is to be

done. The government has undertaken some studies lately, but at this stage it is too early to expect a significant outcome from these efforts. Price controls have created disparities between domestic and foreign prices and within the domestic price system. At present prices received by farmers for their produce (with the exception of wheat) are significantly below world market prices, while the efforts to increase the exports of manufactured goods are only becoming effective with increasing export subsidies. Up to now prices are being determined on the basis of unsystematic administrative decisions. Only very recently a ministerial committee was established to study costs and prices in general.

14. Some improvements are needed in the investment decision-making process. Expenditures on the Aswan High Dam and import-substituting industries absorbed most of the investments in the 1960's. Balance of payments effects of particular investments were not thoroughly studied. As a result, the current squeeze on foreign exchange has kept many of these new industries operating at far below capacity. The long term plan under preparation may improve the process of allocation of resources, but the flexibility for making entirely new investment decisions may not be very wide. There are several projects under construction among which the largest is the steel complex at Helwan, (about £E 350 million). If it is constructed as expected within the next five years it will absorb about 14 percent of total investments. On the assumption that investments in industry will be about 30 percent of total investment, the steel complex will absorb close to half of industrial investment.

15. It has been apparent for some time that, in financing its economic development, the UAR has been relying relatively too much on the import of capital and too little on its own savings; this was one of the main themes of the Bank's 1966 report. Since this affects the whole question of financing an adequate program of development in the future, it is without doubt one of Egypt's most important long-term problems. Since the rate of taxation is not low, the increase in savings could only be realized by controlling defense expenditures (more than 10 percent of GDP in recent years) and by increasing the surpluses of the "Business Budget" sector. The latter will not be possible unless the efficiency of existing industry improves significantly and more rigorous economic criteria are employed in the selection of new projects.

The Balance of Payments Problems

16. The balance of payments problem is in effect a reflection of the problems summarized in the previous two groups. In addition the availability and terms of external capital should be mentioned. More than 80 percent of western debt is scheduled for repayment by 1975. Even if the recent efforts in the direction of reducing the current accounts deficit prove to be successful, the UAR will need a substantial inflow of capital to service its outstanding obligations. The terms under which such funds will be provided will be of decisive importance in the manageability of the balance of payments situation in the future. The more specific problems of the balance of payments will be discussed later.

II. RECENT DEVELOPMENTS AND POLICIES

17. After expanding at about 6.5 percent per annum during the first five-year plan period (1961/65), the growth rate has since declined in the UAR. An overall slowdown started in 1966 when an unfavorable harvest aggravated an already difficult external payments situation. This in turn had the effect of curtailing industrial production by limiting the imports available. Although the first five-year plan envisaged a reduction of the balance of payments deficit, it was thought that this could be brought about by the development of import-substituting industries. However, insufficient provision was made for induced imports. The balance of payments deficit averaged 2.3 percent of GNP during most of the 1950's but reached 5.6 percent in the three years after 1963. Borrowing on relatively hard terms added to these difficulties.

18. Value added in agriculture increased only 1 percent in 1966 and declined 3.3 percent in 1967. The slowdown in industrial output actually started earlier. The increase in 1965 was only 4.2 percent. A study undertaken by the UAR Government estimated excess capacity in industry in 1966 at about 31 percent. Value added of the industrial sector in 1966 was only 2.5 percent more (in constant terms) than the previous year and in 1967 it was less than 1 percent more.

19. As a result of these developments, the rate of increase in GDP has declined since 1965. In 1966 it was about 4.5 percent and less than 1 percent in 1967. Investment also declined by about 7 percent in 1967 after reaching their highest level in 1966. This decline continued in 1968.

20. Government deficits (both current and overall) and credit expansion reached their highest levels in 1966. Following a change in Government, a period of fiscal and monetary restrictions ensued in 1967 and 1968. The overall deficit as well as the current budget deficit was reduced in 1967, and has been maintained at roughly the same level for the following two years. Imports were reduced by almost 19 percent between 1966 and 1967. In 1967 there was a decline in defense expenditures, which have started to increase again in subsequent years. These restrictive policies were conditions of a standby agreement with the IMF.

21. By 1966, the accumulation of external debt, much of it in the form of supplier credits, had reached a point at which the UAR found it difficult to maintain its debt payments. Arrears started to accumulate including repurchase to the IMF. Government then started negotiations for a rescheduling of arrears. The first of these agreements was reached in the second half of 1966 in conjunction with credits from foreign commercial banks. Following this, general rescheduling agreements were reached with France, Italy and the U.K. and individual agreements with the main suppliers in countries such as Germany and Sweden.

22. The year 1968 was an exceptional one. The June war resulted in the loss of earnings from the Suez Canal (LE 95 million in 1967) and from the oil fields in Sinai. In addition, the cotton crop was small, although total agricultural output was better than the previous year.

23 The 1968 budget was originally presented to the National Assembly a few weeks before the June war. It showed an overall deficit of LE 80 million. However, even while the budget was under discussion, the government decided to revise it because it was regarded as too inflationary. The war then made more drastic revisions necessary in view of the higher defense expenditure and the shortfall in government revenues.

24. After the budget was revised, the Khartoum agreement was signed, under which Egypt has been receiving $253 million annually, ($98.5 million from Saudi Arabia, $59 million from Libya and $95.5 million from Kuwait). The combination of this inflow with the budgetary measures has resulted in an internal financial situation better than had been seen for several years. On the other hand the level of public investment, as a proportion of GDP, has fallen to less than half of what it was five years ago.

25. All these retrenchment measures formed the basis for a new agreement with the IMF in March 1968. With the help of commercial bank credits from the U.K., Germany and Italy, the UAR repaid the outstanding arrears to the Fund. Following this repayment, the IMF has approved two simultaneous drawings by the UAR, a US $40 million drawing and a US $23 million drawing of compensatory finance to meet a temporary shortfall in export earnings.

26. Egypt stopped the repayment of rescheduled arrears to the U.K. after the June war but negotiations for the rescheduling of arrears continued and agreements concluded however both with the U.K and some other countries (Denmark, Japan, Mexico, Netherlands).

27. The national accounts figures for 1968 are not yet available. Partial indicators, however, indicate that it was another year of stagnation, if not decline. As mentioned above, the income from oil, as well as earnings from the Suez Canal and some mining operations, did not come in. Tax revenues declined slightly from LE 40.4 million in 1967 to LE 39.7 million in 1968. Investment expenditure was at the lowest level since 1961 and the imports of intermediate goods did not increase. The sharp decline in overall imports continued, 8 percent in 1968 as against 19 percent in 1967. There was also a decline in exports of about 5 percent due largely to the loss of Sinai oil fields and a decline in cotton exports. If these two are excluded, other commodity exports increased by about 11 percent. The deficit on current accounts and transfer payments increased from LE 49 million in 1967 to about LE 72 million in 1968. Arab assistance was the main factor to permit this increase but it was available only after October 1967.

28. When the situation and prospects for 1969 are studied, a different picture emerges. The Government has decided to take some steps to revive economic activity. An increase in investment is being planned; the budgeted public investment in 1969 is LE 312 million as compared to LE 219 million in

1968. With an increase in private sector housing investment, total fixed investment is expected to reach £E 330 million. Despite the planned increase in investment expenditure in the current year the investment level will still be lower than the 1966 level. Private investment in housing is being encouraged by softer lending terms from the Real Estate Mortgage Bank.

29. New purchasing power is being injected into the economy by increasing the borrowing ceilings for Government employees from the banking system. The prices of some consumer durables and some textiles were lowered in order to reduce the accumulating stocks. Whether these measures will be just enough to boost the economy or whether they may create some inflationary pressures is something to be seen in the next few months. Increased agricultural production and the existence of excess capacity in industry suggest that some room exists for expansionary policies.

30. The agricultural crop in 1968 appears to have been better than the previous year. Maize production was better than the previous year; wheat reached close to its former high level and rice production continued to increase sharply. The Government is concerned with the decline in area under cotton cultivation despite the fact that there are penalties for farmers who do not cultivate cotton in designated areas. In January 1969 the Government announced increases in cotton prices for the next crop in addition to efforts to control the cost of inputs, hoping that this will encourage farmers to cultivate more cotton.

31. One of the encouraging developments is in the oil sector. This year oil imports are expected to decline from £E 29 million to £E 18 million, while exports are increasing from £E 7 million to about £E 13 million. As a result, the oil balance of payments is expected to show a net deficit of about £E 4 million in 1969 compared with a net deficit of £E 22 million in 1968. Significant production increases are also expected in all industrial sectors except fertilizers, where a decline is expected largely due to the damage to the Suez factory.

32. Indications are that exports in 1969 will probably surpass the 1967 level. Imports continued to decline in the period July/December 1968, but with increasing investment and increasing industrial output, import demand may revive as well. In the previous two years, most of the decline in imports was a result of the decline in investment expenditure, and lower unit prices for imported foodstuffs and for some intermediate commodities. Improvements in the allocation of foreign exchange have made the distribution of imports more efficient.

III. POPULATION, MANPOWER AND EDUCATION

Population

33. The population of the UAR is growing at approximately 2.8 percent annually 1/. In 1968 it had reached 32.1 million and official forecasts estimate 37.8 million by 1975. Egypt is still in a stage where mortality is declining while fertility is doing so only slowly in response to modernization in general or to population planning efforts in particular.

34. The problem in Egypt, as in many other countries, is not only one of a rapid population increase. It is aggravated by severe limitations of cultivable land, by the present age composition and by uneven geographical distribution. The 1960 census and 1966 micro census show that about 45 percent of the population is younger than 15, and 3.5 percent is older than 64. This means that for each 100 persons in the labor force age range (15 to 64) there are about 97 persons not normally expected to be economically active. This ratio is very high by any standard. Population density is also very high and has increased by 55 percent over the past 20 years to 2,189 per square mile of inhabitable land, nearly three times the population density in Japan.

35. Another characteristic of the Egyptian population problem is the high level of urbanization and the rate of urban growth. This intensive urbanization is accompanied by very high and increasing rates of unemployment in the urban areas, as is discussed below, while seasonal labor shortages occur in the countryside, where the need for such labor, often performed by children, discourages an effective family planning program in the rural areas. The percentage of the population living in urban areas increased from 37 percent in 1960 to 40 percent in 1966 and at the present growth rate of 5 percent is expected to increase to 42.5 percent by 1970.

36. The Government's awareness of the seriousness of the population problem became apparent in 1962 when the President announced the need for a population policy. After the cabinet change in 1965 the new government declared its intention to establish a national program for family planning. A Secretariat for family planning was vested with all the necessary powers but an effective program could not be started. At the present time the family planning activities are carried out by the Government as well as some voluntary organizations. Governmental activity is carried out mostly on a part-time basis by 2,700 health centers distributed over the country. The program is hampered by organizational deficiencies as well as the budgetary constraints. In January 1969 a team of experts visited the country to prepare the basis for a project to be submitted to the UNDP.

1/ Population and manpower statistics of the UAR lack consistency in some respects. For instance the 3.2 percent increase in the population of working age (see paragraph 37) while total population increase is 2.8 percent could not be easily explained. Consequently figures of unemployment may be higher than actual unemployment.

Manpower

37. Manpower development between 1961 and 1968 is characterized by a relatively high growth of the population of working age (3.2 percent annually) and in the labor force generally (3.4 percent annually), against a comparatively slow increase in aggregate employment (2.5 annually) and little change in the employment structure by economic sectors and by occupations. Unemployment increased from 6.2 percent of the labor force in 1961 to 8.9 percent in 1967 (amounting to 750,000 unemployed). Estimates based on official data indicate a rise to 11.5 percent for 1968 (about 1 million unemployed), corresponding to an annual rate of increase in unemployment as high as 13 percent. In the period under consideration labor productivity has not increased largely because of the immobility of labor and industrialization has not proceeded fast enough to create significant new employment. Agriculture continues to account for more than 50 percent of employment while mining and industry account only for 14 percent. Employment was growing in mining and industry at a rate of over 10 percent between 1961 and 1965 while the increase in services sector was only about 3 percent. This trend changed afterwards with the slowdown in investment and industrial activity in general. Between 1965 and 1968, employment in sectors other than agriculture fell by 2.5 percent per year and total productive sector employment rose by only 0.3 percent annually, compared to 3 percent during the preceeding four years. The services sector, on the other hand, increased by almost 5 percent per year. Annual growth of overall employment decreased from 3 percent to about 2 percent. The shift towards services is partly due to the policy of guaranteeing employment to every higher education graduate. A resulting increase in underemployment is gradually being recognized as an undesirable situation.

38. This overall picture is reflected in the development of wages. The total wage bill (in current prices) increased almost four times as fast as total employment, whereas GDP per employed person grew only about twice as fast. Since these data reflect current prices only, real wages are likely to have improved less, as is the case with productivity (in terms of real GDP per employed) between 1961 and 1968. The sectoral distribution of wages shows that the services sectors account for 60 percent in 1968 (58 percent in 1965) with Government services generating 40 percent of wage income (about 38 percent in 1965). In 1966 and again in 1967 salaries in government services were cut, but these cuts did not decrease the relative importance of government services in the total wage income. The share of non-agricultural commodity sectors in the total wage bill decreased from about 23.5 percent in 1965 to just 20 percent in 1968. Changes over the entire period 1961-68 have been slow both for each commodity sector and for the modern sector as a whole (from 19 percent to 20 percent).

39. The labor market operates under a system of regulated wages. The allocation of manpower resources theoretically takes place through a planning mechanism which links the supply (and, therefore, production) of manpower to needs specified as to time, occupation, educational level, sector and branch of economy, and region. In fact, full employment rather than effective manpower utilization has been the policy since 1961. Under the

pressure of the rapidly increasing school output from all levels of the educational system, actual employment policies contain a social welfare element instead of an emphasis on economically efficient deployment and utilization of manpower. The labor market effects of these policies are aggravated by the malfunctioning of occupational guidance in schools and universities and of the government-controlled placement services.

40. These policies tend to aggravate distortions in the occupational, and also the sectoral employment structures. Furthermore, disguised unemployment is widespread, with effects on economic and organizational efficiency and growth possibilities difficult to assess.

41. The problem is one of attaining quality and appropriate occupational (and regional, i.e., urban versus rural) balances. Recently initiated programs are concentrating upon improving the relevancy of various types of education to occupational requirements, which constitutes the major portion of the problem.

42. According to the Ministry of Planning there are marked surpluses of University graduates and of graduates from academically oriented secondary schools alongside large shortages of technicians and skilled workers. The shortage of technicians is expected to grow during the 10 years between 1966 and 1975 by six times (from 24,000 to 144,000), and by 10 times in 1985. Since this occupational group performs a vital function in the application of modern, growth generating techniques in production and organization, the shortage is particularly critical.

43. In the UAR, as in other countries facing a similar situation, the solution is primarily sought in the provision of more training facilites. But the traditional aversion of secondary school and university leavers against manual work is diminishing only very slowly. In fact, enrollment developments suggest that strong pressure persists to attain social status through joining the privileged group of white-collar workers. The small enrollment shift towards technically oriented subjects may be misleading in as much as a high percentage of graduates in these subjects are said to take up non-manual employment. The comparatively high average annual wages in the service sector further this tendency. In addition, salary scales and career possibilities in Government employment are strictly tied to formal educational attainment. The nationalized industries as well as the rest of the public sector by and large follow this example. Technically trained people are paid insufficiently in comparison to white collar jobs and this results in an imbalance in the labor force.

44. The Government is becoming increasingly aware of the wastefulness of existing mechanisms for training and allocating manpower. Thus, the institute of National Planning is undertaking studies to provide better factual bases for policy decisions. Wages for graduates from Technical Training Centers, a new type of secondary school, have been increased to a competitive level.

Education

45. The expansion of the educational system of the UAR, although largely unresponsive to nation's manpower needs, has nevertheless been quite sizeable. Enrollments in Government-operated primary schools increased by 33 percent from 2.6 million in 1961 to almost 3.5 million in 1968 at an annual rate of 4.2 percent. Data on enrollment as a percentage at the relevant age group were not available, but since the increase in enrollment was considerably higher than the population increase in approximately the same age group enrollment ratios are known to have increased. Secondary education enrollments (including technical schools) doubled during this period, corresponding to an annual growth rate of 10.9 percent, well above the 2.6 percent annual in the relevant age group. Enrollments in Higher Institutes and Universities increased by 11.1 percent annually with 5.3 percent annual growth of the relevant age group. These respectable achievements, however, cannot conceal the difficulties which result from high illiteracy (approximately 65 percent of total population) and rapidly growing individual demand for education, while absorptive capacity of the labor market increased only very slowly. The traditional structure of the educational system, together with inadequate curricula and equipment, add to the difficulties.

46. Since 1966 a number of measures have been taken which may well become the first steps towards basic reforms. Secondary teacher training was transferred to the Universities in 1967. Lower secondary technical schools are being converted to general secondary schools to provide all secondary school pupils with a broad base of common knowledge. At the same time, technical training centers, a new type of secondary school, were introduced to provide technically oriented education in two different courses; a five-year course starting after lower secondary education, and, a two-year course following upper secondary (general or technical) education. Both courses extend beyond secondary level and overlap with third level institutions. Graduation is at the higher technician level. This new structure is a direct response to the manpower situation described above. It is aimed at diminishing the pressure on universities and higher institutes without restricting total enrollments, and at alleviating the shortage of technicians without neglecting aspirations for social status. Thus, starting salaries (LE 18 per month) for graduates from technical training centers are almost as high as those of third level institution graduates (LE 20 per month).

47. Parallel with, and complementing these steps, third-level institution admission standards were raised. Furthermore, annual intake figures for each field of study are now being based on manpower targets in consultations between the Ministry of Planning and the Council for Higher Education.

48. The effect of these measures can be seen from the rapid change of the pattern of first year enrollments. Higher institutes and university enrollments totalled about 35,000 in 1966 and decreased to 27,000, one year later, when the new scheme was started. During the same period secondary technical first year enrollments increased by 11,000, almost three times as much as in the preceeding years. Within the third level, the pattern has changed in favor of technical subjects.

49. The Government is beginning to rationalize education development by trying to link it to realistic economic development targets. The Ministerial Manpower Committee (coordinating policies of the Ministries of Planning, Labor, Education, Higher Education, and Scientific Research, in collaboration with the Central Agency for Statistics and Mobilization) is now setting guidelines for all parts of the educational system. Measures are being considered to put employment policies on a more realistic basis. Also, in the course of the preparation of the third five-year plan, educational and manpower planning is being integrated into the decision process of the Government. Thus, although it is difficult to say to what extent this new approach will be complemented by necessary reforms of curricula and teaching concepts, the bases for consistent development policies in the manpower-education field are emerging.

IV. AGRICULTURE

Characteristics of the Agriculture

50. The climate of the UAR is dry and warm. Its agriculture is almost totally dependent on irrigation. 1/ Farming is limited mainly to the valley and delta of the Nile River and encompasses less than 4 percent of the nation's area of 386,000 square miles. Exploitation is labor-intensive and the average piece of land is cropped about 1.6 times a year. Modern inputs and improved practices are in general use. Field crops accounted for 57 percent of the gross output of the sector in 1966; fruits and vegetables, 16 percent; and livestock and poultry the remainder. Farms are generally small, with a median size of less than five feddans. About half of the cultivated area is under tenancy. Rental terms are controlled, following a series of reforms in land tenure begun in 1952.

51. The soils of about one-third of the cultivated area are "good" in terms of productive capacity. The remainder are of "medium" or "weak" quality, likely to benefit greatly from improved drainage, sub-soiling and calcium sulphate. The need for drainage is acute in many areas.

52. The agricultural sector provides over half of the nation's jobs, one-quarter of the GNP, and four-fifths of the exports. Cotton in its raw and processed form accounts for 60 percent or more of the latter. Onions are also important exports, and rice has been moving upward recently. Wheat, wheat flour, tobacco, and tallow are important on the import list.

1/ Rainfall averages 150 millimeters (5.9 inches) a year along the Mediterranean coast. This is concentrated in the winter months, October to February. As one moves South, the rainfall decreases to 25 millimeters in an average year. In some years in some areas, rainfall is zero. The mean daily temperature in the south near Sudan ranges from about 15°C (59°F) in January to 32°C (90°F) in June. As one moves north, these figures fall to about 12°C on the coast in January to 26°C in July.

53. Agriculture has been drawing a significant volume of investment funds since the High Aswan Dam was begun in 1960. In some years, this volume has reached close to 20 percent of the total national investment outlay. However, industrial development has been the primary area of public interest during this period.

54. Agriculture is under far-reaching Government control. Farmers are assigned target acreages for major crops. The kinds and amounts of farm inputs supplied to farmers are determined by the authorities, and their merchandising is a public monopoly. The more important of the input and product prices are set by the Government, with the needs both for revenue and foreign exchange ranking high as determinants. Public credit moves through quasi-public cooperatives to farmers in amounts and on terms publicly determined. Irrigation water is publicly managed and free 1/ to farmers. Withal, most of the agricultural land is in private hands and, agriculture can be considered to be under private management.

55. As noted above, one important feature of the agricultural develoepement problem is the rapid growth in population in the order of 2.8 percent per year, and in 1968 it was estimated at 32.1 million. This affects both the demand for farm products and the supply of farm labor. Although urban growth rates are sharply in excess of rural, the absolute number of people classed as "rural" continues upward (from 16.2 million in 1960 to 18.1 million in 1966). The rural population made up 60 percent of the total in 1966, as compared to 67 in 1947.

Output

56. Estimates of GDP suggest that agricultural output grew at an average annual rate of slightly more than 3 percent in the decade from 1959, but very little or not at all since 1965. Crops continue to dominate output (accounting for 73 percent of the total in 1965), but livestock is tending to become relatively more important. The cropping pattern continues to be built around cotton, with production having reached as high as 521,000 MT of lint in 1965. Cotton output averaged 433,000 MT in 1966/68. Area under wheat averaged 1.6 million feddans in 1940/44. In spite of the Government's emphasis on wheat, this latter acreage level has not been attained recently (1.3 million feddans in 1966/68). Wheat production averaged 1.5 million tons in 1960/62, the same as in 1968. Both maize and rice production have gone up notably of late. In 1968 rice output was 23 percent and maize 19 percent above the 1962/64 average. Part of the expansion in maize is because of higher yields resulting from the increasing use of hybrid seed and the sharp shift from the nili (short season) plantings to full-fledged summer status. More and more land has been put to fruits and vegetables. Per capita consumption of vegetables in 1966 was 2! times that of 1951; and of fruits, 1-1/2 times.

1/ The exception is that a nominal sum is charged if water is pumped.

57. Aside from rice, the output trends of late have not affected the level or composition of foreign trade very much. Animal products continue to be heavy consumers of foreign exchange. A main import is live cattle from the Sudan. Fats and oils are also in increasing deficit. Another significant import item is tobacco. Imports of wheat and wheat flour have been going up, totalling £E 80 million in 1968. These are by far the largest items on the farm import list. On the export side, rice exports totalled almost £E 40 million in 1968, close to double the figure of £E 21 million which was attained in 1965 and 1966. The comparable tonnage figures were 527,000; 365,000; and 354,000. Nonetheless, rice exports have a long way to go to become as important as unprocessed cotton, even though the latter (at £E 110 million in 1968 and £E 128 in 1967) is running well below the figure of a decade or more ago (for example, £E 132 million in 1953).

Yields and Technical Change

58. Egyptian farmers produce respectable yields per acre although they are said to vary a good deal by region, by year, and by farm. Still higher yield targets appear possible if the developed agricultures are taken as models. In the period 1960/64, the UAR yields compared to those of selected high-yielding countries as follows:

Wheat	59% of the Netherlands
	66% of the U.K.
	82% of New Zealand
Pice (Paddy)	84% of Spain
	85% of Australia
	102% of Japan
Cotton (fiber)	109% of U.S.A.
	109% of Peru
Corn	63% of U.S.A.
	52% of New Zealand

59. The overwhelmingly striking feature of Egyptian agriculture in the 1960's is the stagnation in yields per acre (See Annex Table 33). It appears that important crops such as rice, sugarcane, sesame, barley and flax are in a yield downtrend. Maize and millet are doing rather better 1/.

60. The unfavorable trends in yields may be for several reasons. One possibility is a rise in the water table and a consequent increase in soil salinity. Another is the bringing into use of new land which requires time to reach acceptable yield levels. But this may not be very important as the

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1/ A possible target for maize can be drawn from the experience of the developed countries. For example, at 1.6 percent compound the growth rate in the UAR yield of maize per acre is about one third that of the U.S.

cropped area in 1965 was less than in 1960, and in 1967, it was only one percent greater than that of 1960. A third source of deterioration in yield levels may possibly be a slowdown in the rate of modernization of the agricultural sector particularly in areas where drainage is worsening, and especially in the more recent years. However this possibility is not fully apparent from the available data, a review of which follows.

61. For many years farmers have drawn heavily on purchased inputs. However, the recent trend is not notably upward. The outlay for inputs in agriculture was LE 190 million in 1965, and LE 208 in 1967. The former figure is equivalent to 24 percent of the value of agriculture output; the latter, 23 percent. The major outlay is for fertilizers. In terms of gross tonnage, it has been estimated that farmers used 121 percent more fertilizers in 1967 than in 1952. Nitrogen consumption averaged 136,000 tons in 1955-69 period as against 313,000 tons in 1967. Phosphate and potash showed comparable increases. However, rates of use and the nutrient balance can perhaps be improved, especially in areas where the drainage constraint is removed.

62. Comparable data on other modern inputs are not readily available. One estimate puts the consumption of insecticides at 500 tons in 1952 and 15,000 in 1967. Another source shows that 11,000 tons of chemical pesticides were used in 1960 and 20,000 tons in 1966. Some 336,000 tons of improved seed were used in 1952, as compared to 1,614,000 tons in 1967. Mechanization is another major input. The number of tractors approximated 10,900 in 1959 and has been estimated at about 18,000 in 1967. About 70-80 percent of these units are privately owned.

Farmland and Labor

63. Both cultivated area and the amount of labor in use in agriculture have continued to increase in recent years. Cultivated area reached 6.5 million feddans in 1966, up 10 percent from the figure of 1946 and 23 percent from the 1937 level. The cropped area adjusted for the number of crops taken from the average acre per year has expanded from 9.31 million feddans in 1952 to 10.37 in 1960 and 10.46 in 1967 1/.

64. The rural population continues to grow in absolute terms, although as a percent of total population it has been falling. The rural total was estimated at 18.1 million in 1966, sharply above the figure of 11.5 in 1937. Similarly, the labor force in agriculture has been growing in absolute terms, but falling as a percent of the total national labor force. The available data show 3.6 million as employed in agriculture in 1961, equivalent to 55

1/ This is an unsatisfactory measure of the intensity of land use, because it reflects only the number of crops per year, with each crop carrying the same weight regardless months to maturity. Under this definition, substituting short for long crops, for example, increases the indicated intensity of land use although the opposite may have resulted in fact.

percent of the national total. This latter figure seems to have fallen by close to one percent per year through 1968 when the absolute figure was 3.9 million and the percent was 51.

65. The number of rural people per feddan of cultivated and cropped area has been increasing. However, discussions on land-labor relationships mean little unless possible changes in quality in each of these factors through the years are taken into account. For example, illiteracy is especially high in rural areas, but declining, therefore making it probable that the average quality of the human agent in agriculture is higher now than a decade ago. Similarly, new areas are being brought into use as farmland each year. Their production capacity builds up slowly. And as build-up occurs, land elsewhere may be deteriorating in quality because of a rising water table, impeded drainage, increasing salinity or other reasons. The intensity of use of both old and new land may also vary from year to year.

Income

66. Farmers at the lower end of the income scale are better off now than perhaps ever before. This is not because the per capita earnings of the sector have been increasing rapidly, but rather because the land reform program begun in 1952 transferred a significant volume of assets and income to small farmers. Since 1952 about 760,000 feddans of farmland (some 12 percent of the national total) have been taken from landowners holding more than 100 feddans and distributed to 300,000 rural families for a nominal payment. This land now changes hands in the free market at LE 700 to LE 1,000 per feddan. Land rents have been fixed at a maximum of seven times the land tax (at its 1949 level). This cut rent by 33-50 percent as of the time of the decree, and it has continued downward in real terms since that time. About one-half of the cultivated area is in tenancy today and there are some 700,000 tenant families. These now receive written three-year leases under terms which make eviction highly improbable.

67. Another feature of the income trend in agriculture is that wholesale prices of food have been trending upward relative to other prices in general. Although this movement is less prominent for prices received by farmers, it remains true that the shift in relative prices is producing income improvement for people on the land. Farmers are also favored by real estate taxes. These have not moved upward at a rate at all close to that of the real value of property. Part of the declining burden of real estate taxation has been offset by the increased rates of defense tax.

68. As a part of incomes policy, Egypt has chosen to use its agricultural resources and its capacity to import to improve dietary levels. The tendency in both the caloric and protein supply per person per day has been upward:

	Unit	1950-51	1955-56	1965-66
Protein (vegetable)	Gram	55	77	80
(animal)	Gram	13	15	12
Calories	Calorie	2,336	2,590	2,813

Authorities on nutrition characterize present total food supplies as sufficient to cover the caloric and protein requirements of the nation, although distribution problems may persist. From the point of view of the quality of diet, they point out that cereals provide too high a portion of the intake of calories and protein, as well as of most minerals and vitamins.

Public Investment

69. Agriculture, irrigation and drainage have been allotted close to one-fifth of total public investment in recent years. The figures are:

	1964-65	1966-67
	LE Million at Current Prices	
Agriculture	28.0	29.6
Irrigation and Drainage	37.4	34.0
High Dam	18.6	16.5
Total	84.0	80.1
Total above as percent of all public Investment	19	18

These data would change but little if private investment in agriculture were added. The latter is estimated at only LE 5 million in 1965 and LE 2 million in 1967.

70. Public outlays in agriculture more than doubled between 1961 and 1966. But in 1968 they were only 75 percent of the peak year of 1966. Area-increasing (reclamation) activities suffered less than did crop-livestock and irrigation-drainage from this budget cutback.

Research and Extension

71. Research has always been a primary task of the Ministry of Agriculture. In fact, before the revolution of 1952, the Ministry did little else but research. It now works at 174 sites in seven research departments: soils, field crops, horticulture, plant protection, animal production, veterinary, and agricultural economics and statistics. The staff in 1968 included 1784 university graduates, and the budget was LE 3.25 million.

72. Cotton has absorbed much of the research effort and varieties have been under continuing improvement. More attention is now being given to other crops. For example, production practices have been developed which will double the existing national average yield of maize on good soils, even if only open-pollinated stock is used. Similarly, rice yields have been sharply increased by using varieties such as Giza 159 adapted to local conditions. This type of work is fundamental to progress in agriculture, and it becomes doubly important where increasing output by increasing the land supply is costly, as in the UAR. It is doubtful if the UAR is doing nearly enough technical research in agriculture (including animal husbandry), given the high returns to improving techniques in agriculture and the relative scarcity of high yielding opportunities in other areas.

73. The same is probably true of the Government's effort to expand the use of modern inputs and improved cultivation practices. This is the specific task of the extension service. The under-utilized potential in extension is only now becoming apparent. Recent experience suggests that intensive extension can increase yields significantly. A new extension approach was begun in 1967 in 31 of the less productive villages and involved a total cropped area of 9,800 feddans. In 1968, the intensive program covered 43,000 feddans and 154 villages. In 141 of these villages, the effort centered on one crop, usually corn, cotton or rice. The remaining villages were classified as multi-purpose, and the program aimed at improving farming practices in general and in finding new outlets for labor. The 1969 program has been expanded still further, and the target is to add 90,000 feddans per year until about 900,000 feddans are under intensive extension at all times.

74. The program increases the supply of guidance and modern inputs to the selected villages. The enlarged staff undertakes to assure that appropriate farming supplies are always available and that all farmers do the right things at the right time -- sowing, fertilization, spraying, and so on. In 1968 the program raised the yield of corn from 9.7 to 18.6 ardeb per feddan in the village of Zohra (Beihaira) in 1968. Results elsewhere were comparable. Nonetheless these are illustrative data and more refined measurements are desirable. To get comparable results over much larger areas may be more difficult. It is also important to note that Egypt, unlike many countries, is free from a trained personnel constraint in expanding its extension and supporting services to farmers. For example, nearly 5000 specialists in agriculture and veterinary medicine graduated in 1964. (This indicates that outlays for agricultural education may be too high, particularly for the upper levels.) This capacity to expand extension work should be more fully exploited.

Credit

75. The farm credit system is operated by the General Organization of Agricultural and Cooperative Credit. The volume of credit in agriculture has been expanding rapidly. In 1957, farmers borrowed £E 20 million; in 1967 it reached a total of £E 87 million. The system operates through the agricultural cooperatives in each village, although organizationally independent of them. Both the Cooperative organization and the Credit organization report to the Minister of Agriculture. An increasing proportion of credit is in kind, and in 1967 this was about two-thirds of the total. The system is financed by advances from commercial banks and the Central Bank and subsidies in a significant degree are involved. About 95 percent of the credit is on short term. Two of the major problems are delinquencies and accounting. No data were made available to the mission on arrears but the need to improve collections is widely recognized.

Prices and Costs

76. The prices of major items bought and sold by farmers are largely determined and administered by the Government, subject to such ultimate constraints as the balance of payments and income and incentive effects. However, it has proven difficult to discover the agricultural price structure necessary to produce the desired resource allocation and simultaneously

fulfill other public objectives. Supplemental means of resource management have been installed. For example, a scheme of crop rotations laid out on the basis of large blocks made-up of plots from many farms, combined with annually established acreage allotments for the three main crops (cotton, rice and wheat) has been installed. Another scheme involves the sale of all the cotton and parts of the rice, sesame, peanuts, onions, garlic, lentils, wheat crops to the Government at prescribed prices. This system gives the Government a main source of revenue.

77. In addition to using prices as a substitute for (or complement of) taxes, the Government tries also to keep the price of staple items at a low and stable level for consumers. This "social" objective in pricing is also apparent on the input side. There is no charge for irrigation water as such, and until recently agricultural production credit was interest free.

78. The effects of this multi-faceted pricing structure on resource use and output in agriculture is not clear. Farmers have not been paying directly for some valuable things (water); and they perhaps have been receiving too little for other things (rice) and too much for still others (wheat). As noted above in a different context, farm products have tended to become more valuable relative to non-farm products in recent years, in terms of wholesale prices. The wholesale price index for industrial products and materials moved up from 429 to 497 (1939 = 100) in the period 1951 through July 1968 (Table 56). One of its components of great interest to farmers -- fertilizers -- actually fell in this period. Meanwhile, prices of foodstuffs as a group rose much more sharply, from 335 to 538 in the 17-year period ending in July 1968.

79. However, it should not be automatically assumed that prices received by farmers move up at a rate comparable with the wholesale price level for foodstuffs. The state is an important intermediary between food producer and consumer and subsidies, penalties, rationing and multiple pricing have been used as policy instruments to a large extent. Farm product prices at point of first sale have moved up as follows:

	Prices Received by Farmers		%
	Av. 1957-60	1967	Increase
	Piasters per Kilogram		
Wheat	2.5	3.7	48
Maize	2.4	3.7	54
Rice (Paddy)	1.9	3.0	58
Sugarcane	0.23	0.27	17
Beans	4.3	5.4	26

80. The major price movement in production requisites has been in labor. A daily rate of P.T. 25 is not uncommon today. This is close to double the effective rate of a few years ago. A summary of available price data on other items entering production costs is in Table 58. The extent to which public funds have been drawn upon in creating and sustaining the price level of things farmers buy is not known. However, some evidence is available about the cost of stabilizing the prices of things farmers sell.

81. The agency charged with assuring supplies and stabilizing prices of staple foods lost about £E 3.5 million in 1967 and £E 5.8 million in 1968, leaving aside certain administrative charges. The main items on which cash income exceeds outgo are sugar and tea. Although a ration of sugar is made available to all at a subsidized price, additional quantities are offered at a much higher (and profitable) price. Quality tea is considered a luxury item and annual returns to the Treasury are around US $16 million. Wheat and wheat flour are important contributors to public losses, and in 1968 losses in these products reached over US $54 million.

82. The stabilization agency maintains a substantial inventory of staple food items (Table 60) and this, along with access to the Treasury, has enabled it to exert a significant price stabilization effect. The selling prices of the agency have changed but little since mid-1965.

83. Overall, it is difficult to pass judgment on the effect of these price and cost controls on the efficiency of resource allocation in agriculture and on income distribution. A first step would be to establish operational criteria to serve as the basis for appraisal.

Marketing

84. Marketing arrangements in agriculture are an essential complement to the pricing system. The farmer deals mainly with Government or quasi-Government agencies in procuring his farm supplies and marketing his product. His main point of contact is the village cooperative. This agency anticipates his input requirements and makes arrangements with the Credit Organization and other public agencies for supplies, delivery, storage and finance. Alternative sources of materials are not readily available to farmers except as they exchange among themselves.

85. On the product side, the first step toward co-operative marketing was begun with cotton in land reform areas in 1953. It has since been extended to include rice and certain other crops. These products are delivered by farmers to the village cooperatives or some other designated agent of the responsible Government agency (individual quotas are assigned at times). They then move through the processing and distribution chain to domestic consumers or foreign markets under Government ownership, supervision or control.

86. The apparent intent of the Government is to develop an agricultural cooperative system able to handle all marketing tasks on both the product and input side. To date, however, much farm produce moves through private channels, albeit under an inclusive set of price and other controls enforceable by the State. For example, the local (district and village) markets are either owned and managed by the Government or licensed by it.

87. The volume of business done by each of the public marketing organizations is by no means insignificant. But evidence on their effectiveness and efficiency is scarce. It is unlikely that the system would itself rapidly identify or cure its deficiencies, as it does not automatically produce pressures to release resources or upgrade technology or accumulate for

investment. However important its shortcomings may turn out to be, it is clear that the agricultural marketing system has undergone profound changes since the revolution of 1952.

Planning and Coordination

88. Agriculture fell somewhat short of target during the first plan 1961/65. The value added in agriculture rose by 3.3 percent per annum against the planned rate of 5.1 percent; employment in agriculture grew at a 3.3 percent rate against the planned rate of 3.2 percent; and investment in agriculture, irrigation and drainage made up 17 percent of total national investment as against a planned figure of 19 percent. In effect, both investment and expectations concerning the agricultural sector have been on an annual basis since the mid-1960s and neither has been formalized as a part of a national plan or as an integrated sector scheme.

89. It appears possible that investment in agriculture since 1965 would have been higher and of a different composition if formal planning had continued beyond the mid-1960s. Whether this is true or not, it will not be easy to resume planning in agriculture and effectively to monitor and coordinate the performance of the executive agencies. This is because several agencies are now charged with promoting agriculture and the personnel strength of each has been tending upward. Difficulties of a bureaucratic sort are to be expected in complex structures charged with doing many big and interrelated jobs and involving many organizations and people. By way of illustration, it is worth noting that the Ministry of Irrigation in December 1968 had a staff of about 54 thousand. One result is to make planning the more necessary, both to design resource allocations and to monitor performance.

90. One of the important tasks facing the planners today is to project the output and employment capacity of agriculture over the several decades ahead. A primary determinant of this capacity will be the supply of water available for irrigation. Studies of the possibility, the costs and the returns to expanding the water supply through upstream development of the Nile and from other sources, need to be intensified. Data of this sort are essential in designing economic development strategy for the long run.

Improving the Agricultural Performance

91. A very determined effort needs to be mounted to reach acceptable levels of growth in the sector. This becomes clear if one projects the sources of gain in agricultural output which are now visible. This projection follows. Its implications for change in agricultural development policy are then explored.

92. The bulk of the effort in agriculture is going into land development. This program is firmly scheduled, and to falter now would result in forgoing much of the benefit from the heavy investment already made in the new Aswan Dam. The general expectation on new land has been of the following order of magnitude:

	Thousand Feddans
Cultivated area -- 1965	6,160
To be reclaimed through 1975	
- using High Aswan Dam Water	1,250
- other projects	400
Cultivated area in 1976	7,810

A nine-year increase of this magnitude in the cultivated area would represent a growth rate approximating that of total population. 1/

93. However, some adjustments are likely to be made to these expectations as experience unfolds. Two examples may be cited. First, to date it has proven costly to find and make available underground water. Second, some of the desert soils of calcareous sand and lacustrine clays are more difficult and costly to manage than was expected. About 656,000 feddans were reclaimed in the period 1960-68 (Table 31). Of these, about 200,000 have been raised to a productivity level at which the value of saleable product covers operating costs. It is planned to reclaim an additional 50,000 feddans this year (1969). There will then remain 564,000 feddans to be reclaimed through 1975 to enable full utilization of the new Aswan waters. 2/ The total reclaimed area for the period 1960-76 will then total 1.25 million feddans. (This target assumes that a sufficient area of soils of sufficient quality to make reclamation economic can be found. It is generally believed that this can be done.)

94. Land reclamation under the natural conditions of Egypt is understandably costly. Including social outlay and a charge of LE 65 for the High Dam (Table 38) average costs have been running around LE 520 per feddan. The figure varies by ± 20 percent, depending on such factors as soils, topography and location.

95. Reclamation in other than the above-designated areas (and independent of the expanded water supply from the Nile) has totalled about 83,000 feddans since 1960. As noted, the costs are high and the present evidence suggests that a realistic projection of the rate of growth of production capacity in agriculture will not count on these areas for a substantial contribution in the near term. 3/ Continuing study is in order, however.

1/ Alternative sets of data are available on both intended and realized activity in land development. However, the differences would not change the conclusions.

2/ This includes the Salhia project. It is hoped to bring more soils of higher quality into the scheme if it becomes possible to bring part of Lake Manzala into the project area.

3/ The outlook for the longer term may be different. Reports indicate that an underground water reservoir sufficient to irrigate a million acres for 800 years has been found in nearby Libya. This is being tapped for experimental farming now.

96. The second source of increase in production as a result of the Aswan High Dam is the conversion from basin to perennial irrigation of about 930,000 feddans in Upper Egypt. This enables multiple cropping. Some 80 percent of this gain has already been achieved, with the remainder to be completed by 1972, mainly through levelling. The gain yet to be realized is thus about 130,000 feddans of cropped area per year if one ignores questions of drainage and the probable effect of the lack of it on yields.

97. A third source is the intensified program of drainage now being planned. It is contemplated that a £E 73 million project to drain 1.4 million feddans will begin in 1970, with area drained in that year being 80,000 feddans, building up to an annual rate of 240,000 feddans in 1975. On this schedule, as much drainage will be accomplished in the single year of 1975 as during the entire 1960/65 Plan period. If one assumes a yield increase of 25 percent as a result of drainage and a cropping factor of 1.7, this program as of the end of 1975 will have created the equivalent of about 391,000 feddans of cropped area per year. 1/ This will have been at a cost of about £E 48 million (920 thousand feddans times an estimated unit cost of £E 52), with annual operating and maintenance charges of the system expected to be around £E 0.7 per feddan-year. 2/

98. In terms of cropped area equivalent, these three categories of outlay will result in an increment of 1.2 million feddans as of beginning 1976 in comparison with the end of 1967. This represents an annual compound growth rate for the period 1968-75 of about 1.4 percent. Interesting propositions follow:

(1) at the contemplated rate of land development as just described, the rate of growth in farm output will fall below that of population unless the rate of growth in yields per acre is increased above its recent rate (see paragraph 59), or the cropping pattern is upgraded;

(2) the implications of such a fall (relative to population growth) in the farm output growth rate for the balance of payments and the national capacity to invest are serious enough to suggest that development resources should be redeployed to produce a proper combination of more rapid land development, more rapid yield growth, and more rapid upgrading of the cropping pattern;

1/ The figure of 25% is slightly higher than the recent IBRD drainage project appraisal group assumes for purposes of making recommendations concerning a loan. This figure does not include the yield effects of the heavier use of modern inputs which is made economic by drainage.

2/ Alternative schemes being put forward show drainage completions on as many as two million feddans by 1975. But whatever may be the target finally settled upon, drainage is widely recognized as a big job. For example, it has been estimated that to install proper drainage in all of the presently irrigated area would cost £E 300 million.

(3) if it is unlikely that land development can be done any faster than is now contemplated without resulting in unacceptably high unit costs, and if rapid shifts in the cropping pattern are unlikely 1/ then the highest-yielding way to raise farm output is to increase sharply resources going into promoting improved technology where soil and groundwater conditons permit. This is the proper course that should be followed.

99. This finding is not inconsistent with more capital investment in agriculture. In fact, the two categories of outlay may be quite complementary. The policy issue of today is really not the simple one of more acres versus more productive acres -- to be considered within an overall sector investment constraint. Rather it is the rate at which both more acres and more productive acres should be developed. This involves inter-sector comparisons of returns to investment which should be considered within the framework of a detailed development plan. In any case, a prior task is to show that agriculture can draw a high yield from more funds if they are spent to expand the use of modern inputs.

100. The rate at which the use of modern inputs can be increased depends on the specific response to technology. Data are scarce on this matter. Within the limits imposed by deteriorating drainage conditions, the mission believes that there is substantial scope for raising agricultural production through expanded technical research and development and by means of heavier use of superior inputs and modern cultivation practices. There is evidence that this view is shared by the Government.

101. Few of the reasons typically given in explanation of under-utilization of modern inputs such as machinery and pesticides apply to Egypt. These include: too little water; too unreliable a water supply; farmers do not know how to use the inputs; the planting materials are not responsive; the extension staff cannot reach farmers; and the credit and input distribution system is already overburdened. The most probable reason why under-utilization persists in Egypt is that input supplies have been limited; with supplies rationed, unfilled demands have not been apparent. The supply is short because foreign exchange has been scarce, making it difficult to assign enough funds for necessary inputs. This difficulty has been reinforced by the desire to promote domestic production of inputs, already well advanced but still not enough.

102. Water use is another important issue. Evidence on actual versus optimum use levels is not readily available. There is an increasing body of opinion that farmers use much too much, as, for example, during the final stages of the cotton crop. From the farmers' point of view it is a

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1/ Because these shifts would inevitably mean more exports and imports, and it is difficult to rapidly expand exports of products such as fruits and vegetables.

free good, 1/ and the relation between irrigation, drainage and crop yields may not always be clearly seen.

103. It may be difficult to improve water use. One reason is that there is no shortage of water at present in relation to the area available to use it. Another reason is that it would be almost impossible to install a system enabling individual water charges to be levied according to offtake unless land holdings were consolidated. The potential gain from land consolidation is probably very high. In 1950 over 50 percent of the land in farms of 2-10 feddans was made up of three or more plots. The comparable figure for the 10-50 feddan group was 75 percent. Consolidation of land ownership is not now under serious consideration, except by the cooperative system on an experimental basis. The fact is that consolidation may not be able to generate much interest because its most obvious effect is popularly seen as one of saving labor rather than promoting technical progress in production methods.

104. Crop consolidation rather than land consolidation has been tackled in the land reform areas by arranging that contiguous plots, regardless of ownership, be sown to the same crop. Fairly large blocks of land (up to 300 feddans) belonging to many owners were thus brought under the same crop and the same rotation without disturbing ownership rights. This process begun in Nawag village in Gharbiya Province in 1955, was undertaken in over 90 percent of the national cultivated area in 1965.

105. To make it profitable for farmers to use only the economic amount, some type of volumetric control of water use is indicated. As long as individual accounting is prohibitively costly (because of the land ownership and use pattern and the water distribution system) there is little recourse other than to organize and charge on a group basis. This merits consideration. 2/

106. Using water and modern inputs to better advantage would make it easier to grow crops worth more per unit. It has long been the policy of the Government to shift more and more agricultural resources into the production of higher-value crops. For example, as long ago as 1957 the Government asked FAO for technical assistance in fruit and vegetable marketing with the hope that more resources could be put into these high-yielding outlets.

107. Nonetheless, the cropping pattern still contains a significant acreage of low-value crops. The typical rotation, now of three years, is defended mainly on the grounds that jointly with decrees setting up maximum cotton acreage it is the least-cost way to sustain land productivity. In

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1/ Even if paid for through the land tax, as some claim, the amount payable is not dependent on the amount used, nor is a water charge an identifiable element in the land tax payment.

2/ See Phillip Kirpich and Peter Naylor, Irrigation Under Conditions of Small Land Holdings, Congress of International Commission on Irrigation and Drainage, Mexico, 1969.

turn, the cotton and wheat acreage requirement is seen as promoting the optimum external relationship, both through the supply of exportable cotton and the level of wheat imports. 1/

108. Technical and economic circumstances change rapidly and in so doing create the need for continuous study of alternative cropping patterns. The realized and potential technical gains in corn of late are vastly greater than in cotton or water buffalo. The export price of rice and the import price of wheat are likely to be weaker in the next five years than in the past five. The upward price pressure on animal proteins for human consumption will be sharper tomorrow than today. Pest control for cotton by labor-intensive methods will be more expensive relative to alternatives in the future than it is today. These suggest the need for a continuing adjustment in the cropping pattern, even as do improvements in drainage and the creation of certainty in the supply of water for irrigation.

109. Specific recommendations on the cropping pattern are not possible without detailed study. This would involve a range of assumptions on technical coefficients and on foreign and domestic prices. It is quite conceivable that such a study would indicate that there is a place for a relative increase in berseem, corn and pulses to help cut back on imports of animal products. This would tend to discourage domestic output of wheat, thereby reinforcing the need to price wheat to consumers high enough to reflect its real cost and promote shifts to substitutes such as potatoes which do not directly consume foreign exchange.

110. More than foreign exchange is involved, of course. Labor is also important. A high labor-using cropping pattern with minimum seasonality is being sought. Another consideration is crop diversification to spread risk.

111. Little or no research is being done on the cropping pattern. This is to be regretted, both because a refined set of technical and economic data can be quickly developed and because the outlook for progress in agriculture needs to be strengthened by all possible means. Upgrading the cropping pattern may be one way.

112. Movement toward higher-value crops implies several complementary steps. One is an organized effort to discover openings in foreign markets and to design production and marketing accordingly. This is particularly necessary for fruits and vegetables. To be fully effective it may have to be done jointly with other countries which are seeking markets for similar products.

1/ The target is typically not over one-third of the cultivated area in cotton and not less than one-third in wheat. However, it has not always proven possible to attain these acreages. For example, cotton acreage sank below the desired level in 1968, and higher prices have been announced to induce an upswing in 1969. Wheat is a like case. Although liberally priced, many farmers find berseem more profitable and the pressure to move out of wheat is persistent.

113. Another associated step is to move towards a system which permits farm product prices in the domestic market to reflect real costs and the international market. In paragraph 81 it was noted that to hold bread prices stable the Government of Egypt made bread available for the year 1967 at LE 54 million less than it cost. This over-stimulates demand for bread, thereby absorbing more resources for its production (or importation) than would otherwise be necessary, and hence leaving fewer resources available for higher uses.

Conclusions and Proposals

114. Each year the agricultural sector commands more resources of all kinds and increases output; but it shows a highly unsatisfactory trend in productivity. Among other things, this raises questions about the level and distribution of investment in agriculture. There is also need to be concerned about the rate of growth in the capacity of agriculture to earn or save foreign exchange.

115. Any appraisal of the public performance in agriculture must relate to a target set of objectives. Targets were not specified officially for the recent past nor have they been for the immediate future. On the production side, if such targets had been set, and if they had embodied the growth goals of the first plan period (1960/65), they would not have been met unless performance had improved. As to institutions serving agriculture, there has been massive change. Its main feature is the enlargement of the public role. Ways of improving effectiveness and efficiency in the agencies serving agriculture are being sought and debated. This debate needs to be focused and intensified if agriculture is to be fully exploited as a source of economic growth. Basic policy issues also need debate. It is probable that relatively too little has been invested in agriculture, and much too little in certain sub-sectors. Another question concerns the degree to which the system allows the better farmers to farm better.

116. To improve the performance of the Egyptian agriculture it is necessary to establish the criteria by which performance is to be judged. This is because the decisions left to the farmer are so few. The Egyptian farmer does not have full control over the use to which he puts his land and labor, nor over the kinds and amounts of inputs he uses. He does not have alternative sources of supply for production materials and services nor alternative outlets for his major products. Prices are not allocation devices in the sense of reflecting scarcities and real costs. Superior farming skills (production, management, marketing) cannot be fully expressed. Those who would innovate cannot. Those who lag are still tenure-secure. The major decision open to the farmer today is how hard to work. Under these circumstances, it is not easy to determine whether he is doing a good job or how to promote a better one.

117. The same can be said of the public agencies servicing agriculture. As with farmers, superior management is not rewarded. Shortcomings in performance are not readily visible, and the only corrective mechanism is the political process.

118. With performance thus divorced from penalty and reward, at least to some degree, it is important to introduce criteria which will act continuously as a force to shift resources into higher-yielding uses. This may involve the use of explicit targets and monitoring systems.

119. Current effort in agriculture should be geared to increasing yields per acre, in so far as drainage conditions make it economic, and to assuring full utilization of the available water supply. The public decision-making machinery needs to take more cognizance of market developments abroad, and there is dire need for a system of individualized penalties and rewards for farmers and managers. A closer relationship between the real cost of a thing and the price paid for it by consumers and farmers needs to be established. These judgments imply that the Government needs to consider taking steps of the following illustrative sort:

(1) Speed up technical change by (a) making available the foreign exchange required to increase the fertilizer supply by, say, 20 percent and the number of tractors by 25 percent in the year ahead (adjust these percentages for succeeding years in the light of field evidence as to demand); (b) assuring that the effort to produce and distribute improved seed and to extend plant protection can move forward without financial constraint; (c) expanding the intensive extension program at triple the presently contemplated rate, concentrating it in the most productive areas, and putting much more emphasis on technical research;

(2) Improve resource use and the agricultural credit and cooperative system by (a) promoting the construction of adequate warehouse space in each of the village cooperatives; (b) installing an effective accounting capacity in the agricultural cooperative and credit structure, beginning at the village; (c) directing that the agricultural credit system and the agricultural cooperative system become self-supporting in five years, simultaneously raising interest rates to cooperatives and farmers and making available as much money as can be loaned at the higher rates; (d) developing group responsibility for future delinquencies in credit; and (e) adjusting farm real estate taxes and farm land rents upward with general price increases, and discouraging waste of irrigation water by requiring the farmers to pay for it.

(3) Forestall deterioration and enable growth in yields per acre by (a) urgent implementation of the planned drainage program; (b) sharply expanding this program to the economic level through appropriate means 1/; (c) using the leverage developed by the

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1/ For example, by utilizing staff from abroad on a short-term emergency basis. It is realized that this course would require adjustments in certain current practices such as conditions of employment and repatriation of earnings.

drainage subsidy to promote in areas about to be drained a program to consolidate landownership, utilizing paid village committees and under-employed agricultural graduates as the operating group for this very high-yielding activity, (d) taking appropriate steps 1/ to speed up the soil survey to assure that the areas in greatest need of drainage receive priority attention; (e) exploiting the drainage outlay to the utmost by intensive extension programs in areas being drained.

(4) Intensify studies of ways of expanding agriculture by (a) the provision of more water (from the Nile, and groundwater); (b) technical improvements, including drought-resistant crop varieties, and (c) more economic use of water and other resources.

V. INDUSTRY

120. Industry has played a leading role in the development strategy of the UAR since 1957, when the first industrialization plan was launched. The share of industry in GDP has risen from less than 10 percent in 1952 to more than 20 percent in 1967. During this period the relative share of industrial output of the traditional industries processing local raw materials (textiles; food) declined as the scope of manufacturing industry widened. This decline will be more noticeable in the next few years if the petroleum industry develops as expected.

121. Since 1965, with the slowing down of general economic growth, excess capacity appeared in many industries, particularly those which were designed to serve the domestic market. A decrease in demand for some consumer's goods accompanied the overall slowdown in economic activity. Stocks of a wide range of products which were not marketable abroad nor saleable at home because of their high prices were accumulated. Factories which were already working below capacity because of the shortages of raw materials and spare parts, and other production difficulties, or in some cases over-investment, in the first place, reduced production. From 1965 to 1968 the percentage of unused capacity in the industrial sector as a whole averaged more than 31 percent. The branches most affected were engineering and metal working industries, motor vehicles, heaters, sewing machines, the electrical and electronics industries, refrigerators, T.V. sets, radios, some chemical industries, soap, plastics, powder, pencils and matches, some food industries e.g. soft drinks and some textiles (low quality yarns and finished goods). Prices of some consumers durable goods, namely, wool yarns, textiles, refrigerators, radios and T.V. sets, were reduced last January with the very aim of increasing domestic demand, decreasing stocks and achieving a fuller utilization of the existing productive capacity. The cuts averaged 30 percent. The products covered, however, concerned only a small fraction of total private consumption and further reductions for other items are under consideration.

1/ See footnote on p. 28

122. Despite a very close system of control of the financing of industrial investment, whether through direct Government appropriations or through the banking system - mainly for operational deficits and for short term needs - organizational arrangements do not make it easy for the choice of priorities and the selection of projects to be made systematically in relation to economic criteria. Projects are prepared and submitted by the General Organization for the individual industrial branch to the responsible Minister concerned. Responsibility for individual branches of industry is divided between some five Ministers. The Minister for Industry, Petroleum and Mineral Wealth is but one of the members of the Cabinet responsible for the industrialization policy. Some important branches are under the supervision of the Ministers of Health, Supply and Domestic Trade, Economy and Foreign Trade and War Production. Finally, the Minister of Planning is responsible for putting the industrial policy in the context of the development plan of the country. At a lower level, many enterprises although similar in function, are attached to different General Organizations.

123. Because of the already existing diversification of the industrial sector, and the complex interrelationships among the different branches, in a system - like the Egyptian - where prices do not represent costs, an effective reorganization can be achieved only through a better coordination of decision making. The Government has recognized the need for improvements in organization and has set up a ministerial committee to study costs and pricing procedures.

124. In addition, other measures are being taken to increase industrial output. Among them is a sharp increase in industrial investment. The increase planned for 1969 not only reflects a recovery after the slump resulting from recent economic stabilization efforts, but also the beginning of a very large investment program at the Helwan steel plant, which with related investments would absorb about 50 percent of the total probable industrial investment of the country for the coming five years. The renewed growth of industrial investment poses again the problem of investment allocation and project selection. Although the stated policy is aimed at maximizing returns, fostering export oriented industries, and at eliminating bottlenecks, the Helwan Project does not yet appear to have been weighed in the context of the sector as a whole, nor does the marketability of production from this plant seem to have been fully analyzed.

Petroleum

125. Oil is the most important mineral resource of the UAR. The annual output of crude oil rose from 2.3 million tons in 1953 to 5.7 million tons in the fiscal year 1968, despite the loss of Sinai oilfields which - before the 1967 war - accounted for about 80 percent of total production. New discoveries and developments are expected to result in further doubling of production by 1969. The UAR expects to become a net exporter of crude oil in 1970.

126. Egyptian oil policy seems to be sound, and its management imaginative and businesslike. Several additional areas were recently opened for concession and all the major international oil companies have been invited

to bid. A few foreign companies, namely ENI, Pan American and Philips, already operate in the UAR on the basis of partnership agreements, whereby Egyptian and foreign interests undertake joint operations in case of commercial discoveries and Government proceeds consist of the national share (50 percent) and of 50 percent of the profits of the foreign partner. For the future, however, despite the successful working out of these partnership agreements, the UAR has announced that any form of arrangement which is most beneficial to the country would be considered in order to attract more interest.

127. The recent developments in oil production are in the Western Desert (Al Alamain and Mamor al-Jimal) and at the Red Sea (El Morgan offshore and Amin, Shukheir and Ummal Usr, on-shore). Natural gas was found in commercial quantities at Abu Madi in 1967, and more recently, at Al Westani, both in the Nile Delta. The crude oil in the Western Desert and in the Red Sea region has a higher quality than that of Sinai. Its API degree is, in certain cases, very similar to that of Libyian oil (42° API). It is also located very close to refining facilities. Proved reserves indicate that crude output could exceed 35 million tons in 1975, more than a 5-fold increase over the 1965/68 average. By 1975 total exports are expected to be almost 9 times the 1965/68 average.

128. Before the June war, refining capacity (9 million tons per year) was planned to be expanded rapidly with the doubling of the Mex refinery at Alexandria, and 70 percent and 50 percent increases for the El Masr and Suez Oil refineries, both near Suez. These last two plants have been seriously damaged and in 1968, the amount of petroleum processed in the UAR was only 5 million tons as compared to the 8 million tons in the previous fiscal year. An arrangement was made with the refinery at Aden to process there some crude oil from El Morgan oil field. It is expected that by 1975 the production of petroleum products will amount to nearly 10 million tons.

129. A pipeline to supplement Canal transit is being planned to extend from Suez to the Mediterranean Sea. The line, with a planned capacity of one million barrels per day may cost LE120 - 150 million. A system of contractor's financing is envisaged. The project is expected to be completed by the end of 1970.

130. Petrochemical developments are still in the planning stage. Several specific projects are being considered. The project at the most advanced stage of preparation is a plant to produce polyethylene (20,000 tons a year), polyvinyl (20,000 tons a year) and plasticized PVC (18,000 tons a year). Production would be mainly for domestic consumption with exports primarily to Arab and African countries.

Chemicals

131. The Chemical industry is well developed. Apart from the main branches (fertilizers), great emphasis is given to expansion, renewal and improvements in glass, paper, plastic, tyres and basic gum industries.

132. Egypt produces both nitrogenous and phosphatic fertilizers, about 160,000 tons N and 260,000 15 percent P_2O_5 tons a year respectively, while consumption is about 250,000 tons N and 300,000 15 percent P_2O_5 tons. Discoveries of oil and natural gas and extension and rehabilitation of phosphate rock production offer good prospects for growth of production, not only to cover domestic requirements but also for export. The main projects under execution concern calcium ammonium nitrate (200,000 tons, 20.5 percent) at Helwan and superphosphate (200,000 tons, 18 percent P_2O_5) at Assiut. Despite the virtual self-sufficiency in phosphorous fertilizers achieved in 1966, the rationale for expanding superphosphate production lies in the efforts to promote consumption up to more than 700,000 tons of fertilizer.

Textiles

133. The industry dates back to the 1920's and in 1968 accounted for about 32 percent (including both public and private activities) of the value of industrial production. It consumes one-third of domestic raw cotton production, mainly ashmuni, and although about 80 percent of its output is consumed domestically, it is a major export industry. Cotton yarn and textiles comprise about 70 percent of total textile production. The UAR also makes jute, synthetic and wool yarns and textiles. Through renewal of existing plants and establishment of new factories, total production capacity is planned to increase about 10-15 percent over the next 5-year period. Excess capacity has been experienced mainly in plants manufacturing cheap clothing for domestic consumption. The prices of these goods were recently reduced.

134. Production of cotton yarn and textiles reported a steady increase in recent years from 1963 to 1967: 6.2 percent compounded for yarn and 3.8 percent compounded for textiles. In the same period, production of wool and synthetic yarns and textiles stagnated and production of jute yarn and textiles declined by about 45 percent.

Food Processing

135. Until 1962 when it was surpassed by textiles, food processing was the largest branch of UAR industry although it has a very slow growth rate. In 1952, it accounted for 45 percent of total public and private manufacturing. In 1967 the public factories (93 percent of the total) covered almost 23 percent of the industrial sector output (LE 241.1 million). The major food products groups are, in order of the value of production: sugar and sugar products; cotton seed cake and oils; starch, glucose and yeast; corn and rice products; dairy products; canned, dried, preserved and frozen meats; vegetables and fruits; frozen shrimp.

136. Extension and renewal is planned mainly for sugar and sugar products, preserved products, edible oils, dehydrated products and fish. Food processing did not have to cope with excess capacity problems since this affected significantly only soft drinks. For some lines of production the industry faces significant storage problems for lack of refrigeration rooms.

Steel

137. The iron and steel mill has been operating uneconomically at Helwan since 1963. Its main problems are its uneconomic size, only 300,000 tons and high transportation costs for the ore and fuel. The plant operated at full capacity only last year. Continuous losses have been financed either through Government appropriations or through the banking system. Expansion of the plant, to achieve an economical size, had been given high priority by the Government. Negotiations with the USSR for its financing were completed on May 15, 1968, and works are expected to start before the end of this financial year. The operation is scheduled to be finished by 1975. The new production capacity will be 1.5 million tons, and the project includes the development of Bahariya Oasis iron deposits and the construction of a railway from there to Helwan. The cost of the project is estimated at about LE 350 million, 25 percent of which is in foreign exchange.

Mining

138. Besides oil, the major mineral products of the UAR are phosphate rock, salt, manganese, iron, limestone, marble and gypsum. Immediate prospects for expansion of production concern, mainly, phosphate rock and iron ore, since the major manganese deposits are Sinai and Salt production near Port Said. Proved reserves of manganese ore amount to more than two million tons in Sinai, and minor deposits were recently found in the Eastern Desert. A project for expansion of salt production in connection with export opportunities in Japan was interrupted after the closing of the Canal.

139. Efforts for expansion of phosphate rock exploration and extraction are being directed not only on traditional areas south of Suez (Safaga, Kosseir, Hamrawein), but especially in the Nile Valley in Upper Egypt where more than 130 million tons of proven reserves are located. Production is expected to increase from 740 thousand tons in 1968 to over 1.1 million tons by 1975. Expansion of production is, however, only but one priority. In fact, upgrading of output and improvement of extraction methods are felt as extremely urgent and necessary: the quality of output does not compare favorably yet with North African ores and labor productivity is extremely low. Mechanization, or at least semi-mechanization, of all the mining operations is needed in the short run.

140. Iron ore deposits are located at Aswan and the Bahariya Oasis. Low grade Aswan iron, upgraded to about 50 percent, has been used for the Helwan Steel Mill since 1963, despite the high transportation costs involved in the operation because of the distance (about 950 km). The recently discovered Bahariya Oasis deposits contain about 166 million tons of proven reserves of almost 55 percent iron.

Concluding Remarks

141. The central problem facing the country is how to make the best use of this significant growth potential of many branches of industry. For petroleum, chemical, engineering, mining and for the other promising branches, availability of capital locally is not the only difficulty. The problem is

a combination of the availability of foreign exchange, selection of projects, coordination of activities, location of investment, standard of management, implementation of policies aiming at the best use of available resources, also of the unused capacity that has so far burdened many lines of production. In this connection it will be necessary to strengthen the management of the enterprises and to entrust them with more autonomy regarding managerial decisions.

142. If Egypt can overcome her lack of foreign exchange and can supply industry with what is necessary to supplement investment in domestic currency and if the present reorganization policy leads to the definition of an effective planning, her industrial growth potential can be better exploited. The "new" industries, particularly chemicals, engineering and, petrochemicals could become competitive in the relatively short run. Through upgrading and renewal, also textile and food processing could make more progress in the world market. For the heavy industry it will take longer time before its production can be justified on economic grounds alone. However, even for this sector the long run growth potential can be considerable, especially if efforts toward economic integration among the Arab countries produce a larger market with the UAR the dominant supplier.

VI. PUBLIC FINANCE, MONEY AND PRICES

Public Finance - Overall View

143. The nationalization measures of 1961 marked a turning point in the role of the public sector in the UAR. All major economic activities were brought under government control with public investments now accounting for about 90 percent of total investment in the country. Two budgets were created to cope with the new system of public ownership: the "Services Budget" and the "Business Budget". The Services Budget covers the traditional Central Government functions and include very modest investment expenditure (on average about 10 percent of total public investment). The Business Budget includes Public Authorities and Organizations, the latter acting as sector holding company to which a number of operating companies are affiliated. All surpluses generated by the Public Authorities and Organizations are transferred to the Treasury and, due to the absence of a capital market, investment financing for the Business sector is provided by the Treasury either through loans or contributions to the capital of companies.

144. The fiscal situation viewed from the standpoint of mobilizing internal resources for development, can be characterized as one in which, despite a high ratio of tax-revenues to GDP - around 22 percent - central government savings have persistently been negative and total public savings have been around 4 percent of GDP in most years, though they fell to as low as 2 percent in 1966. This situation has mainly arisen from the very high level and rate of increase of defense expenditure which is now around 10 percent of GDP. However, other current expenditure has also been rising more rapidly than government revenue and GDP. Consequently, public investment expenditure fell continuously between 1964 and 1968.

145. The willingness and ability of the Government to reduce investment expenditure in the interest of overall financial prudence should be stressed. But a continuously falling level of public investment is a trend which must be reversed before the fiscal performance of the UAR can be judged satisfactory from the point of view of development. The 1969 Budget envisages a substantial increase in public investment, a substantial part of which is however unlikely to contribute much to the growth of the economy in the near future. The possibility of significant additions to productive investment over the coming years will largely depend on defense needs and on the ability of the government to follow a policy of austerity for a protracted period of time, should these needs increase further.

Past Trends

146. Central Government finances entered the 60's with a balanced current account budget but the situation rapidly deteriorated and reached its worst point in 1966, the last years of the Plan. The increasing deficit of the early 60's was mostly the result of a rapid growth in current expenditure which far exceeded the increase in revenue and GDP.

Table 1: CENTRAL GOVERNMENT

Annual Rate of Growth

1959/60 - 1965/66

	%
Current Expenditure	18.1
Defense	21.0
Social and economic services	18.0
Current Revenue	11.0
Tax Revenue	11.7
Gross Domestic Product	9.0

A main determinant of the growth of current expenditure was the decision of the government to expand social and economic services in order to satisfy the basic needs of the population. For example expenditure for education and health more than doubled between 1960 and 1966. A very substantial part of expenditure for social and economic services has taken the form of transfers to local authorities, which by 1966 reached LE 123 million, almost 20 percent of current expenditure of the central government.

147. While the government in the early 1960's was trying to expand its development expenditure, it was faced with increasing requirements for defense expenditure which accelerated after 1963 mainly as a result of the military commitment in Yemen. In 1960, defense expenditure accounted for 30 percent of total current expenditure, or about 5 percent of GDP. By 1966,

these ratios climbed to 34 and 10 percent, respectively. The rate of increase in expenditure on social and economic services was of the same order of magnitude.

Table 2: SERVICES BUDGET
(£E million)

Fiscal Years	1960	1962	1964	1966	1967	1968 Prov.	1969 Est.
Current Expenditure	252	369	493	685	663	632	658
of which							
Defense	76	87	177	235	184	258	279
Social and Economic Services	84	129	177	227	223	226	253
Current Revenue	254	307	369	474	525	515	526
of which							
Tax Revenue	175	179	272	342	348	341	360
Balance	+2	-62	-124	-211	-138	-117	-132

148. The revenue performance of the government during this period was good when related to the growth of the economy. By the end of the period, revenues of the Central Government and of local authorities (about £E 50 million) were about 22 percent of GDP or 26 percent including the savings of the Social Security system. This rate is certainly high among developing countries, particularly if allowance is made for the low per capita income. Custom duties (of which 50 percent come from tobacco) were a very dynamic source of revenue all through the period. They are the single largest tax and account on the average for about 30 percent of total revenue. Business profit taxes also increased very substantially, at an annual rate of 24 percent between 1960 and 1966. Their increase was particularly significant in 1965, and 1966, mostly as a result of the efforts of the tax administration in collecting tax arrears.

149. The only significant element in the revenue structure which did not move in accordance with the growth of the economy was the land tax. The tax has a rate of 14 percent applied to the annual rental value of all arable land. The rental value corresponds to about 10 percent of the assessed value. The original assessment is the one of 1946 which a land reassessment conducted in 1956/58 was intended to revise. However, the 1958 land reassessment was delayed until 1966 because of the policy towards agriculture. Starting in 1963, the proceeds of the land tax were turned over to the local authorities, who impose a 15 percent surcharge. The yield of the land tax has, therefore, remained practically unchanged between 1960 and 1966. The rigidity of this tax, however, has been partially offset by the increased rates of the defense tax, which rose between 1961 and 1966 from 3.5 to 10.5 percent of the rental

value. The defense tax which is paid by the user of the land (owner or tenant), has been therefore the only way of increasing the tax burden on agricultural income.

Table 3: PUBLIC SECTOR SAVINGS
(LE million)

Fiscal Years	1964	1965	1966	1967	1968 Prov.	1969 Est.
Central Government	-124.0	-145.4	-211.1	-137.5	-117.2	-132.4
Social Security	69.8	100.1	109.1	122.7	144.9	161.5
Local Authorities	9.7	8.2	12.7	8.6	20.7	22.8
Public Enterprises 1/	113.9	124.3	136.2	110.0	12.5 2/	30.1 2/
Total	69.4	87.2	46.9	103.8	60.9	82.0
Public Investment	369.4	294.2	300.2	271.2	218.8	311.9

1/ Up to 1966 the savings of public enterprises are given gross of transfers from the Central Government to cover the deficit in the current operations of some enterprises. According to rough estimates such transfers have been of the order of LE 20-25 million. Savings of enterprises are defined, starting in 1967, as follows: Savings = (Surplus + Depreciation Funds) -Operating Deficit.

2/ The decline reflects the disapperance of the earnings of the Suez Canal Authority with the closure of the Canal.

150. The large current deficit of the Central Government has significantly offset the savings effort which took place at the other levels of Government. This was particularly evident in 1966 when public savings were only 2 percent of GDP. The decline in savings made it necessary to reduce the level of investment which in 1964 had reached a peak level of LE 370 million. The sectors most affected by the reduction were industry and tourism. However, the reduction in investment was not sufficient to avoid a large resort to Central Bank borrowing in 1966, when foreign credits also declined. The Budget estimates for 1966 had called for LE 17 million of borrowing from the Central Bank but the final deficit was LE 115 million, notwithstanding the stabilization measures taken at the end of 1965, which included tax and price increases as well as cuts in non-defense expenditure.

Recent Developments - Stabilization vs. Growth

151. A substantial improvement in the financial situation of the General Government occurred in 1967. Both the current account deficit and the overall deficit were substantially reduced. The improvement in the current deficit was first of all the result of an absolute decline in current expenditure. Furthermore, there was a substantial increase in current revenues originating from the impact of the stabilization measures. The results of 1967 would have shown a greater improvement had it not been for a substantial amount of liquidation of arrears.

152. On the revenue side, it should be noted that tax revenues remained practically unchanged. This was first of all the result of an absolute decline in customs duties, after several years of rapid expansion. The import restrictions which the government had imposed in order to meet the balance of payments problems are the major explanation for the decline. Fortunately, a vigorous policy in tapping business tax arrears was able to offset this shortfall.

153. On the expenditure side, non-defense expenditure expanded at about the same rate as GDP and this target was achieved by keeping expenditure for goods and services almost unchanged, by reducing cost of living subsidies and by limiting the increase in the wage bill to less than 4 percent. This latter is a noteworthy achievement since upgrading of existing personnel, according to government officials, accounts for about 3 percent of the wage bill. Finally, transfers to local authorities have also remained unchanged after the substantial increase in 1966.

154. A significant development in 1967 was the decline of total public expenditure, in terms of GDP, to the 1963 level. Such decline, was partially the result of further reduction in investment expenditure which affected mostly industry, transport and communications. The need to cut investment even though defense expenditure declined substantially was due mainly to the simultaneous drop in foreign credits and to the determination of the government to reduce borrowing from the Central Bank.

155. The war of June 1967 had a strong impact on the 1968 Budget because of much higher expenditure for defense and revenue shortfalls, mostly attributable to the loss of Suez Canal revenues. A series of measures were taken to offset these factors. On the expenditure side the more important measures were the cancellation of the annual bonus for employees; reduction by one-half of representation allowances and lowering of all other allowances by 25 percent. Expenditures for purchases of goods and services by the government were also reduced. On the revenue side, a national security tax was introduced at a rate of 50 percent of the existing defense tax. 1/ Other tax increases affected the stamp duties, taxes on private cars and other excise

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1/ The tax was only 25 percent of the defense tax levied on land in view of the fact that the land tax itself had been raised by about 25 percent as a result of the implementation of the land reassessment of 1956-58.

duties. Price increases were imposed, among others on cigarettes, sugar (by transferring part of rationed sugar to free sugar, which pays a higher price) and transportation fares. Furthermore, the damage to the oil refinery at Suez called for further rationing of kerosene and price increase on non-rationed kerosene. Finally, social security contributions were also raised.

Table 4: FINANCING OF PUBLIC SECTOR CAPITAL EXPENDITURE
(£E million)

Fiscal Years	1964	1965	1966	1967	1968 Prov.	1969 Est.
CAPITAL EXPENDITURE						
Investment	369.4	294.2	300.2	271.3	218.8	311.9
Debt Repayment 1/	-	-	-	-	20.7	25.4
Emergency Fund 2/	-	-	-	-	-	27.0
Total	369.4	294.2	300.2	271.3	239.5	364.3
Sources of Financing						
Public Savings	69.4	87.2	46.9	103.8	60.9	82.0
Savings Certificates	-	6.2	17.5	24.8	13.6	15.0
Postal Savings	11.4	8.8	5.1	1.3	0.9	-
Miscellaneous	55.2	39.6	48.0	9.5	70.7	14.0
Bank Claims	150.0	71.8	115.9	75.0	53.2	67.5
Foreign Credits	83.4	80.6	66.8	56.9	40.2	58.8
Emergency Fund	-	-	-	-	-	127.0
-Aid from Arab Countries						(107.0)
-Other Special Revenue						(20.0)

1/ It does not cover foreign debt repayment by enterprises. Up to 1967 debt repayments, which include principal payments on foreign debt, appeared in the Services Budget Current Expenditure.

2/ An estimated amount of £E 100 million for defense expenditure has been included among Central Government Current Expenditure. The Emergency Fund amounts to £E 127 million and is financed for £E 107 million by the Arab Aid, the remaining £E 20 million being provided by special revenues, mostly stamp duties. In addition to defense expenditure the Fund finances support programs for the people living in the Canal Zone (about £E 13 million) and the losses suffered by the maritime companies attached to the Suez Canal Authority.

156. The outcome of these measures was to keep the current account deficit of the Central Government at the same level as in 1967. However, savings of enterprises declined very sharply mainly because of the closing of the Suez Canal, and this, together with the further reduction in foreign credits and the necessary curtailment of borrowing from the Central Bank called for a very substantial cut in public investment which fell below the 1961 level. In August 1967 an agreement was signed with Kuwait, Libya and Saudi Arabia for annual assistance of £E 95 million to offset the Suez Canal losses. It was increased to £E 107 million after the devaluation of sterling. £E 83 million were received during the fiscal year 1968. The allocations of these funds are not shown on the budget figures. It can be presumed that part of them would appear among Miscellaneous in table 4 on the financing of Public Sector Expenditure.

157. A revival of public expenditure characterised the 1969 budget. There was the desire on the one hand to bring public investment to a level more compatible with the long term development needs of the country, and on the other to increase public consumption both to relieve the pressure on individuals and also to raise effective demand in the economy. Thus, for example, the wage bill of the Central Government increased by 15 percent, reflecting the reinstatement of the various allowances which had been cut in the previous years. Looking at the various functions of government, expenditure on social and economic services was increased by 10 percent after two years of stagnation. Expenditure for security and defense was also increased by about 9 percent. Public investment increased by more than 60 percent; however, the fact that a large amount of this increase comes from the expansion of the existing steel mill raises some questions as to its contribution to the increase in output over the near future.

158. The increase in current expenditure has been met by additional price increases (cigarettes and gas oil) and tax increases (national security tax) in addition to the expected natural growth of public revenues. 1/ This leaves a current account deficit roughly equal to the one of 1968. For the financing of investment expenditure, the most significant items are the proceeds of the Arab Aid, of £E 107 million.

Organizational Problems and Policies

159. The heavy emphasis placed by the Government on solving short-term financial problems has not prevented a parallel effort to deal with some of the more structural problems of government activity. A number of possible economic and fiscal reforms are discussed in a document issued by the Government this year, including a reclassification of the various budgets to seperate agencies and enterprises operating on a commercial basis from those performing more social functions.

1/ The data show a moderate increase in revenues but this is the result of a change in classification. See Annex tables 50 and 51.

160. As regards revenue measures, the three main possibilities seem to be the introduction of a turnover tax, the revision of custom duties and an even greater effort in collecting tax arrears. Furthermore, the land tax is also being studied. There is the idea of eliminating (or reducing) the existing exemption (LE 4 on tax assessments up to LE 20) to increase the contribution of agriculture to the development expenditure of the Government in that sector. The present system is marred by the lack of satisfactory records of land ownership which enables many taxpayers to claim the exemption for properties which they may own in different provinces.

161. Another of the reforms discussed is enhancing the autonomy of local authorities, reducing their dependence on government aid which represents now about 70 percent of their total resources. Their own resources are mostly the proceeds of the land tax and the surcharge, public utilities revenue and entertainment taxes. Under the present system, the budgets of local authorities are submitted for approval to the Ministry of Local Authorities and are based on the anticipation of a certain amount of government aid. The Ministry of Local Authorities, together with the Ministry of Treasury, decide the annual appropriations. Whilst the advantages of a more decentralized structure are in theory substantial, it would seem that the most important issue in the UAR would be the administrative capacity of the local authorities to carry on a greater level of activity. At present such administrative capacity is certainly concentrated at the Central Government level and could hardly be transferred to the field for some time. Furthermore, the tight expenditure policy which will be required in the coming years could be much more difficult to implement should the government lose to the local authorities control of a substantial amount of public expenditure.

162. As to public enterprises, the document on reforms addresses itself in a general way to all their major problems, which are common to public enterprises in most countries: inadequate capital structure, inefficiency of operations, etc. The desire to run the enterprises efficiently comes out strongly in the document. It is stated that, "overstaffing should be shown separetly as a 'social cost' or burden . . . Thus . . . it will be evident who is responsible for the overstaffing, the enterprise or the State". It could be said that once overstaffing had been clearly identified, the excess labor should be taken away from the enterprises and transferred to the Central Government. Once a general job reduction is excluded, for social and political reasons, it may be better to allocate people to general government functions which are less likely to be disturbed by excess labor than in industry.

163. The lack of autonomy of enterprises creates a series of problems. One of them concerns their ability to use their own surplus. Under the present system the surplus of enterprises is transferred to the Treasury which charges interest on funds it makes available to them. A question is then whether the enterprise should receive interest free loans up to the amount of their surplus. Another important question is the level of interest rates charged on loans by the Treasury, which is at present around 4 percent. This is certainly low, and it reflects a more general problem of the interest rate structure in the UAR. Any action to improve the efficiency of enterprises should consider the possibility of a more realistic cost of money which now incorporates

a subsidy element. The document refers also several times to the possibility of doing away with those enterprises which turn out to be uneconomic and at the same time do not perform any social function which might justify their existence with the support of the government.

Money and Prices

164. Credit expansion in recent years has been largely dominated by government borrowing, reflecting the role of the public sector in the economy. The improvement of government finances in 1967 is therefore seen in the monetary data which show practically no increase in money supply for that year. In addition to the reduced reliance of the Government on the banking system, there was in 1967 an absolute decline in credit to the non-government sector. This was the result of the effort on the part of the Agricultural Bank to collect a substantial amount of arrears from the farms.

165. During the year after the war, restrictive credit policies were continued with net claims on the Government increasing substantially less than the previous year. 1/ Money supply declined in absolute terms for the first time for many years. Several factors, also discussed elsewhere in this report, indicate that the current year will probably show a more expansionary credit policy. A provision taken in 1968 has granted personal loans to government employees up to two months salary. This, in itself will call for a credit expansion of £E 15-20 million. The results of the first months of 1969 still indicate a very modest increase in total credit, once adjustment is made for the financing of the cotton season. Available resources in the country should make such an expansion possible without serious inflationary pressures, but obviously the Government should be careful in keeping credit expansion within reasonable limits.

166. The monetary policy of the UAR is facing a more structural problem with pervasive effects on the entire economy. Interest rates for medium and long-term credit to enterprises, when charged, are of the order of 4 percent. Interest to farmers vary between 4 1/5 and 6 percent. The Mortgage Bank is expected to give loans at 3 percent while borrowing its funds at 5 percent. Furthermore, these interest rates have a tendency to remain unchanged regardless of the economic situation of the country and therefore they fail to perform their role in allocating available resources. A general increase of interest rates would certainly affect the level of economic activity and should be implemented with equally important adjustment in the other cost and price factors which are now controlled by the Government (see, for example, the problem of excess labor). It is, in other words, one area of change among many others which are required to separate private and social costs in the UAR economy.

1/ Budgetary data show net claims on government of £E 53.2 million as against the £E 28.2 million indicated by the monetary survey. The discrepancy is due to delays in the presentation of the final accounts of the Government.

167. Prices remained fairly stable between 1960 and the end of 1964. This was to a large extent the result of government control over prices. Prices of most goods are government controlled but at the same time large amounts of commodities are sold outside the rationing system. Fluctuations in these prices are not reflected in the indices. Between December 1960 and December 1962 money supply and GNP increased by 16 and 12 percent, respectively, while the cost of living declined. In those years, however, there were signs of repressed inflation in the form of shortage of consumer goods, black markets and rapid deterioration in the balance of payments. After 1964 and until the middle of 1966, prices were allowed to increase and this to a large extent reflected the stabilization measures taken by the government with the intention of reducing consumption as well as increasing government revenues.

168. Over the last two years, prices (1939 = 100) have remained stable or even declined. During 1967, a fairly unusual development took place: while the cost of living index declined, the wholesale price index continued to increase even though less rapidly than in the past. The explanation lies probably in the coverage of the cost of living index which only reflects the prices of the rationed quantities of various commodities. A new cost of living index which reflects the price changes in non-rationed commodities, with base year in 1967, has been introduced - this index shows an increase of 4 percent between October 1967 and October 1968. The price reductions in 1969 for a series of domestically produced manufactured goods will probably contribute to a decline in the cost of living index.

Table 5: PRICE INDEXES

(1939 = 100)

Month/Year	Cost of Living	General Wholesale	Foodstuff	Industrial Products Materials
December 1962	296	420	403	438
December 1963	302	425	403	448
December 1964	339	453	445	462
December 1965	377	490	499	480
December 1966	394	526	568	485
December 1967	392	553	618	494
October 1967	394	564	641	494
October 1968	386	526	544	508

Prospects

169. In view of the role of the public sector in the UAR the future growth of the economy will depend to a very large extent on its performance. Ensuring an adequate increase in public investment is certainly the main long-run target of the government policy. In view of balance of payments difficulties a substantial effort is needed to mobilize domestic resources for investment.

170. The future level of defense expenditure is one of the most important factors which may influence investment in the next few years. Unless restraint is exercised in the further growth of defense expenditures, investment and thus the growth rate of GDP may not reach reasonable levels. In making projections for the next five years it is assumed that defense expenditure will increase at the same rate as other Central Government current expenditure.

171. As to non-defense current expenditure, the growth rate of 6.5 percent, i.e. the same as the projected growth rate of GDP, allows for a faster expansion (8 percent) in social and economic services provided that general administrative expenditure be kept around 5 percent. 1/ The UAR government has shown the ability, under pressure, to maintain wage and salary increases within very moderate limits.

172. For the purposes of the projections in this report it has been assumed that current revenue will increase at 8 percent per annum, (an elasticity of 1.3 with respect to the growth of GDP). The recovery of the industrial sector and therefore of business taxes is implied in these projections. Furthermore, a strengthening of the tax administration which the Government is now contemplating should also contribute to the expansion in revenue. The role of custom duties is likely to decline, even disregarding any temporary reduction due to emergency import restrictions. However, such decline should be offset by increased revenues from domestic indirect taxes. The introduction of a turnover tax, presently under study, would in fact represent a very important step towards the modernization of the tax system.

173. If the above projections were realized, the current account deficit of the central government would decline moderately over the coming five years. While its elimination should be the eventual target, it would be very unrealistic to expect such an achievement unless defense expenditure is cut down very sharply. By way of illustration, it may be noted that even if defense expenditure could be maintained at the 1969 absolute level, the current account will be balanced only by 1975 - thus adding about LE 120 million to the present projection of public savings for that year. On the other hand, the already high level of government revenue makes it hard to envisage a growth rate for revenues substantially faster than the one projected.

174. While the Social Security surplus (expected to grow at 10 percent per annum based on historical performance), is a fairly reliable component of public savings, savings of enterprises are very volatile. In the past, actual performance has remained very often substantially below budget estimates which is particularly serious in a country where the public sector plays such a large role.

1/ Particularly in the fields of education and health, future investment will automatically generate a certain stream of current expenditure. This correlation should be kept in mind when deciding the level of investment in these sectors.

Table 6: PROJECTION OF PUBLIC SECTOR SAVINGS
(£E million)

Fiscal Years	1969	1975
Central Government	-132	-123
Current Expenditure	658	957
of which Defense	(279)	(396)
Current Revenue	526	834
Social Security	161	283
Local Authorities	23	30
Public Enterprises	30	47
Total	82	237
Public Investment	312	492
Savings as percent of GDP	3.1	6.6
Savings as percent of Public Investment	26.0	48.1

175. The present level of enterprise savings is very low and the main explanation is the closing of the Suez Canal whose earnings were their largest component in the past. However, should the Canal be reopened, the resulting increase in enterprise savings will probably be offset by the cessation of the Arab aid so that there would be no net increase in available funds. It is assumed in our projections that enterprise savings will increase at 8 percent per annum or roughly the expected growth rate of the industrial sector. 1/ Such an increase, in absolute amounts is very small. A more favorable development, however, while within reach, can only depend on the success of the Government in improving the efficiency of the system. It is therefore necessary to avoid excessive investment programs based on unrealistic expectations of enterprise savings.

VII. INTERNATIONAL TRADE AND PAYMENTS

176. Egypt has been having balance of payments deficits continuously since the Second World War. The origin of the difficulties lies in the composition of the commodity trade, and in the management of the balance of payments.

1/ Figures in table 6 do not include earnings from the Canal.

177. Products of agricultural origin make up the bulk of exports (about 86 percent in recent years) and almost one third of imports. Among exports of agricultural origin, cotton and cotton products are the most important accounting for about 60 percent of total exports. In recent years, the importance of rice has also increased (from 8 percent in 1965 to 16 percent of total exports in 1968). This makes the economy very susceptible to changes in prices of these commodities.

178. Another problem is the organization and management of the foreign trade sector. Foreign trade was nationalized in 1961 and was entrusted to public sector companies and organizations. Coordination among them was not very efficient. Following the June war (in July 1967) some organizational changes were made in the form of giving greater powers to the Commodity Boards, leading to better coordination and more efficient use of scarce foreign exchange resources. After these changes, there were some complaints by the industrial enterprises regarding the process of allocation of foreign exchange and delays in receiving imported goods. The situation seems to have improved since then. The improvement in the terms of trade could probably be partly attributable to the increased efficiency of the system.

179. Another aspect of the management of the balance of payments is external debt administration. Borrowing at hard terms and in amounts beyond the repayment capacity of the country resulted in defaults and arrears which have accumulated and further aggravated the problem.

Balance of Payments

180. After having reached a very difficult position in 1966, the Government took some measures to improve the situation. There were some favorable developments in 1967: total current receipts increased by 7 percent and the current payments decreased by 2 percent as compared with the previous year. As a result, the current accounts deficit declined from £E 117 million to £E 79 million. The main factors in this improvement were a decline in imports and a rise in earnings from tourism and the Suez Canal.

181. In 1968 the balance of payments situation deteriorated because of the war. Canal earnings were lost and, as a result of the loss of Sinai oilfields, oil exports dropped while imports of petroleum products increased. In 1968 the current accounts deficit reached £E 155 million. Part of the loss however (£E 83 million) was compensated in the form of Arab aid. The combined current accounts and transfer payments deficit was £E 72 million in 1968 compared with £E 49 million in 1967.

Exports

182. Cotton is traditionally the most important export commodity. A reduction in acreage in recent years has, however, resulted in a contraction in the amount exported which was already evident in 1967 (7.6 percent below 1966), and became more important in 1968 (20 percent below 1967). The composition of raw cotton exports, as shown in Table 68 also has changed somewhat. As a result of the overall decrease in output - an increasing

share of total production of extra-long staple cotton has been used by domestic spinners. For the current fiscal year, 1969, about 20 percent of domestic consumption (700,000 tons) will be covered by extra-long staple, mainly Menoufi.

183. Extra-long staple cotton has some special technical and economic characteristics. Despite its characteristics a certain degree of substitution is possible between extra-long staple cotton and man made fibers and other cottons. Its supply is limited to a small number of countries among which the UAR plays a very prominent role (45 percent of world trade). Therefore, Egypts behavior in the world market will be one of the most important factors determining future conditions.

184. Export prices have reached to a high level, particularly for extra-long staple, and a decline is, therefore, expected to appear from next year on. In terms of overall export earnings, however, since a rapid restoration of historical acreage levels (1.9 million feddans as compared with 1.5 million feddans in 1969) and an increase in yields is expected, the decline in prices will be more than offset by the growth in exportable surplus. Total export earnings are expected to show a steady increase up to 1973.

185. Rice is the second major agricultural export crop of the country. Eighty percent of the Egyptian rice exported is polished round grain. This is a variety directly competing with Burmese and Italian varieties, the price of which have recently reached a very high level, due to political and climatic conditions in Asia and to stock-piling in Japan. The present price level cannot be expected to last for long and a sharp decline (5-6 percent yearly) is projected for the near future. Nevertheless, it is expected that the exportable surplus of the UAR will grow despite a rise in domestic consumption.

186. The advantageous position Egyptian onions have in the European market has been the main factor for the growth of exports of onions over the years. Exports have sharply declined recently due to seed and insect problems affecting domestic supply. A steady recovery can be envisaged, even though prices are unlikely to maintain their recent increase (70 percent in 1967 over 1966).

187. Other agricultural exports, mostly fruit and other vegetables, provide at present less than 5 percent of total UAR export earnings. Potatoes, peanuts, fruit and citrus are the main products. A growth in their exports depends on trade barriers and competition in the European markets rather than on supply conditions. Although, in the long run, a moderate reduction in EEC non tariff barriers for some varieties can be envisaged, competition from excess supply countries is likely to exert a downward pressure on world market prices and other Mediterranean and African countries' preferential arrangements with the Common Market may limit the share which the UAR otherwise might have in the Common Market.

188. Cotton yarns and textiles are still the major item in UAR exports of semi-manufactures and manufactures. The average rate of growth from 1963 to 1967 was about 20 percent per annum. Total exports averaged LE 44

million from 1966 to 1968 and are expected to reach about £E 55 million or 20 percent of exports in the current fiscal year. New varieties are entering the picture, mainly finer finished clothing, and the Government believes that the export target of £E 70 million for yarns and textiles will be achieved even before 1975. This is a reasonable expectation, especially taking into account the change in the composition of this category, namely the increasing relative importance of better quality finished goods enjoying higher unit prices. Therefore, from 1966/68 (average) to 1975, the overall rate of increase may be about 60 percent (7 percent per annum compounded). Despite this expected expansion and the export growth potential of the sector, the marketing of cotton yarns and textiles is encountering difficulties which deserve special attention. They are related to (a) access to convertible currency markets and (b) use of high priced cotton as raw material.

189. A provisional member of GATT, the UAR has been participating as a Group II (developing, exporting) country in the Cotton Textile Long Term Arrangement (LTA) since 1962. During Round VI of GATT Commercial negotiations, the UAR subscribed to the 3-year extension of the arrangement and concluded, mainly within the framework of LTA, commercial agreements with importing countries providing principally for expanded access to their markets. Despite the allocation of assured quotas in some markets, and their yearly expansion, the LTA has worked unsatisfactorily for the UAR. Actually Egyptian exports to LTA Group I (developed, importing) countries have diminished both in absolute value and in percentage since the Arrangement came into force, as shown by the following table:

Table 1
(£E million)

	Cotton Yarn Exports			Cotton Cloth Exports		
Year	LTA Countries	Total Export	% LTA	LTA Countries	Total Export	% LTA
62/63	10.0	21.0	48	5.0	14.1	36
63/64	12.0	32.2	37	6.1	15.2	40
64/65	12.2	35.2	35	4.5	15.8	28
65/66	9.7	37.9	26	1.9	11.9	17
66/67	7.4	43.0	17	2.7	17.5	15

Source: UAR, The Textile Consolidation Fund.

Note: A difference in total value from official customs data, lies in the fact that the Textile Consolidation Fund data are based on contracts rather than on actual exports and that they include also small amounts of silk yarn and products.

190. The market for Egyptian yarn and textiles is limited not only by market barriers in the importing countries but also by the high cost of the relatively high quality of cotton used in Egyptian textile milles as compared with similar mills in other countries. This cost difference is particularly relevant for cotton yarn, where cotton costs represent about 60 percent of the total, but substantial also for cotton textiles. Subsidies to overcome this disadvantage are paid to exporters to convertible currency countries (about 40 percent of total exports) through the Textile Consolidation Fund, a marketing and technical agency established in 1953. The Fund obtains resources by withholding a portion of the taxes collected on sales of cotton and through direct Government appropriations made to the Fund when its own resources cannot meet the refund requirements. The following table summarizes the refunding operations in the recent years:

Table 2

Years	Exports of Yarn		Exports of Cloth		Total		Subsidies Paid to Exporters	Fiscal resources of the Fund	
	Thousand Tons	Mil. ŁE	Thousand Tons	Mil. ŁE	Thousand Tons	Mil. ŁE	Mil. ŁE	%	Mil. ŁE
1964/65	35.2	25.1	16.3	12.2	51.5	37.3	4.5	12.2	3.0
1965/66	37.9	29.0	12.3	10.8	50.2	39.9	4.1	10.2	3.2
1966/67	43.0	32.8	18.3	15.3	61.3	48.1	5.6	11.7	3.1
1967/68	42.3	33.0	24.3	18.8	66.6	51.8	8.4	16.1	3.2

Source: The Textile Consolidation Fund

Note: see Table 1

The increasing use of extra long staple varieties, mainly Menoufi, by domestic mills bears a direct relation with the increase in refunds.

191. Fuel and mining exports will be of increasing importance in the near future for the UAR balance of trade. The petroleum balance of payments is expected to record a continuous surplus from 1971 onward. The balance is expected to reach about ŁE 58 million in 1975, whereas the deficit which was about ŁE 12 million before the war, reached ŁE 21 million in 1968. In the last three years, (1966-1968), exports of natural calcium phosphate averaged only ŁE 2 million and those of cement ŁE 2.5 million. Phosphate exports are expected to nearly double by 1975. Also salt and manganese exports may be expected to resume when Sinai is returned to UAR control and conditions are normalized along the Canal.

192. Non-traditional manufactures also offer good prospects for increased future foreign exchange earnings. They include such items as furniture, drugs,

refrigerators and leather articles. The export target for this group for 1968/69 is about £E 40 million, of which processed food is £E 12 million, chemical industries £E 2.8 million, engineering industries £E 3 million, metallurgical industries £E 2 million, building and construction materials £E 5-6 million and private sector manufactures £E 10 million. This compares with the previous years' exports of £E 25 million. This target looks reasonable in the light of the new Bilateral Agreements.

193. The growth in industrial exports is, however, reflected in an increase of Government appropriations for export subsidies as well as refunds for cotton yarns and textiles. Appropriations for the industrial sector budgets for the subsidies in the fiscal year 1969 total £E 12.9 million, nearly half of which is allocated to spinning and weaving, and the remainder mostly to metallurgical products and building and ceramic materials. Subsidies amount to about 12 percent of total exports of manufactures and semi-manufactures by the public sector. A better assessment of their impact could be made by taking into consideration that they are granted mostly for exports to the convertible currency countries. About 65 percent of exports of manufactures and semi-manufactures go to bilateral-agreement countries. It means that export subsidies to convertible currency countries amount to about 30 percent of the value of exports of subsidised commodities to these countries. Subsidies to foodstuffs are about 20 percent of total expected exports; to spinning and weaving about 10 percent (plus about 6 percent in the form of tax rebates); minerals about 20 percent, and engineering products about 14 percent. The amount of Government appropriations for export subsidies of metallurgical industries is about 40 percent higher than the total value of expected exports for this category indicating the extent to which these industries need assistance to export to the convertible currency areas.

194. The composition of UAR exports is likely to show significant changes in the not too distant future. Cotton and rice will lose their predominance, whereas oil, petroleum products, chemicals and light manufactures will have a greater importance. By 1975, oil and petroleum products are projected to comprise 16.6 percent of total exports as compared with only 2.6 percent in 1968. The semi-finished and finished goods, excluding textiles, are projected to account for about 20 percent, as compared to 10 percent in 1968. On the other hand, raw cotton and cotton yarns and textiles are expected to decline to about 50 percent of the total as compared to 66 percent at present.

Imports

195. Imports are strictly controlled. Since the nationalization of the import trade in 1961, several attempts have been made to rationalize the system of import control. After the reorganization of the foreign trade sector in 1967, it was decided to centralize the purchase of all similar imports in order to standardize the requirements and strengthen the bargaining position of the importing organizations. This exercise created many delays and difficulties and as a result rules were somewhat relaxed. Continuous shortages led many companies to build up unnecessarily large stocks of spare parts. A study carried out by the Government of the causes of

unused industrial capacity in 1965 and 1966 has shown that the most significant factors were the shortage of imported raw materials and spare parts despite the fact that imports in 1966 had reached the highest level in the country's history.

196. Rigid controls caused a sharp decline in imports (25 percent from 1966 to 1968). The most important group of imports which was drastically hit by this was investment goods (35 percent). The only group which was not affected by the curtailment was foodstuffs. Decline in imports brought about in this way resulted in a significant change in the composition of imports. The share of foodstuffs increased from 24 percent in 1966 to 37 percent in 1968.

197. It is difficult to expect further declines in imports. As investment increases and measures for fuller utilization of existing industrial capacity start to yield some results, imports will start increasing. In fact, increased imports of raw materials and spare parts is one of the preconditions for a better utilization of existing capacity.

Invisibles

198. Until 1968, the UAR always had a positive, albeit fluctuating, balance on invisibles. The average of net balances in the preceding five years was £E 57 million, main contributors being the Canal and tourism. In 1968 net invisibles showed a deficit of £E 21 million, and increases in tourist earnings in the current year are not likely to restore the surplus in this account. Political conditons permitting, there is a great potential for tourism but it is difficult at this stage to predict the future trends of earnings from the Canal. Much may depend on when it is reopened. Oil traffic is in any case expected to decline in importance due to the shift to very large tankers, but the Government hopes to recoup at least part of the lost revenues through transit charges for use of the Suez-Alexandria pipeline, construction of which is scheduled for completion in 1970. It has been assumed for the purposes of the report that the combined revenues will be at the level of earnings of the Canal in 1967.

The Terms of Trade

199. The terms of trade indices of the UAR have shown a continuous improvement since 1963. With 1963 taken as the base year, the net rate was 131 in 1967; this was a result of developments in the unit prices of both exports and imports. In 1967 export price indexes was 117, while the import price index was 89. On the export side, the favorable prices for cotton and rice, and on the import side declines in the prices of foodstuffs, helped to achieve this favorable situation. In 1968 and 1969 the favorable developments are likely to continue. In addition to a continuation of the price trends the improved payments procedures of at the Government are likely to help. But in the longer run expected declines in the cotton and rice prices may change this situation.

200. The developments of the terms of trade in the bilateral trade area is of some interest. A study of the UAR's commodity trade with the socialist

countries of Eastern Europe suggests that this was even more favorable. Average prices of a substantial proportion of commodity imports from these countries were 5 to 6 percent lower than those of imports from other sources in the early 1960's. It is not known, however, whether and to what extent this benefit was offset by higher prices of imports of complete equipment and plants into the UAR.

Direction of Trade

201. The regional pattern of trade has changed markedly since the early 1960's. Western Europe has been replaced by Eastern Europe as the main trading partner of the UAR. Eastern Europe absorbed about 50 percent of exports in 1966 and 1967. This declined to 42.4 percent in 1968. (The average share during the first five year plan was 43.5 percent). More significant was the jump in imports from the East. The average of the first five-year plan period was 21 percent increasing to 30 percent in 1967 and 41 percent in 1968. Imports from Western Europe however remained at about the same level (about 30 percent of total). The UAR trade deficit with Western Europe although fluctuating has always been above £E 50 million and in 1966 reached more than £E 100 million.

202. The UAR has been running a deficit with the other Arab countries for many years and only in 1968 achieved a surplus. The deficit was caused mainly by imports of raw material (oil), fats and some durable commodities. The main export products are cotton, rice, cement and textiles. The surplus in 1968 was caused by expansion of exports of "non-traditional" manufactures and semi-manufactures. Despite the positive balance recorded by the trade statistics, the clearing and payment agreement accounts still show a negative balance totalling about £E 22 million as of December 1968.

203. The surplus with Eastern Europe was continuous up through 1968. Nevertheless, the trade statistics seem to understate imports, since the bilateral clearing and payment agreements accounts indicate a net deficit totalling about £E 44 million (USSR £E 33 million) as of December 1968. The availability of markets in eastern Europe has clearly been most beneficial for the UAR. In the early sixties, in accordance with the decline of cotton demand in Western Europe, exports to the Eastern European countries expanded. In more recent years, together with the growth in cotton demand from Western Europe the UAR is shifting cotton exports back to the convertible currency markets and expanding exports of industrial commodities to the bilateral agreement countries. The Eastern European countries take about 65 percent of Egyptian exports of manufactures and semi-manufactures and 80 percent of exports of the so-called "non-traditional" goods.

204. The increased share of the Eastern European countries may be attributed to two main factors. One is the un-availability of credits from the Western world. The second factor is a characteristic of bilateral trade: the more exports are tied to bilateral trade, the less is left for trade in hard currency areas. This has a spiral effect in the absence of additional funds from hard currency areas.

205. This increase in the importance of trade under bilateral agreements may have some undesirable effects in the long run on the cost and quality of production and the marketing ability in the West.

Commercial Policy

206. In view of the existing balance of payments difficulties, an effective trade policy is essential in solving some of the long-run problems. An aggressive trade policy for finished and semi-finished products could contribute significantly to removing the excess capacity problems affecting numerous branches of Egyptian industry and also in fostering the development of new competitive lines of production.

207. Trade arrangements with the Eastern European countries are mainly yearly arrangements, often negotiated, however, within the framework of longer range 4-5 year commercial treaties. In the latest agreements with USSR, Poland, Czechoslovakia, Hungary, Bulgaria and Rumania, the UAR has been successful in including several "non-traditional" export commodities, such as refrigerators, furniture, leather goods, drugs and liquors, in exchange for raw materials (e.g. tobacco, coal) and equipment and spare parts. The opening up of trade for "non-traditional" goods, even if through bilateral arrangements and not in a multilateral framework, has not only a meaning in purely commercial terms but is also a convenient way to start new industrial concerns to improve the quality of output, enlarge the size to permit economies of scale which may make them competitive - in the longer run - also in the convertible currency markets. In fact, the stated policy consists in the use of bilateral agreements for new export manufactures in order to be able, eventually, to ship these very goods to Western European countries. As for agricultural commodities, the basic commercial policy of selling as large a proportion as possible of the commodities in greatest demand, namely cotton and rice, to the convertible currency countries has been working to the advantage of the UAR.

208. Whereas an effective commercial policy toward the bilateral agreement countries has been successfully realized for a few years, trade relations with convertible currency countries are still at a much more fluid stage and no clear cut policy seems to have been defined other than to maximize agricultural exports.

209. The UAR has been a provisional member of GATT since 1962 and expects to obtain full accession to the General Agreement soon. Due to the provisional character of her membership, her participation in the Kennedy Round of tariff negotiations has been only marginal. A fuller participation might have brought about some important advantages, not only in terms of concessions to be asked for some items of export interest, but also in terms of a thorough examination, within GATT, of UAR's tariff policy. The UAR has since 1962 been a member of the GATT Long Term Arrangement on Cotton Textiles, which was extended during the Kennedy Round to September 1970.

210. Policy toward the European Economic Community is still far from defined, although the need for such a policy is clearly recognized. The increasing manufacturing capability and also the hope of increasing exports

of fruits and vegetables which are affected by strict Community regulations, give importance to this relationship.

211. In trade relations with the other Arab countries, bilateral agreements (e.g. the Treaty with Iraq) have proved to be more effective than the partial liberalization attempted within the Arab Common Market. The main reasons for the modest accomplishments obtained through this scheme of regional integration lie both in the method chosen for trade liberalization (product lists rather than across the board cuts) and in the lack of backing by a full-fledged payments arrangement, the Arab Payment Union being only in a preliminary stage of formation.

212. An interesting attempt to establish commercial cooperation, mainly in the industrial field, has been tried with the Tripartite Agreement with India and Yugoslavia, which came into effect from April 1, 1968. This is formally a preferential agreement among developing countries, under Part IV of Gatt. Its very large product coverage, its open character and the depth of tariff cuts, however make it very similar to an imperfect free trade area of the traditional type.

213. Some moves towards import liberalization are being made slowly. Foreign exchange accounts for non-residents were recently permitted. A freer import policy for the private sector, which supplies the bulk of the so-called non-traditional export goods, is being considered; this would simplify the complex machinery of foreign trade and exchange administration, at least as far as the private sector is concerned. Tariff policy as such is also under review; duties on some items, recently increased, will probably be reduced to below their original level to be used as a revenue instrument. A more compact tariff structure would be a natural and necessary outcome of the establishment of a common external tariff for the Arab Common Market.

Capital Inflows and External Indebtedness

214. In recent years, capital flows from Western sources to the UAR has been limited to suppliers credits and some short term banking credits. This has increased the UAR's reliance on Eastern Europe. Servicing difficulties came to a point where the UAR started to accumulate arrears both in short term bank credits and suppliers' credits and failed to make payments on some governmental debts. Rescheduling arrangements were reached in the second half of 1966 in connection with the banking credits. Repayments on these arrears are being made on schedule. After the bank credits, certain rescheduling agreements were reached in the field of suppliers credits. As discussed in Chapter II, starting in December 1966, Egypt also started to accumulate arrears in her repurchases from the IMF, but repaid these at the beginning of 1968.

215. By the end of 1968 the UAR government had reached rescheduling arrangements with France, Italy, Germany, Sweden and the Netherlands. Later in 1969 agreements were reached with Mexico, Japan and the U.K. Outstanding arrears were about LE 60 million as of December 31, 1968.

216. In all the rescheduling arrangements, the UAR has tried to establish a situation which avoided a net capital outflow from the country by having the creditors agree to provide new credit facilities. As these new credit facilities are mostly in suppliers' credits terms they merely provide a short respite from the burden of debt service.

217. Total outstanding debt of the UAR amounted to about US$ 1.9 billion as of December 31, 1968. In 1969 debt service payments are expected to absorb about 18.5 percent of foreign exchange earnings (counting the Arab assistance in compensation of losses from the Suez Canal as a part of earnings). The debt profile indicates the hardness of terms on which the UAR has been receiving external capital. By the end of 1975 Egypt will have to repay 74 percent of its existing debt (83 percent for western countries and 35 percent for Eastern Europe and China).

VIII. FUTURE PROSPECTS

Issues and Prospects

218. In the preceding chapters of this report an attempt has been made to identify the weaknesses and potentialities of the Egyptian economy in relation to its natural resources, and institutional arrangements. The report also describes recent developments having a bearing on future prospects and attempts to identify desirable policy directions in the different sectors of the economy. The present difficulties however are not limited to problems of structural or institutional nature. These are aggravated by the accumulated remnants of past policies (e.g. external debt) and environmental factors (political conditions in the area).

219. Future developments will be determined by both external and internal factors. Improving political conditions in the area, and opening up of aid channels from the West will certainly help, but internally there is the need to take steps to deal with many major problems to initiate healthy development. The absence of a long term plan, for the time being, limits the possibility of evaluating the intentions of the authorities to take basic decisions and introduce necessary policies. But much has been done to identify the problems and their causes.

220. Present policies are largely conditioned by the situation concerning the Canal, the balance of payments problem and defense expenditures. In 1967 the Canal was earning LE 95 million in foreign exchange, which was about 22 percent of all foreign exchange earnings. The aid which Egypt is now receiving from Saudi Arabi, Libya and Kuwait almost fully compensates for the loss of these earnings from the Canal at the 1967 level and for other war damage (refineries, a fertilizer factory at Suez etc.) so that at the moment the economy is not affected by the closure of the Canal. Another important problem with respect to the balance of payments is whether aid from the West will be resumed. This is primarily a political matter since it requires first of all an improvement in relations with the major western donor countries. Economically it requires a demonstration of intent to take appropriate steps to deal with the short-term balance of payments problem.

221. In the longer run one of Egypt's most important problems of overall economic policy is to raise the level of internal savings sufficiently to permit the execution of an adequate development program. In practice, the decisive element in this respect will probably be the level of defense expenditure since taxation is already relatively high.

222. Since Egypt's external debt is high, it is important that the volume of foreign exchange earnings should increase in order to provide a base for at least some further external borrowing. Here a great deal will depend upon controlling the level of internal consumption. Egypt has an export-oriented economy, producing cotton, rice and other exportable agricultural products as well as petroleum. Sharp declines are expected in the international prices of cotton and rice in the coming years. Significant increases in the quantities exported will be necessary to keep the present level of foreign exchange earnings. Exports of manufactured goods have increased recently. There are also very good prospects for oil. The tourism sector is another foreign exchange earner with considerable further potential. Political conditions permitting, the increase in the UAR tourist earnings should at least reach the world trends (12 percent per annum). All considered, if the political situation in the Middle East is put on one side, earnings from these various sources should increase over the next five years at a satisfactory rate, for example by almost 6 percent per year.

223. If in the longer run the shortage of foreign exchange can be eased, this would permit a liberalization of imports and some relaxation of the price and physical controls over the internal economy. It would then become possible to correct the disparities in the price system and to take measures to increase the autonomy and efficiency of economic enterprises.

224. Sector priorities will be established in the five-year development plan under preparation. The determination of priorities will be limited by ongoing investment. As mentioned above investment declined in the last two years. In addition to overall cuts, there has been a tendency to neglect investment in transport with the result that some bottlenecks have occurred. Also modernization of some industries, most notably textiles, has been neglected. Investment in import-substituting industries has proceeded too fast with the result that many of them have been operating below capacity. This has been aggravated during the last two years by the slackening of internal demand and the shortage of foreign exchange for raw materials and intermediate goods.

225. Respecting the future allocation of investment, the present thinking of the authorities is to allocate roughly 30 percent to industry, and 25 percent to agriculture. Possible future investments in agriculture may be grouped in three major categories: (a) agricultural technology (b) improved drainage of land already in production and (c) bringing unused land into production.

226. Upgrading of technology, in addition to increasing mechanization, will involve basically an increase in development expenditures for fertilization, plant protection, plant variety improvement, improvement of storage conditions and credit. These will not require a very substantial portion of

investments in agriculture, but the benefits would probably be very substantial. Drainage is a very high-yielding activity. There are further large-scale drainage possibilities in the country which should be given high priority. Although the net economic benefits are somewhat lower, bringing unused land into production (reclamation) will continue because Aswan waters are available for this purpose. Areas to be reclaimed will not be used for cotton cultivation and will help in diversifying agricultural exports and in reducing the import demand for foodstuffs.

227. In the long-run the natural limits to agricultural expansion will force the UAR Government to concentrate increasingly on industry. In this sector a significant portion of available capital has already been earmarked for the construction of the steel mill and complementary facilities at Helwan. The estimated cost of this investment is LE 350 million; this would absorb about 14 percent of total projected investment in the next five years. Its share of industrial investment will be much greater. There are many unsolved problems at this stage, such as the cost of production of steel, the export possibilities and the location of the project in view of possible markets (Middle East and Africa) and the project is being given further examination. Areas which should have a priority in industry, without ranking, are phosphates extraction, fertilizer production, chemicals and other economically attractive industries consuming available electrical energy, and production of non-traditional export goods (food, leather goods, furniture, etc.).

228. In the transportation sector, the new pipeline, track renewals of the railways, and a new railway from the phosphates deposits found recently in the western desert (if they prove to be as rich as is expected) will have priority. There may also be some high yielding projects in inland transportation, highways and urban transportation (Cairo).

229. In the services sector, the top priority seems to be in the field of tourism. Technical education should also be treated as a priority sector in the light of the acute shortage of middle-level technical personnel.

Projections

230. To present the future prospects in more quantitative terms a set of projections has been made. It needs to be emphasized again that the uncertainties are of such a scale that these projections should be treated mainly as illustrative of likely developments within the limitation of the assumptions made for this purpose. The following table gives the result of these projections in a summary form.

Table: ILLUSTRATIVE PROJECTIONS
(LE million)

Fiscal years	1970	1971	1972	1973	1974	1975
GDP	2790	2970	3165	3370	3590	3820
Investment	370	400	430	470	505	545
Foreign Exchange Earnings	492	542	558	583	599	636
Imports of Goods & Services	517	562	586	618	650	684
Resource Gap	25	20	28	35	51	48
Total Interest Payments 1/	35.8	32.9	36.5	38.0	39.7	41.4
National Savings	309.2	347.1	365.5	397.0	414.3	455.6
Total Service Payments 1/	142.3	127.3	141.6	143.1	147.6	146.4
Total Capital Requirements 1/	167.3	147.3	169.6	178.1	189.6	194.4
Debt Service Ratio 1/	28.9	23.5	25.4	24.5	24.6	23.0

1/ In these projections global debt tables as of December 31, 1968, prepared by the UAR Government were used. Debt tables in the Annex (Tables 72 and 73) give a lower total outstanding debt and lower service figures, but these do not change the basic conclusions. Service figures include service on future borrowings as well as service on existing debt.

The main conclusions that may be drawn from this exercise are the following.

(1) The UAR could realize a growth rate of 6.5 percent per annum in the period. Even a higher growth rate would be feasible were it not for the limitations imposed by the possible levels of internal savings and the availability of external capital. It should be mentioned, however, that the level of investment will be affected by the level of military expenditure which is now nearly as much (i.e. a ratio of 5:6) as total investment for non-military purposes. Projected total investment over the period 1970-1975 is LE 2.720 million, increasing from LE 330 million in 1969 to LE 585 million in 1975 (8 percent per annum).

(2) Conservative projections for increases in foreign exchange earnings (5.9 percent per annum) and expected increases in imports (6.2 percent per annum, estimated as a function of investment expenditures, GDP growth and population growth) give a resource gap of £E 207 million. Even though the resource gap is rather low, the gross requirements (taking into account service on existing debt, new capital inflow and additional borrowing required to service these) are in the order of £E 1,046 million in the period (about £E 174 million a year). In reaching these amounts, it has been assumed that lending from Western sources will be equal to existing debt service to these countries and the additonal debt service that will result from the borrowing necessary to service the new debt. Only £E 20 million per year of soft lending is included; the rest is assumed to be borrowed on terms of suppliers' credits.

231. The total outstanding external debt of the UAR amounted to about US$ 1.9 billion as of December 31, 1968. Service payments on this debt constitute about 18.5 percent of foreign exchange earnings (including earnings from the Suez Canal at the 1968 level or an equivalent amount of Arab assistance), but they will increase to about 29 percent in 1970. In the following years debt service payments including provision for new loans are projected to fluctuate around 24 percent of foreign exchange earnings until 1975. The specific foreign exchange problem of the UAR is more a result of the terms of availability of aid rather than the absolute amount of indebtedness. By the end of 1975 the UAR has to repay 74 percent of its existing debt (83 percent of debts to western countries and 35 percent of debts to Eastern Europe and China).

232. A longer run solution of the external debt situation will depend largely on the availability and the terms of external aid. The export projections are based on conservative assumptions and should cotton and rice prices not decline as sharply as projected, the debt service ratios may be lower. A debt consolidation operation might help significantly but would be dependent upon the creditor countries being willing to negotiate significant long term financing.

233. In view of the weak balance of payments position, the UAR should aim to borrow, on average, on concessional terms. Even if it could borrow readily on such terms, major changes in economic policy would be necessary to bring about a radical improvement in the balance of payments, which is greatly needed if the UAR is to be in a position to plan the development of the economy free from the persistent problems of foreign exchange shortage.

ANNEX

ASSUMPTIONS USED IN PROJECTIONS

1. The Statistical Problem

Like many other countries the UAR suffers from a lack of satisfactory set of statistics necessary for analyses and decision making. Problems appear in the form of the existence of several series on the same subject which cannot be easily reconciled with each other, or in delays in producing some series which are more valuable if available quickly. Major problems exist in the areas of national accounts, employment statistics and the foreign trade and balance of payments statistics.

Series on national accounts are discontinuous. Series covering recent years start from fiscal year 1965 and they are produced with some delay. Despite efforts by the mission it has not been possible to reconcile these series with the earlier ones.

Definitions used in employment statistics are not clear, different series giving very different unemployment figures.

There are four series pertaining to the balance of payments data (customs data, central Bank data, series used in the national accounts estimates and the foreign exchange budget prepared by the Ministry of Economy and Foreign Trade) which are very difficult to reconcile with each other.

In evaluating the projections made the data limitations should also be taken into account.

2. GDP and Investments

The GDP growth rate (6.5%) is based on growth potential of individual sectors in the light of past performances and the availability of investible funds. In the projection of investment (Annual Growth Rate 8%) the intentions of the UAR Government and the availability of resources are taken into account. These investments will be higher or lower depending on the future levels of defense expenditures which are equal to about 5/6 of investment expenditures. In this exercise defense expenditures are projected to increase at the same rate as current expenditures of the Central Government (6.5% in the period). The implicit capital output ratio is 2:1 which is considered feasible in view of (1) possibilities of quick yielding investments complementary to the High Dam; (2) expected increases in oil output; and (3) excess capacity in industry which on the average is about 1/3.

3. Imports

These are projected as a function of investments for investment goods (27%) and as a function of population (2.8%) for consumer goods, and GDP (7%) for intermediate goods after an initial stepping up in 1971.

4. Foreign Exchange Earnings

a) Commodity Exports

(i) Cotton - The availability of exportable surplus is estimated in relation to the expected increase in land under cultivation and in yield and to the expected increase in domestic spinning. The expected price levels in the world markets are used to obtain the value of exports. A 20% decrease over 1969 is assumed for 1975 (3% yearly decrease).

(ii) Rice - The availability of exportable surplus is estimated in relation to the increase in land under cultivation and in yield (2.9 - 3 million tons total production as for 1975) and to the expected rise in domestic consumption, assuming unchanged the rate of population growth. The expected price levels in the world markets are used to obtain the value of exports. A 26% decline in prices for polished rice is assumed for 1975 over 1969 level (4% yearly compounded). In the first years (1970-1971) the decrease will be sharper, averaging 5.5%.

(iii) Onions - The availability of exportable surplus is estimated in relation to an expected recovery over the low level of production reported in recent years because of seeds and insect problems. The 1965 level is expected to be reached in 1973. Afterwards, a 3.5% yearly increase is assumed up to a total available surplus of 200 thousand tons. Prices are expected to report a 15% decrease in 1975 over the present level (2.5% compounded yearly decrease).

(iv) Fuel - Projections have been provided by the General Organization for Petroleum. These projections are based, for crude, on proven reserves; actual exports of crude may turn out to be higher. For petroleum products, the projections are based on the expected increase in refining capacity; a one-year delay in expansion of plants may occur.

(v) Cotton yarn and textiles - Increases in quantity and in prices for cotton yarns are based on the historical trend. However, the reaching of a maximum price for yarn, is assumed from 1971 onward. After a very rapid increase, in 1969, in the quantity of cotton textiles exported, the subsequent increase is assumed to be based on the historical trend. Cotton textile prices are assumed to increase by 17% in 1969 over 1968 such as to reach the 1966 unit level. Afterwards, up to 1971, they are assumed to attain an overall increase of 14% (about 4.7% yearly) due to the improvement in quality and, mainly, to the change in item composition.

(vi) Phosphate - Export projections are based on production projections by the General Organization for Mining and Geological Research, taking into account the expected increase in domestic uses. The production projections are based on proven reserves.

(vii) Other finished and semi-finished commodities - This category includes also so-called "non Traditional goods" whose export growth rate has been very high (20-25%) in the last two years. For the category as a whole, covering in 1968 about 10% of total UAR export earnings, a 15% increase in export earnings is assumed.

(viii) Other agricultural products - This category, including mainly fruits and vegetables and covering, in 1968, 5% of total UAR export earnings is treated as a residual. Its rate of growth in export earnings is assumed to be the same as the rest of UAR export commodities jointly considered.

b) Invisible Earnings

(i) Suez Canal: earnings same as 1967 level either because it remains closed and Arab assistance continues or the Suez Canal and the new pipeline provide same level of earnings.

(ii) Travel and others: it is assumed that it will reach pre-war level in 1971 and continue to increase afterwards at the same level as world tourism (12% per annum).

(iii) Other invisibles: assumed to reach pre-war level in 1970 and to increase 5.9% per annum afterwards.

5. Net Capital Requirements

Found as the difference between imports of goods and services and foreign exchange earnings.

6. Gross Capital Requirements

It is assumed that the UAR will borrow from the West amounts equal to its present debt service to the West (LE 20 million a year soft loans, 1% interest 10 years grace 40 years term to maturity, the rest in suppliers credits terms 6% interest, 2 years grace 8 years term to maturity). The rest (new net requirements plus service to Eastern European countries) is assumed to be borrowed at 2.5% interest 5 years grace and 15 years term to maturity. It is also assumed that additional borrowing to service these new loans will come from the same sources. A rescheduling operation is assumed for arrears. According to this, arrears will be paid in five years starting in 1969/70 with an interest rate of 6%.

7. Public Sector Investment

Same growth pattern as for total investment.

8. Central Government

a) Current revenue - increasing at 8%.

b) Current expenditure - increasing at 6.5%, or the growth rate of GDP.

9. Public Sector Savings

a) Social Security - increasing at 10 percent, based on historical trends.

b) Local Authorities - increasing at 5 percent.

c) Public Enterprises - increasing at 8 percent, or the growth rate of industry.

10. Military Expenditure - increasing at 6.5%; the same as total current expenditure of the Central Government.

11. Educational Expenditure - increasing at 8 percent.

12. Tax Revenue - increasing at 8 percent.

STATISTICAL APPENDIX

Table 1 : PRODUCTION

(Current Prices)

(LE million)

Sectors	1964/65	1965/66	1966/67
Agriculture	822.8	884.0	928.9
Industry and Mining	1623.6	1769.2	1835.9
Construction	181.2	197.8	188.1
Electricity	39.1	41.9	43.5
Total Productive Sectors	2666.7	2892.9	2996.4
Transportation, Communication and Storage	234.7	260.5	270.5
Commerce and Finance	231.9	254.7	273.0
Total Distribution Sectors	466.6	515.2	543.5
Housing	78.9	80.2	83.3
Public Utilities	14.9	16.2	16.6
Services	636.4	701.8	735.1
Total Service Sectors	730.2	798.2	835.0
Total of all Sectors	3863.5	4202.4	4374.9
Adjustment of the Value of Production /1	12.4	14.4	14.4
GRAND TOTAL	3875.9	4220.7	4389.3

/1 Correction is made by including an adjustment of subsidies minus excise taxes.

Source: The Ministry of Planning

Table 2 : PRODUCTION

(Constant Prices of 1964/65)

(EE million)

Sectors	1964/65	1965/66	1966/67
Agriculture	822.8	851.5	839.8
Industry and Mining	1623.6	1716.2	1716.9
Construction	181.2	197.8	183.1
Electricity	49.1	41.9	43.5
Total Productive Sectors	2666.7	2807.4	2783.2
Transportation, Communication and Storage	234.7	257.2	264.2
Commerce and Finance	231.9	247.5	259.9
Total Distribution Sectors	466.6	504.7	524.1
Housing	78.9	80.2	83.2
Public Utilities	14.9	16.0	16.4
Services	636.4	683.9	699.3
Total Service Sectors	730.2	780.1	798.9
Total of all Sectors	3863.5	4092.2	4106.2
Adjustment of the Value of Production /1	12.4	14.4	14.4
GRAND TOTAL	3875.9	4106.6	4120.6

/1 Correction is made by including an adjustment of subsidies minus excise taxes.

Source: The Ministry of Planning

Table 3 : GROSS DOMESTIC PRODUCT

(At Factor Cost at Current Prices)

(£E million)

Sector	1964/65	1965/66	1966/67
Agriculture	582.1	608.5	611.0
Industry and Mining	423.4	461.1	477.4
Construction	92.6	94.9	94.3
Electricity	24.2	24.3	25.2
Total Productive Services	1121.3	1188.8	1207.9
Transportation, Communication and Storage	176.0	196.6	204.8
Commerce and Finance	168.0	181.5	195.9
Total Distribution Sectors	344.0	378.1	400.7
Housing	74.9	76.1	79.0
Public Utilities	8.2	9.2	9.4
Services	414.2	457.5	482.1
Total Service Sectors	497.3	542.8	570.5
Total of all Sectors	1962.6	2109.7	2179.1
Adjustment of the value of Production /1	12.4	14.4	14.4
GRAND TOTAL	1975.0	2124.1	2193.5

/1 Correction is made by including an adjustment of subsidies minus excise taxes.

Source: The Ministry of Planning

Table 4 : GROSS DOMESTIC PRODUCT

(At Factor Cost, Valued at Constant Prices of 1964/65)

(£E million)

Sectors	1964/65	1965/66	1966/67
Agriculture	582.1	588.1	569.5
Industry and Mining	423.4	433.8	436.9
Construction	92.6	94.9	88.5
Electricity	23.2	24.3	25.2
Total Productive Sectors	1121.3	1141.1	1120.1
Transportation, Communication and Storage	176.0	194.7	201.3
Commerce and Finance	128.0	180.2	190.7
Total Distribution Sectors	344.0	374.9	392.0
Housing	74.9	76.1	78.8
Public Utilities	8.2	9.1	9.4
Services	414.2	447.7	462.4
Total Service Sectors	497.3	532.9	550.6
Total of all Sectors	1962.6	2048.9	2062.7
Adjustment of the Value of Production /1	12.4	14.4	14.4
GRAND TOTAL	1975.0	2063.3	2077.1

/1 Correction is made by including an adjustment of subsidies minus excise taxes.

Source: The Ministry of Planning

Table 5 : THE STRUCTURE OF THE GROSS DOMESTIC PRODUCT

(% at Factor Cost, Constant Prices of 1964/65)

Sectors	1964/65	1965/66	1966/67
Agriculture	29.7	28.7	27.6
Industry and Mining	21.6	21.2	21.2
Construction	4.7	4.6	4.3
Electricity	1.2	1.2	1.2
Total Productive Sectors	57.2	55.7	54.3
Transportation, Communication and Storage	9.0	9.5	9.8
Commerce and Finance	8.5	8.8	9.2
Total Distribution Sectors	17.5	18.3	19.0
Housing	3.8	3.7	3.8
Public Utilities	.4	.4	.5
Services	21.1	21.9	22.4
Total Service Sectors	25.3	26.0	26.7
GRAND TOTAL	100.0	100.0	100.0

Source: The Ministry of Planning

Table 6 : GROSS NATIONAL PRODUCT AND EXPENDITURE

(At Current Prices - EE million)

	1964/65	1965/66	1966/67
GDP at Current Factor Costs	1975.0	2124.1	2193.5
Net Factor Income from Abroad	- 21.7	- 14.7	- 18.8
GNP at Current Factor Costs	1953.3	2109.4	2174.7
Indirect Taxes	284.9	330.8	349.2
Subsidies (-)	46.4	52.0	48.9
GNP	2191.8	2388.2	2475.0
GDP	2213.5	2402.9	2493.8
Personal Consumption	1462.9	1583.3	1667.0
Government Consumption	437.4	481.9	488.4
Total Domestic Investment	358.4	377.4	358.8
Inventories	23.3	68.8	37.9
Exports of Goods & Services	411.4	409.4	418.6
Imports of Goods & Services	467.5	531.5	456.4
Statistical Discrepancy	-12.4	+13.6	-20.5

Source: The Ministry of Planning

Table 7 : EXPENDITURE AS A % OF GNP
(at current prices)

	1964/65	1965/66	1966/67
Personal Consumption	66.74	66.30	67.76
Government Consumption	19.96	20.18	19.73
Total Domestic Investment	16.35	15.80	14.50
Inventories	1.06	2.88	1.53
Exports of Goods & Services	18.77	17.14	16.91
Imports of Goods & Services	21.33	22.26	18.44
Current Accounts Deficit	2.56	5.11	1.53

Source: The Ministry of Planning

Table 8 : GROSS NATIONAL PRODUCT AND EXPENDITURE

(At Constant Prices of 1964/1965 - LE million)

	1964/65	1965/66	1966/67
GDP at constant factor costs of 1964/65	1975.0	2063.3	2087.1
Net factor income from abroad	- 21.7	- 14.7	- 18.8
GNP at constant factor costs of 1964/65	1953.3	2048.6	2058.3
Indirect Taxes	284.9	313.6	296.9
Subsidies	- 46.4	- 52.0	- 48.9
GNP	2191.8	2310.2	2306.3
GDP	2213.5	2324.9	2325.1
Personal Consumption	1462.9	1503.8	1524.5
Government Consumption	437.4	477.3	479.7
Total Domestic Investment	358.4	376.3	350.4
Inventories	23.3	66.5	36.5
Exports of Goods & Services	411.4	407.8	408.1
Imports of Goods & Services (-)	- 467.5	- 520.4	- 453.6
Statistical Discrepancy	- 12.4	+ 13.6	- 20.5

Source: The Ministry of Planning

TABLE 9 : FINAL CONSUMPTION

(In Current Prices)

(£E million)

Items	1964/65	1965/66	1966/67
Personal Consumption	1462.9	1583.3	1667.0
Public Consumption	437.4	481.9	488.4
Final Consumption	1900.3	2065.2	2155.4
Gross National Product	2191.8	2388.2	2475.0
Personal Consumption as a % of Gross National Product	66.7	66.3	67.4
Public Consumption as a % of Gross National Product	19.9	20.2	19.7
Final Consumption as a % of Gross National Product	86.6	86.5	87.1

Source: The Ministry of Planning

Table 10: FINAL CONSUMPTION

(In Constant Prices of 1964/65)

(LE million)

Items	1964/65	1965/66	1966/67
Personal Consumption	1462.9	1503.8	1523.5
Public Consumption	437.4	477.3	479.7
Final Consumption	1900.3	1981.1	2004.2
Gross National Product	2191.8	2310.2	2306.3
Personal Consumption as a % of Gross National Product	66.7	65.1	66.1
Public Consumption as a % of Gross National Product	19.9	20.6	20.8
Final Consumption as a % of Gross National Product	86.6	85.7	86.9

Source: The Ministry of Planning

Table 11: GROSS DOMESTIC INVESTMENT

(At Current Market Prices)

(£E million)

Items	1964/65	1965/66	1966/67
Total Fixed Domestic Investment	358.4	377.4	358.8
Increases in Inventories	23.3	68.8	37.9
Gross Total Domestic Investment	381.7	446.2	396.7
Gross National Product	2191.8	2388.2	2475.0
Total Fixed Investment as a % of Gross National Product	16.3	15.8	14.5
Inventories as a % of Gross National Product	1.1	2.9	1.5
Total Domestic Investment as a % of Gross National Product	17.4	18.7	16.0

Source: The Ministry of Planning

Table 12: DISTRIBUTION OF GROSS FIXED DOMESTIC INVESTMENT BETWEEN SECTORS

(At Current Market Prices)

(EE million)

Sectors	1964/65	1965/66	1966/67
Agriculture	32.5	30.7	31.3
Irrigation and Drainage	37.9	32.6	34.4
High Dam	18.6	19.0	16.5
Industry and Mining	99.9	100.6	98.4
Construction	5.2	6.8	3.9
Electricity	53.2	61.1	69.3
Total Productive Sectors	247.3	250.8	253.8
Transportation, Communication and Storage	45.9	49.4	42.6
Suez Canal	3.4	3.7	3.5
Commerce and Finance	4.3	2.7	2.6
Total Distribution Sectors	53.6	55.8	48.7
Housing	30.5	47.5	42.3
Public Utilities	11.2	12.4	8.6
Services	21.7	17.3	12.4
Total Service Sectors	63.4	77.2	63.3
Total Including Value of Land	364.3	383.8	365.8
Land Value	5.9	6.4	7.0
Total Excluding Value of Land	358.4	377.4	358.8
Public Sector	338.1	349.6	329.4
Private Sector	20.3	27.8	29.4

Source: The Ministry of Planning

Table 13 : SOURCES OF DOMESTIC SAVINGS

(Million EE in Current Prices)

	1964/65	1965/66	1966/67
TOTAL SAVINGS GENERATED IN PUBLIC SECTOR	286.9	281.8	310.6
1. The Public Business Sector Excluding Financial Institutions	195.8	206.4	197.7
- The Share of Government in the Public Business Sector	96.0	114.5	105.0
- The Autonomous Organizations and Public Institutions	8.6	- 10.6	- 6.0
- Public Companies	83.9	98.1	93.0
- The Share Devoted to Centralized Social Services for Labor	7.3	4.4	5.7
2. Banking and Insurance	20.5	33.4	26.3
- Banking	8.6	1.1	12.2
- Insurance Funds	3.4	3.9	4.2
- Postal Savings Funds	8.4	4.9	- 2.8
- Savings Banks	0.1	0.3	0.4
- Savings Certificates	0.0	14.2	12.3
3. Social Insurance Sector	97.1	117.0	135.6
- Public Organization for Insurance and Pensions	47.3	53.4	55.6
- Public Organization for Social Insurance	49.8	60.4	67.9
- Half-day Savings Scheme	0.0	3.2	12.1
4. The Government Sector	- 80.5	- 97.0	- 64.0
5. Others	54.0	22.0	15.0
Savings in the Private Sector	20.3	27.8	29.4
GRAND TOTAL OF SAVINGS AND INVESTMENT	307.2	309.6	340.0

Source: The Ministry of Planning

Table 14: POPULATION, LABOR FORCE, EMPLOYMENT

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1974/75	Growth rates per annum 1960/61-65/66 (%)	Growth rates per annum 1960/61-69/70 (%)
Population (thousands)													
TOTAL	26,397.0	27,122.0	27,874.0	28,650.0	29,456.0	30,294.0	31,162.0	32,059.0	32,982.0	33,933.0	37,800.0	2.8	2.8
Male	13,392.0	13,789.0	14,194.0	14,611.0	15,046.0	15,500.0	15,174.0	16,456.0	16,957.0	17,475.0			
Female	13,005.0	13,336.0	13,680.0	14,039.0	14,410.0	14,794.0	14,902.0	15,603.0	16,025.0	16,458.0			
Urban	9,766.9					12,117.6				14,387.6			
Rural	16,630.1					18,176.4				19,545.4			
Urban (%)	37.0					40.0				42.4			5.0
Rural (%)	63.0					60.0				57.6			1.8
Aged 15-64	13,304.1					15,813.5				17,713.0			
Age Group Distribution (%)													
0- 4	18.9					18.3				18.3			
5-14	27.2					26.1				26.1		2.8	2.4
15-19	8.4					8.0				8.0		2.9	2.4
20-24	6.9					6.7				6.7			
25-64	35.1					37.5				37.5			
65-	3.5					3.4				3.4			
TOTAL	100.0					100.0				100.0			
Labor Force													
Male	6,498.0	6,694.0	6,900.0	7,112.0	7,335.0	7,565.0	7,804.0	8,048.0	8,303.0	8,564.0	11,148.0	12,954.0	15,072.0
Female	442.0	475.0	509.0	545.0	583.0	622.0	622.0	704.0	747.0	792.0	917.0	1,045.0	1,203.0
TOTAL	6,940.0	7,169.0	7,409.0	7,657.0	7,918.0	8,187.0	8,466.0	8,752.0	9,050.0	9,356.0	12,065.0	13,999.0	16,275.0
Employment	6,511.9	6,656.9	6,868.2	7,085.0	7,373.9	7,606.0	7,714.1	7,744.2		8,881.0			
Unemployment	428.1	512.1	540.8	572.0	544.1	581.0	751.9	1,007.8					

Note: Population data for 1960/61 and 1965/66 are census results. All other data are either interpolations or projections (assuming constant fertility rate). Labors Force and Employment data reflect the actual situation until 1966/67, thereafter they represent estimates.

Source: Population Increase and Economic Development in the UAR until 1966, Cairo 1967 (In Arabic); Population Development 1930-1966, Cairo 1968 (In Arabic); The Ministry of Planning and the Ministry of Economy.

Table 15: POPULATION, LABOR FORCE, EMPLOYMENT GROWTH RATES

(in percent)

	Population			Population aged 15-64	Labor Force	Employment	Unemployment
	Total	Urban	Rural				
1960/61-1967/68 total	21.4				26.1	18.9	135.4
Annually	2.8				3.4	2.5	13.0
1960/61-1969/70 total	28.5	47.3	17.5	33.1	34.8	37.7	
Annually	2.8	5.0	1.8	3.2	3.4	3.6	
1960/61-1984/85 total	89.2				134.5		
Annually	2.8				3.6		

Source: Compilation on the basis of data from the Central Agency for Public Mobilization and Statistics and from the Ministry of Planning.

Table 16: EMPLOYMENT BY SECTORS

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	Growth rates of employment 1960/61-67/68	Annual
				(in thousands)						
Employment by Sectors:										
Agriculture	3,600.0	3,600.0	3,632.0	3,673.0	3,780.0	3,796.4	3,815.6	3,931.0	9.19 %	1.3 %
Industry	625.6	679.0	725.9	789.7	825.0	875.8	849.0	866.1	38.4	4.8
Electricity	13.1	15.1	17.4	17.9	18.0	18.4	19.0	19.8	51.1	6.1
Construction	166.0	263.0	315.7	334.2	345.2	291.5	318.8	215.8	30.0	3.8
Sub-Total	4,404.1	4,557.1	4,691.0	4,814.8	4,968.2	4,982.1	5,002.4	5,032.7	14.27	1.9
Transport & Communication	252.7	239.2	249.2	258.3	277.7	313.3	332.0	336.8	33.2	4.2
Housing Services	16.0	18.0	18.1	18.5	21.0	21.7	22.7	2 .7	48.1	5.8
Public Utilities Services	24.3	27.1	28.7	29.5	30.3	31.4	32.2	33.2	36.6	4.6
Trade & Finance	663.0	680.9	702.2	719.0	729.7	762.7	784.4	798.6	20.45	2.7
Education & Scientific Services	200.0	204.0	211.5	226.0	256.0	258.8	285.1	308.7	54.35	6.4
Health	58.3	66.3	85.3	90.0	86.0	95.5	113.9	121.8	108.9	11.1
Social & Religious Services	28.6	29.0	27.5	31.6	33.1	35.4	40.0	41.3	44.4	5.4
Defense, Justice, Security	178.0	179.5	179.4	184.3	184.3	193.9	209.6	215.1	20.8	2.7
Cultural & Recreational Services	17.8	19.0	25.8	23.8	26.5	30.3	37.8	37.2	108.9	11.1
Gov't Organizational Services	90.0	93.0	103.5	145.5	180.5	202.9	221.0	229.4	154.8	14.3
Personal Services	578.5	543.5	546.0	543.7	540.1	556.6	550.3	565.7	-2.3	-0.1
Sub-Total (Services)	2,107.2	2,099.8	2,177.2	2,270.2	2,365.2	2,502.5	2,629.0	2,711.5	28.67	3.7
GRAND TOTAL	6,511.9	6,656.9	6,868.2	7,085.0	7,333.4	7,484.6	7,631.4	7,744.2	18.9	2.5

Source: The Ministry of Planning.

Table 17 : MANPOWER STRUCTURE

(In percent)

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
Population aged 15-64 to Total Population	50.4					52.3		52.3/1
Labor Force to total pop.	26.2	26.4	26.6	26.7	26.9	27.0	27.2	27.3
Working Pop. to labor force	93.8	92.9	92.7	92.5	93.1	92.9	91.1	88.5
Working Pop. to total pop.	24.7	24.5	24.6	24.7	25.0	25.1	24.8	24.2
Unemployed to labor force	6.2	7.1	7.3	7.5	6.9	7.1	8.9	11.5
Employed by sectors (Total=100)								
Agriculture	55.2	54.1	52.9	51.8	51.5	50.7	50.0	50.8
Industry & Mining	9.6	10.2	10.6	11.1	11.2	11.7	11.1	11.1
Electricity	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Construction	2.5	4.0	4.6	4.7	4.7	3.9	4.3	2.8
Sub-total	67.6	68.5	68.3	68.0	67.7	66.5	65.6	64.9
Transport & communications	3.9	3.6	3.6	3.6	3.8	4.9	4.4	4.4
Housing Services	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Public Utilities	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Trade & Finance	10.2	10.2	10.2	10.1	9.9	10.2	10.3	10.3
Education & Scientific Serv.	3.1	2.9	3.0	3.2	3.5	3.5	3.7	4.0
Health	0.9	1.0	1.2	1.3	1.2	1.3	1.5	1.6
Social & Religious Serv.	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Defense, Justice, Security	2.7	2.7	2.6	2.6	2.5	2.6	2.8	2.8
Cultural & Recreational Serv.	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.5
Gov. Organizational Serv.	1.4	1.4	1.5	2.1	2.5	2.7	2.9	3.0
Personal Services	8.9	8.2	7.9	7.7	7.4	7.4	7.2	7.3
Sub-total	32.4	31.6	31.7	32.0	32.3	33.5	34.5	35.0

/1 1969/70

Source: Compilation on the basis of data from the Central Agency for Public Mobilization and Statistics and the Ministry of Planning.

Table 18: DISTRIBUTION OF EMPLOYMENT BY SECTOR AND BY OCCUPATION FOR CENSUS YEARS 1947 AND 1960

(In per cent)

Occupational Group	ECONOMIC SECTOR										
	Agriculture		Industry & Mining		Construction		Services			Total Employment	
	1947	1960	1947	1960	1947	1960	1947	1960		1947	1960
Managers & Professionals (University & Higher Institute graduates)	0.4	1.9	7.6	8.0	3.2	5.1	88.8	84.5	(100.0)	1.1	2.4
Technicians (Agricultural & Industrial Secondary School leavers)	7.0	3.9	11.8	2.3	0.4	0.4	80.8	92.9	(100.0)	1.5	2.6
Clerical occupat. (General & Commercial Secondary School leavers)	5.9	2.8	9.5	10.8	1.6	0.9	83.0	84.1	(100.0)	2.5	3.6
Skilled workers (preparatory school leavers or equivalent experience)	1.6	2.2	37.0	36.3	4.7	7.3	56.7	53.5	(100.0)	20.5	23.5
Unskilled (primary or no schooling)	77.6	80.3	2.1	1.2	1.9	0.4	18.9	17.6	(100.0)	74.5	67.9
Total	58.7	55.1	9.6	10.0	1.9	2.2	29.8	32.6		(100.0)	(100.0)

Source: Census results, as analyzed in the proceedings of the Seminar on Manpower Planning, Cairo, February 1968, Institute of National Planning.

Table 19 : GROWTH OF EMPLOYMENT
1960/61 - 1967/68
(in percent)

	1960/61-1964/65		1964/65-1967/68		1960/61-1967/68	
	Total	Annual	Total	Annual	Total	Annual
Total Commodity Sector	12.8	3.1	1.3	0.3	14.3	1.9
Agriculture	5.0	1.2	4.0	1.3	9.2	1.3
Other (Industry, Mining, Electricity, Construction)	47.6	10.2	-7.7	-2.5	36.9	4.6
Total Services Sector	12.2	2.9	14.7	4.7	28.7	3.7
GRAND TOTAL	12.6	3.1	5.6	1.8	18.9	2.5

Source: Compilation on the basis of data from the Central Agency for Mobilization and Statistics and from the Ministry of Planning.

Table 20: MANPOWER SUPPLY AND DEMAND ESTIMATES[1] BY OCCUPATIONAL GROUPS, FOR 1965/66 AND 1969/70

(in thousands)

Occupation	1965/66			1969/70		
	Supply (Stock)	Demand (Requirements)	Balance	Supply (Stock)	Demand (Requirements)	Balance
Managers and Professionals (University & Higher Institute Graduates)	234	214	+20	312	316 (302)[2]	-4 (+10)[2]
Technicians (Agricultural and Industrial Secondary School leavers)	366	390	-24	484	559	-75
Clerical occupations (General & Commercial Secondary School leavers)	322	230	+92	365	302	+63
Skilled workers (preparatory school leavers or equivalent experience)	821	975	-154	873	1,294	-421
Unskilled workers (primary or no schooling)	6,444	5,797	+647	7,322	6,410	+912

1/ The estimates were made in 1966 by the Institute of National Planning and, therefore, do not take into account educational reform measures affecting the supply of University and Higher Institute Graduates negatively, and the supply of technicians positively (see also table on enrollments).

2/ Estimates by Ministry of Planning.

Source: Proceedings of the Seminars on Manpower Planning, Cairo, February 1968, Institute of National Planning.

Table 21 : TOTAL WAGES BY SECTOR

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	Growth Rates (%) 1960 61 - 66/67	Annual	1960/61 - 67/68	Annual
	(£E million - Current Prices)											
Agriculture	99.0	117.0	126.3	139.3	165.8	197.1	206.0	205.6	108.0	13.0	107.6	11.0%
Industry and Mining	78.4	90.1	125.1	138.1	149.6	154.2	155.2	166.2	97.9	12.1	111.9	11.3
Electricity	3.3	3.8	4.2	4.5	4.7	4.9	5.0	5.8	51.0	7.1	75.75	8.4
Construction	27.3	41.9	47.4	52.2	53.7	56.0	55.5	37.3	103.29	12.6	36.6	4.6
Total Commodity Sector	208.0	252.8	303.0	334.1	373.8	412.2	421.7	414.9	102.74	12.5	99.47	10.4
Transport and Communication	43.3	46.7	48.8	55.7	64.3	73.8	75.7	82.3	74.82	9.7	90.0	9.6
Trade and Finance	76.9	82.1	88.9	96.4	101.7	106.4	110.5	120.2	43.7	6.2	56.3	6.6
Housing	1.8	1.9	1.6	1.6	1.8	1.8	1.9	2.0	5.5	0.9	11.1	1.5
Public Utilities	4.8	5.9	6.2	6.4	8.0	7.5	7.7	8.4	60.4	8.2	75.0	8.3
Other Services	231.7	228.9	258.2	298.0	341.7	377.4	395.2	421.9	70.56	9.3	82.08	8.9
Total Services Sector	358.5	365.5	403.7	458.1	517.4	566.9	591.0	634.8	64.8	8.6	77.07	8.5
GRAND TOTAL	566.5	618.3	706.7	792.2	891.2	979.1	1,012.7	1,049.7	78.76	10.1	85.2	9.2

Source: The Ministry of Planning.

Table 22: WAGE STRUCTURE BY SECTOR

(In percent)

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
Agriculture	17.5	19.0	18.0	17.6	18.6	20.1	20.3	19.6
Industry and Mining	13.9	14.7	17.8	17.4	16.8	15.7	15.3	15.8
Electricity	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
Construction	4.8	6.8	6.7	6.6	6.1	5.7	5.5	3.6
Total Commodity Sector	36.8	41.1	43.1	42.1	42.0	42.0	41.6	39.6
Transport and Communication	7.6	7.6	6.9	7.0	7.2	7.5	7.5	7.8
Trade and Finance	13.5	13.3	12.6	12.2	11.4	10.9	10.9	11.4
Housing	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Public Utilities	0.8	0.9	0.9	0.8	0.9	0.8	0.8	0.8
Other Services	41.0	36.3	36.6	37.8	38.4	38.5	39.0	40.1
Total Services Sector	63.2	58.4	57.2	58.0	58.1	57.9	58.4	60.3
GRAND TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Compilation on the basis of data from the Central Agency for Public Mobilization and Statistics and from the Ministry of Planning.

Table 23: GROWTH OF EMPLOYMENT, WAGES, GDP

(in %, based on current prices)

	1960/61-1961/62			1961/62-1962/63			1962/63-1963/64			1963/64-1964/65			1964/65-1965/66			1965/66-1966/67			1966/67-1967/68	
	E/1	W/2	GDP	E	W	GDP	E	W	GDP	E	W	GDP	E	W	GDP	E	W	GDP	E	W
Agriculture	0.0	18.1	-7.4	0.8	7.9	14.0	1.1	10.3	11.7	2.9	19.0	22.5	0.4	18.9	4.5	0.5	4.5	0.4	3.0	0.2
Industry and Mining	8.5	14.9	8.5	6.9	38.8	13.2	8.7	10.4	11.8	4.4	8.3	7.9	6.2	3.1	8.9	-3.0	0.6	3.5	2.0	7.0
Electricity	15.2	15.0	33.6	15.2	10.5	12.8	2.8	7.1	4.8	0.5	4.4	20.2	2.2	4.2	4.7	3.2	2.0	3.7	4.2	16.0
Construction	58.4	53.4	66.5	20.0	13.1	13.4	5.8	10.1	14.9	3.3	2.3	-3.5	-15.5	4.2	2.5	9.4	-8.9	-0.6	-32.3	-32.7
Total Commodity Sector	3.5	21.5	3.8	2.9	19.8	13.6	2.6	10.3	11.9	3.2	11.9	14.1	0.3	10.3	6.0	4.1	2.3	1.6	0.6	-1.6
Transport & Communication	-5.3	7.8	14.3	4.1	4.4	13.5	3.6	14.1	17.7	7.5	15.4	12.6	12.8	14.8	11.7	5.9	2.6	4.2	1.4	8.7
Trade and Finance	2.7	6.7	4.4	3.1	8.3	1.5	2.4	8.4	4.2	1.5	5.4	4.6	4.5	4.6	8.0	2.8	3.8	7.9	1.8	8.7
Housing	12.5	5.5	3.2	0.5	-15.7	1.8	2.2	0.0	1.4	13.5	12.5	-4.8	3.3	0.0	1.6	4.6	5.5	3.8	4.4	5.0
Public Utilities	11.5	22.9	2.9	5.9	5.0	5.7	2.7	3.2	2.7	2.7	25.0	5.2	3.6	-6.3	12.1	2.5	2.7	2.1	3.1	9.0
Other Services	-1.45	-12.1	-1.5	3.9	12.8	9.2	5.6	15.4	13.0	4.9	14.6	17.0	5.1	10.4	10.5	6.1	4.7	5.4	4.2	6.7
Total Services Sector	-0.4	19.5	3.2	3.7	10.4	7.3	4.3	13.5	10.5	4.2	12.9	11.1	5.8	9.6	9.5	5.0	4.2	5.5	3.1	7.4
GRAND TOTAL	2.2	9.1	3.5	3.2	14.3	10.7	3.2	12.1	11.3	3.5	12.5	12.8	2.1	9.9	7.5	2.0	3.4	3.3	1.5	3.7

/1 Employment
/2 Wages

Source: Compilation on the basis of data from the Central Agency for Public Mobilization and Statistics and from the Ministry of Planning.

Table 24 : CIVIL SERVICE PAY SCALES

- APPLIED SINCE 1964 -

Educational Attainment	Grade	Salary Range (monthly basis £ E)	Annual increase (£ E)
University or Higher Institute (16 years of education)	7 (starting grade)	20-40	1.50
	6	27.5-50	1.50
	5	35-60	2.00
	4	45-80	3.00
	3	57.5-100	4.00
Technical Training Centers (14 years of education)[1]	(8/7)[1]	(18)[1]	
Agricultural or industrial secondary school (12 years of education)	8	15-30	1.00
General or Commercial Secondary School (12 years of education)	9	12-15	0.75
Preparatory School (9 years of education)	10	9-18	0.75
Primary School (6 years of education)	11/12	7-15	0.50

1/ This type of school (with a 2-year course following Secondary education, and a 5-year course following preparatory education) was introduced in 1965/66.

Source: Proceedings of the Seminar on Manpower Planning, Cairo, February 1968, Institute of National Planning.

Table 25 : TOTAL ENROLLMENTS IN PRIMARY AND SECONDARY SCHOOLS AND PRIMARY TEACHER TRAINING

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
Nursery Schools				24,007	23,893	26,648	28,728	25,403
PRIMARY:								
Primary	2,610,169	2,754,566	2,909,996	3,129,692	3,294,832	3,417,753	3,413,980	3,471,334
Language Schools				44,589	39,906	40,663	40,209	3,298
Al-Azhar				28,997	18,033	32,585	31,395	31,797
TOTAL				3,203,278	3,352,771	3,491,001	3,485,584	3,506,429
PREPARATORY General:								
Preparatory	255,832	303,123	350,661	406,043	474,266	574,420	665,321	736,695
Language Schools				14,977	14,838	13,331	13,603	758
Al-Azhar				22,301	23,219	23,636	21,438	19,656
TOTAL				443,321	512,323	611,387	700,362	757,109
PREPARATORY Technical:								
Preparatory	39,333	42,068	49,667	45,019	41,559 1/	26,530 1/	16,676 1/	7,919 1/
Vocational (language schools)				2,410	2,016	1,842	1,697	1,643
TOTAL				47,429	53,575	28,372	18,373	9,562
TOTAL Preparatory	295,165			490,750	565,898	639,759	718,735	766,671
SECONDARY General:								
Secondary	132,161	131,885	134,047	141,204	174,246	208,991	234,619	259,792
Language Schools				7,318	6,521	7,945	10,120	466
Al-Azhar				12,358	12,643	13,376	13,481	14,453
TOTAL				150,880	193,410	230,312	258,220	274,711
SECONDARY Technical : TOTAL	75,549	74,037	79,639	83,373	91,252	101,204	119,810	153,094
TOTAL Secondary:	207,710	205,922	213,686	234,253	284,662	331,516	378,030	427,805
TEACHER Training (Primary Schools)	18,218	20,354	23,141	34,704	41,259	49,448	42,549	34,894

1/ Schools are being closed in favor of General Preparatory Schools.

Source: A Guide for Educational Statistics, UAR, Ministry of Education, Department of Statistics; vols 1963/64-1967/68; Statistical Handbook, UAR, 1952-1967, Cairo, June 1968; the Ministry of Education.

Table 26: TOTAL ENROLLMENTS IN HIGHER INSTITUTES AND UNIVERSITIES

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
Higher Institutes:									
Agricultural I	2,308	5,519	6,590	6,903	6,349	6,840	5,885	5,678	7,179
Industrial Institutes	1,761	2,626	3,358	4,248	5,363	6,892	7,427	8,299	9,626
Other[1]	11,451	12,190	12,550	13,992	19,081	21,622	18,222	18,469	17,570[5]
Total[2]	15,520	20,335	22,498	25,143	30,793	35,354	31,534	32,446	34,375[5]
Universities:									
Agricultural Faculties	6,543	7,618	8,752	10,748	12,233	13,206	12,318	11,162	11,789
Science Faculties	5,058	5,925	6,675	7,529	8,419	8,883	7,152	6,171	5,929
Engineering Faculties	11,306	13,140	14,500	17,022	19,647	20,434	20,810	21,229	19,885
Other[3]	64,073	64,680	68,000	75,122	89,006	80,642	87,862	86,087	85,250
Total Government operated Faculties	86,980	91,363	97,927	110,421	129,305	123,165	128,142	124,649	122,853
Al-Azhar:									
Agricultural Faculties	-	-	-	-	180	499	870	1,490	
Engineering Faculties	-	-	-	-	276	692	1,180	1,772	
Other[4]	5,753	6,108	7,428	6,851	8,309	11,932	16,214	13,590	
Grand Total	92,733	97,471	105,355	117,009	138,070	136,288	146,406	141,501	

1/ As of 1964/65 including American University.

2/ Including Secondary Teacher Training until 1965/66. Enrollment figures are 1960/61 : 2633; 61/62 : 2775; 63/64 : 3167; 64/65 : 3317; 65/66 : 3347. Including Higher Technical Institutes not belonging to Ministry of Higher Education.

3/ Including Secondary Teacher Training as of 1966/67 : 5140; 67/68 : 5691; 68/69 : 7908.
Includes faculties of arts, law, commerce, economics, medicine, pharmacy, dentistry, veterinary science, girls education, nursing, education (at Ain Shams) and faculty at Dar-El Ulum.

4/ Including faculty of medicine as of 1964/65.

5/ Excluding Higher Technical Institutes not belonging to Ministry of Higher Education (i.e. approximately 2,500 students)

Source: Guide for Educational Statistics, UAR, Ministry of Education, Department of Statistics, vols. 1963/64 - 1967/68 ; Statistical Handbook, UAR, 1952-1967, Cairo, June 1968 ; the Ministry of Higher Education.

Table 27: FIRST YEAR ENROLLMENT /1

	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
Level of Education							
Primary		612001	640653	670250	625615	896000	
Preparatory General		142000	174502	210000	223100	300276	
Preparatory Technical		9572	9075	2297	2173	1941	
Total Preparatory		151572	183577	212297	225273	302217	
Secondary General		48552	61557	66827	68260	93816	
Secondary Technical		26319	30352	34122	45312	61922	
Total Secondary		74871	91909	100949	113572	173687	
Primary Teacher Training		15556	11895	11926	2053	3426	
Higher Institutes: Total /3	5146	6844	8219	9956	5798/2	7444/2	9871 /2, /4
Agriculture	1241	1497	1505	1838	628	1252	2776
Industry	926	1282	1576	2248	1448	1916	2477
Other /3	2943	4065	5138	5870	3725/2	4276/2	4618/2, /4
Universities: Total	24500	27750	25850	26250	21370/2	21530/2	22430/2
Agriculture	2320	3700			1990	1920	
Engineering	2870	3970			3370	3220	
Science	1600	2900			600	550	
Other	17710	17180			15410/2	15840/2	

/1 Excluding Al-Azhar and Language schools.
/2 Teacher Training was transferred to Universities as of 1966/67.
/3 Including Higher Technical Institutes not belonging to Ministry of Higher Education; including American University.
/4 Excluding Higher Technical Institutes not belonging to Ministry of Higher Education (about 650 first year enrollments).

Sources: A Guide for Educational Statistics, UAR, Ministry of Education, Department of Statistics, Vols. 1963/64 - 1967/68; Statistical Handbook, UAR, 1952-1967, Cairo, 1968; the Ministry of Higher Education and the Ministry of Planning.

Table 28: DISTRIBUTION OF ENROLLMENTS IN HIGHER INSTITUTES AND UNIVERSITIES BY FIELD OF STUDY

(in percent)

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67 5/	1967/68 5/	1968/69 5/6
Higher Institutes:									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	14.9	27.1	29.3	27.4	20.6	19.3	18.7 (16.0)	17.5 (14.9)	20.9 (17.0)
Industry 1/	11.3	12.9	14.9	16.9	17.4	19.5	23.5 (20.3)	25.6 (21.8)	28.0 (22.8)
Other 2/	73.8	60.0	55.8	55.7	62.0	61.2	57.8 (63.7)	56.9 (63.3)	51.1 (60.2)
Universities: 4/									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	7.0	7.8	8.3	9.2	9.0	10.0	9.0 (9.3)	8.9 (9.3)	9.6 (10.2)
Engineering	12.2	13.4	13.7	14.5	14.4	15.5	15.0 (15.5)	16.3 (16.9)	16.2 (17.2)
Science	5.5	6.1	6.3	6.4	6.1	6.5	4.9 (5.1)	4.4 (4.5)	4.8 (5.1)
Other 3/	75.3	72.7	71.7	70.9	71.5	68.0	71.7 (70.1)	70.4 (69.3)	69.4 (67.5)

1/ See Table on Total Enrollments in Higher Institutes and Universities.
2/ Ibid.
3/ Ibid.
4/ Including Al-Azhar University.
5/ Figures in brackets are corrected for the effects of transfer of Secondary Teacher Training from Higher Institutes to Universities. For correction base see footnote 3/ of Table on Total Enrollments in Higher Institutes and Universities (Table 28).
6/ Excluding Al-Azhar University.

Source: Compilation on the basis of data from the Ministry of Education and the Central Agency for Public Mobilization and Statistics.

Table 29: AREAS UNDER CROPS BY SEASON, 1952 AND 1960-1968

Crops	1952	1960	1961	1962	1963	1964	1965	1966	1967	1968 /2
	1,000 Feddans									
Winter Crops										
Wheat	1,402	1,456	1,384	1,455	1,345	1,295	1,145	1,291	1,245	1,413
Permanent clover	906	1,131	1,113	1,140	1,132	1,179	1,178	1,235	1,474	1,500
Temporary clover	1,296	1,283	1,335	1,302	1,302	1,301	1,315	1,297	1,242	1,179
Beans	355	377	361	383	382	428	433	318	336	335
Barley	137	148	121	131	121	121	125	98	107	117
Fenugreek	54	64	44	60	66	62	82	42	38	35
Lentils	58	85	63	79	78	79	89	75	66	51
Flax	13	22	29	27	26	33	26	22	24	36
Onions	26	49	28	50	59	54	51	58	42	39
Lupines	11	20	14	18	19	19	16	11	11	11
Chickpeas	15	15	7	10	12	14	12	8	11	10
Vegetables	63	126	133	134	137	141	144	147	148	172
Garlic	9	13	12	14	20	13	15	19	13	12
Others	19	19	19	19	18	19	23	18	19	19
Total	4,364	4,808	4,693/1	4,822	4,717	4,758	4,624/1	4,739/1	4,776	4,929
Summer Crops										
Cotton	1,967	1,873	1,986	1,657	1,627	1,611	1,900	1,859	1,626	1,464
Rice	362	695	527	823	952	955	842	841	1,072	1,199
Millet	378	387	418	398	434	432	441	463	482	486
Maize	27	128	170	348	347	365	931	1,053	1,095	1,169
Sugarcane	92	111	112	121	133	134	129	133	137	135
Groundnuts	26	41	33	53	53	50	54	49	41	42
Sesame	42	42	27	42	59	55	52	29	22	24
Vegetables	118	241	239	249	278	292	304	325	325	342
Others	14	15	15	12	17	22	44	42	57	64
Total	3,026	3,533	3,527	3,703	3,900	3,916	4,597	4,794	4,857	4,941/1
Nile Crops										
Maize	1,671	1,693	1,433	1,484	1,374	1,295	520	522	390	358
Millet	55	67	39	56	50	62	59	55	40	46
Rice	12	11	10	1	1	1	6	3	3	5
Vegetables	71	117	123	138	149	162	160	162	155	182
Others	9	10	11	10	8	10	17	18	34	27
Total	1,824	1,898	1,616	1,695/1	1,588/1	1,536/1	762	760	622	645

/1 Figures do not add to this total.
/2 Preliminary
Source: U.A.R., Ministry of Irrigation, Report on Drainage Project For Part of the Nile Delta, Vol. 1, September, 1968.
Ministry of Agriculture, Bureau of Agricultural Economics and Statistics, unpublished.

Table 30: CROPPED AREA BY SEASON, AND GROWTH RATES IN CROPPED AREA

(In Thousand Feddan)

Year	Annual Crops			Fruit	Total
	Winter	Summer	Nile		
1960	4,808	3,533	1,898	131	10,370
1961	4,693	3,527	1,616	137	9,973
1962	4,822	3,703	1,695	145	10,365
1963	4,717	3,900	1,588	152	10,351
1964	4,758	3,916	1,536	167	10,377
1965	4,624	4,697	762	178	10,261
1966	4,739	4,794	760	195	10,488
1967	4,776	4,857	822	207	10,462
1968					
Growth rate /1	0.06	5.0	- 13.5	7.0	0.4

/1 Percent Annual Compound. Log Y = a+ b (T)

Source: U.A.R., Ministry of Irrigation, Report on Drainage Project For Part of the Nile Delta, Vol. 1, September, 1968.

Table 31: EXPANSION OF CROPPED AREA THROUGH LAND DEVELOPMENT PROGRAMS CONTEMPLATED THROUGH 1975

(Thousand Feddans)

	As of End 1967	1968 through 1975	As of End 1975
Cultivated area	5,800 /1		
Cropped area	10,462 /2		10,462
Increment			
Through Reclamation			
Gross cultivated area		700 /3	
Adjusted for yield capacity		1.55 /4	
Adjusted for "Cropped Area Equivalent"			728 /5
Through Conversion			
Gross		186	
Adjusted to"Cropped Area Equivalent"			112 /5
Through Drainage			
Gross		920	
Cropped Area Equivalent			368 /6
TOTAL			11,670

/1 From U.A.R., Ministry of Irrigation, Report on Drainage Project For Part of the Nile Delta, Vol. 1, September, 1968.
/2 Assumes cropping factor of 1.8 applied to net.
/3 Assumes 50,000 in 1968, as is scheduled for 1969, plus 564,000. Plus 46,000 as an arbitrary figure for areas not associated with Aswan water.

/4 Time is required to bring new land up to a yield level approximating the national average. Assume that in Year 1, the year of reclamation, the yield is zero; Year 2, 25% of "normal"; Year 3, 50%; Year 4, 75%; Year 5, 100%. Applying these factors to the pre-1968 reclamation acreages and to the 1968-75 intent yields a correction factor of around 65%.
/5 Using cropping factor of 1.6, as is on gross basis.
/6 Assuming yield increase of 25% and cropping of 1.6.

Table 32: GROWTH RATES IN YIELD PER FEDDAN FOR IMPORTANT CROPS

Crop	1960	1961	1962	1963	1964	1965	1966	1967	1968	Growth Rate /1
	. . . . . Yield Per Feddan (Kilograms)									
Seed Cotton	737	502	806	806	891	791	693	743	822	0.9 to - 0.04 /3
Rice (Paddy)	2,107	2,126	2,457	2,315	2,111	2,107	1,984	2,117		-0.4
Maize	1,330	1,379	1,338	1,506	1,495	1,690	1,659	1,636		1.6
Millet	928	1,009	1,093	1,085	1,165	1,476	1,509	1,406		3.0
Sugarcane	40,950	37,575	39,690	38,745	36,450	36,810	39,060	38,475		-0.3
Groundnuts	825	746	939	847	918	926	826	782		0.1
Sesame	361	390	408	433	424	433	384	344		-0.1
Wheat	1,029	1,038	1,095	1,110	1,180	1,115	1,135/2	1,126	1,074	0.4
Beans	801	490	890	732	896	886	956	628	922	1.2 to 0 /3
Barley	1,048	1,096	1,118	1,112	1,165	1,038	1,042	929		-0.7
Fenugreek	685	591	739	702	748	735	735	657		0.4
Lentil	588	542	706	602	666	688	594	515	664	0.1
Flaxseed	410	407	412	415	426	401	400	382		-0.3
Lupine	646	642	666	694	717	724	688	638		0.3
Chickpeas	693	645	648	708	706	698	669	645		-0.1
Garlic	4,680	5,070	4,960	5,850	5,270	5,530	6,270	5,740		1.4
Clover Seed	200	186	205	212	205	212	214	220		0.7

/1 Using Log Y = a + bT. Includes 1968 if yield figure is shown for that year.
/2 Carried in error as 757 in the cited source.
/3 The higher figure results if the bad crop of 1961 is included; the lower figure results if the series excludes 1961.

Source of Yield Data: For 1960-67, U.A.R., Ministry of Irrigation, Report on Drainage Project For Part of the Nile Delta, Vol. 1, September, 1968. For 1968, Ministry of Agriculture, tentative and unpublished.

Table 33: ALTERNATIVE INDICATIONS OF GROWTH RATES IN YIELDS PER ACRE FOR MAJOR FARM CROPS

	Series A /1 /2 1948-66 Growth Rate % Compound Annual	Series B /3 Yield in 1967 as % of 1952	Series B /3 Column to Left Annual Ave. Growth % /Compound	Series C /1 /4 1960-68 Growth Rate % Compound Annual
Cotton	1.8			
Wheat	2.7	133.5	1.9	0.4
Rice	5.2	166.9	3.5	- 0.4
Maize	1.8	164.8	3.4	1.6
Peanuts	1.4			
Unginned Cotton		117.4	1.1	0.9 to - 0.04 /5
Millet		190.4	4.4	3.0
Beans		89.1		1.2 to 0 /5

/1 Using log Y = A + b (T) when Y = yield and T = time.
/2 US Department of Agriculture, E.R.S., Agricultural Development and Expansion in the Nile Basin, Foreign Agricultural Economic Report No. 48, 1968.
/3 Sayed Marei, Food Production in Developing Countries: Its Problems, Prospects and Means with Reference to the Egyptian Experiment in Agriculture, mimeographed, undated, Cairo.
/4 Computed from data presented in Table 32.
/5 The higher figure is derived from a series which includes the bad crops of 1961; the lower figure from a series which excludes 1961.

Table 34: OUTPUT OF MAJOR AGRICULTURAL PRODUCTS (EXCLUDING LIVESTOCK)
1952 and 1960 - 1968

(in thousand metric tons)

Crop	1952	1960	1961	1962	1963	1964	1965	1966	1967	1968/1
Cotton										
Seed cotton	1,296	1,380	999	1,335	1,312	1,436	1,501	1,289	1,208	1,203
Cotton lint	446	478	336	457	442	504	521	455	437	430
Cereals										
Maize	1,506	1,691	1,617	2,004	1,867	1,934	2,141	2,376	2,163	2,298
Millet	522	603	631	659	729	740	806	859	881	960
Wheat	1,081	1,499	1,436	1,593	1,493	1,499	1,272	1,465	1,291	1,518
Rice (Paddy)	517	1,486	1,142	2,038	2,219	2,036	1,788	1,679	2,279	2,586
Barley	118	156	133	146	134	141	130	102	100	122
Pulses										
Beans	250	290	161	328	263	366	344	381	188	282
Lentils	32	50	34	56	47	52	61	44	34	34
Fenugreek	34	43	24	44	42	42	37	30	21	26
Lupines	6	13	9	12	13	13	12	7	7	7
Chickpeas	9	11	5	7	8	10	9	6	6	7
Vegetables										
Onion	243	504	469	600	659	646	670	701	587	479
Other	1,834	3,424	3,571	3,919	4,320	4,378	4,636	4,928	4,505	5,141
Fruits										
Oranges		210	157	280	338	331	342	488		
Mandarines & Limes		101	79	117	101	141	141	141		
Grapes		102	106	120	106	91	92	118		
Mangos		63	48	86	91	97	79	90		

continued.....

Table 34: OUTPUT OF MAJOR AGRICULTURAL PRODUCTS (EXCLUDING LIVESTOCK)
1952 and 1960 - 1968 (concluded)

Crop	1952	1960	1961	1962	1963	1964	1965	1966	1967	1968/1
Oils										
Groundnuts	20	35	25	49	45	46	50	40	32	36
Sesame	14	15	11	17	26	23	22	11	7	10
Flax (seed)	5	9	12	11	11	14	10	9	9	14
Flax (fiber)	26	53	64	64	61	74	58	51	54	83
Cottonseed	842	888	658	857	858	912	961	820	758	760
Sugarcane	3,258	4,545	4,186	4,808	5,153	4,890	4,739	5,189	5,269	
Clover Seed	36	41	39	33	27	27	28	34	31	34

/1 Preliminary

Note: Alternative series are not always in agreement with these data

Source: IBRD, Projects Department, Middle East Studies: U.A.R. Findings on Agricultural Sector, 1968 Mission, July 19, 1968; Ministry of Agriculture, Bureau of Agricultural Economics and Statistics, unpublished.

Table 35: DISTRIBUTION OF FARM HOLDINGS BY SIZE AND TENURE IN 1961

Item and Unit	Farm Holdings /1			
	Owned	Rented	Mixed	Total
Number of holdings (Thousand)	623	524	495	1,642
Area of Holding (Thousand Feddans)	2,664	1,214	2,344	6,222
Number in % of Total (%)	38	32	30	100
Area in % of Total (%)	43	19	38	100
Average size of holding (Feddan)	4.3	2.3	4.7	3.8

/1 Management units.

Source: U.A.R., Ministry of Irrigation, Report on Drainage Project For Part of the Nile Delta, Vol. 1, September, 1968.

Table 36: CREDIT ISSUED TO FARMERS BY THE EGYPTIAN GENERAL ORGANIZATION OF AGRICULTURAL AND COOPERATIVE CREDIT, 1957 TO 1967

(L.E. Thousand)

Year	Loans in Kind			Loans In Cash	Total	Total In/1 Real Terms
	Seeds	Fertilizers	Insecticides			
1957	1,436	6,963	/2	11,806	20,205	20,205
1958	1,383	8,283	/2	14,809	24,475	24,475
1959	1,602	10,273	/2	17,538	29,413	29,413
1960	1,981	12,608	1,190	20,899	36,678	36,678
1961	2,356	14,750	1,700	20,641	39,447	39,447
1962	3,236	21,136	6,941	29,655	60,968	60,968
1962-63					53,995 /3	53,995
1963-64					59,553 /4	58,731
1964-65					65,465	60,560
1965-66					79,628	68,116
1966-67					86,926	69,264
1967-68						

/1 Mid-year wholesale industrial price index used as deflator.
/2 Included in cash.
/3 Of this, 51,860 was classed as short-term; 2,102 as medium term; and 33 as long-term. Source: FAO/IBRD Cooperative Program, Draft Report on Agriculture and Irrigation in the United Arab Republic, 17 July, 1968.
/4 Of this, 56,400 was classed as short-term; and 3,153 as medium term. Source: FAO/IBRD Cooperative Program, Draft Report on Agriculture and Irrigation in the United Arab Republic, 17 July, 1968.

Source: For 1957-1962, U.S. Department of Agriculture, E.R.S., Agricultural Development and Expansion in the Nile Basin, Foreign Agricultural Economic Report No. 48. For 1962-63 to 1966-67, U.A.R. Ministry of Irrigation, Report on Drainage Project for Part of the Nile Delta, Vol. 1, September, 1968.

Table 37: INDICATIVE COSTS OF LAND RECLAMATION AND DEVELOPMENT

Item	L.E. per Feddan
Preparatory Research	10
Roads and Electricity	110
Irrigation and Drainage /1	110
Other construction (including housing) /2	110
Farm development /3	
Machinery	35
Losses	70
Total Above	(435)
High Dam	65
TOTAL	520 /4

/1 Includes on-farm distribution system.
/2 In addition to housing for both administrators and farmers, includes potable water, hospitals, schools and social centers.
/3 These outlays are required to bring soil productivity up to a level at which the market value of production equals current farm expenditures.
/4 The total varies up to 20% plus or minus.

Source: Ministry of Reclamation.

Table 38 : PRODUCTION AND USES OF COTTON

Production Year Ended October 31	Total Production ('000 Tons)	Percentage of Production			Consumption Year Ended August 31	Exports and Local Factory Consumption		
		Extra Long (%)	Medium Long (%)	Medium (%)		Exports ('000 Tons)	Consumption ('000 Tons)	Consumption as Percentage of Exports (%)
1950	381.9	33.7	19.4	44.5	1951	288.7	60.7	21.0
1951	362.8	38.6	15.4	43.1	1952	261.5	65.4	25.0
1952	445.8	45.0	13.4	39.5	1953	319.0	68.7	21.5
1953	318.2	34.6	27.3	35.8	1954	324.5	73.2	22.6
1954	348.0	33.1	25.6	39.0	1955	247.1	80.2	32.5
1955	334.1	35.8	18.8	42.9	1956	292.5	87.1	29.8
1956	324.8	41.0	18.2	38.5	1957	230.9	90.7	39.3
1957	405.3	45.3	12.7	39.8	1958	254.5	97.4	38.3
1958	445.9	58.6	7.8	31.3	1959	327.3	106.2	32.4
1959	457.2	51.1	15.0	31.8	1960	381.8	109.4	28.7
1960	478.2	47.4	22.2	28.5	1961	337.0	121.3	36.0
1961	335.7	41.2	24.7	31.7	1962	229.4	135.2	58.9
1962	457.3	50.3	22.5	25.7	1963	303.0	135.5	44.7
1963	441.7	46.6	22.9	28.9	1964	291.8	139.3	47.7
1964	504.1	45.8	24.5	28.1	1965	342.2	153.0	44.7
1965	520.1	43.4	25.9	29.1	1966	342.4	160.8	47.0
1966	454.9	40.2	21.3	36.5	1967	302.2	175.8	58.2
1967	436.6	38.1	24.7	35.2				

Source: Central Agency for Public Mobilization and Statistics.

Table 39 : FOOD CONSUMPTION PER CAPITA PER DAY BY COMMODITY GROUP IN SELECTED RECENT YEARS

Group	1950-51 /1	1955-56 /1	1965-66 /2
	Grams	Grams	Grams
Cereals	469	510	551
Other Starch Foods	19	18	30
Sugar and Syrups	40	48	54
Pulses, Nuts, Seeds	27	32	34
Vegetables (fresh)	94	178	247
Fruits	91	180	138
Meats	25	37	29
Eggs	2	3	4
Fish	10	17	9
Milk & Milk Products	165	162	122
Vegetable Oils	10	11	19

/1 Source : U.A.R., The Journal of the Egyptian Public Health Association, Vol. XXXV, No. 3, 1960 (Ismail Abdou, Nutrition Problems in the Egyptian Region).

/2 Source : Ministry of Agriculture, Food Balance Sheet 1965-1966, April, 1968.

Table 40: INDUSTRIAL PRODUCTION INDEX NUMBERS

(1959 = 100)

ISIC	Economic Activities	1960	1961	1962	1963	1964	1965	1966	1967
1	Mining and quarrying	107.5	128.6	139.2	172.4	274.8	213.4	235.8	229.6
12	Metal mining	99.2	117.4	130.0	144.0	126.7	105.6	91.7	89.7
13	Crude petroleum & Natural Gas	106.1	124.2	147.4	191.7	214.7	228.4	267.8	244.2
14	Stone quarrying, clay & sand pits	110.6	114.7	132.8	136.5	159.8	174.1	187.1	200.3
15	Salt mining	130.7	95.6	94.5	141.5	172.6	157.0	170.8	192.4
19	Other Non-metallic mining & quarrying	106.3	189.8	123.4	96.5	162.1	284.2	232.7	256.8
2-3	Manufacturing Industries	116.1	144.3	174.2	228.9	261.6	276.6	264.9	249.9
20	Food Manuf.Industries	83.4	84.7	117.5	134.9	129.4	138.0	119.9	120.2
21	Beverage Industries	95.5	125.2	137.0	167.3	169.2	204.9	230.1	182.1
22	Tobacco Industries	112.1	125.8	147.1	158.5	174.4	191.4	204.1	211.0
23	Spinning & Weaving	125.5	140.5	144.4	141.8	149.2	162.3	159.3	165.6
24	Industries Manuf. of Foot wear, Other Wearing apparel & made up textile goods	108.9	209.2	251.9	254.7	262.2	300.1	279.8	278.4
25	Wood, rattan bamboo & cork	114.9	308.6	323.4	576.9	1267.2	1137.5	992.3	610.6
26	Furniture and Fixtures	93.8	71.6	90.9	105.8	106.9	114.1	119.4	103.3
27	Paper and articles of paper	110.6	164.1	412.6	439.7	516.4	561.2	614.6	562.1
28	Printing & allied Industries	103.1	121.9	159.4	293.8	281.3	268.8	240.6	159.4
29	Leather & leather products	100.9	94.5	145.2	144.3	161.4	202.6	210.9	215.6
30	Rubber products	109.7	139.8	153.2	190.1	185.1	180.9	169.1	168.5
31	Chemicals & chemical products	123.3	183.9	146.2	254.3	324.0	410.7	455.2	387.3
32	Product of petroleum & coal	122.1	134.6	138.2	164.6	218.9	165.1	167.0	162.4
33	Manuf. of non-metallic mineral products	88.6	117.4	134.3	176.0	154.5	173.2	213.8	183.6
34	Basic metal industries	159.8	222.7	258.8	273.9	273.2	270.6	364.5	295.9
35	Metal products	91.2	117.3	135.0	160.4	153.3	190.1	216.2	254.3
36	Manuf. & Rep. of non-electrical machines	275.3	412.3	769.4	1403.6	1469.8	1394.4	1079.9	1187.2
37	Manuf. & Rep. of electrical machines	129.1	249.3	302.4	585.2	739.0	686.4	699.5	703.0
38	Transport equipment & supplies	158.8	241.5	419.6	669.8	815.8	711.0	664.6	411.4
39	Manuf. Industries not elsewhere classified	112.7	154.0	395.7	494.9	858.5	983.3	980.3	732.8
5	Electricity, Gas, Water & Sanitary Services	124.1	170.4	193.4	209.8	240.3	257.6	277.3	282.8
51	Electricity, Gas & Steam Production & distribution	124.1	170.4	193.4	209.8	240.3	257.6	277.3	282.8
	General Total	116.2	145.4	173.6	224.2	260.8	271.2	262.9	248.9

Source: Central Agency for Public Mobilization and Statistics

Table 41: THE VALUE OF INDUSTRIAL OUTPUT

(EE million - At Current Prices)

Sector	1952	1960	1965	1966	1967
Petroleum Industries	34.2	66.4	101.1	103.2	99.7
Mining	3.6	7.5	10.9	12.1	11.9
Chemicals & Pharmaceuticals	20.5	49.1	140.0	142.2	139.1
Food Industries	122.3	177.1	285.4	308.7	342.5
Engineering & Electric Industries	30.1	80.9	160.0	155.6	150.0
Building Material Industries	8.4	20.0	30.8	34.6	29.3
Spinning & Weaving Industries	84.6	230.5	357.8	383.4	389.1
Electric Energy	10.1	29.4	54.7	48.4	60.1
TOTAL	313.8	660.9	1140.7	1188.2	1221.7

Note: The table does not include the production of Government factories, military factories (military production), cotton ginning, flour mills and bakeries, tea packing, printing and publication.

Source: Central Agency for Public Mobilization & Statistics

Table 42: ELECTRICITY 1960/61 - 1967/68

Year	Installed Power M.W.			Net Generated Energy Million K.W.H.			Net Peak Load M.W.
	Hydraulic	Thermal	Total	Hydraulic	Thermal	Total	
1960/61	345	1219	1564	627	2504	3131	641
1961/62	345	1308	1653	1083	2779	3862	680
1962/63	345	1308	1653	1115	3065	4180	750
1963/64	345	1308	1653	1446	3317	4763	822
1964/65	345	1283	1628	1606	3560	5166	854
1965/66	345	1482	1827	1773	3904	5677	931
1966/67	345	1554	1899	1806	4154	5960	945
1967/68	1045	1701	2746	2446	3753	6199	1000

Note: 1) Data of year 1967/68, estimated regarding Net Peak Load, and includes High Dam Electric Power.

2) The above mentioned data include Power stations belonging to The General Electricity Corporation, Industrial Firms and Municipal Boards.

Source: The Ministry of Economy and Foreign Trade

Table 43: PRODUCTION, EXPORTS, AND IMPORTS OF COTTON YARN

(In Thousand Tons)

Year	Production	Exports	Imports	Local Consumption
Average 1950/51 - 1954/55		7.7	0.1	
Average 1955/56 - 1959/60		12.0	0.1	
1960/61	102.0	19.4	-	82.6
1961/62	111.0	21.1	-	89.9
1962/63	121.0	20.8	-	100.2
1963/64	123.0	31.6	-	91.4
1964/65	131.0	33.1	-	97.9
Average 1960/61 - 1964/65	117.6	25.2	-	92.4
1965/66	139.0	40.0	-	99.0
1966/67	148.0	42.4	-	105.6

Source: The Ministry of Planning

Table 44 : PRODUCTION, EXPORTS AND IMPORTS OF COTTON FABRICS

(In Thousand Tons)

Year	Production	Exports	Imports	Local Consumption
Average 1950/54	--	1.1	2.3	--
Average 1955/59	--	4.4	0.2	--
1960/61	64.0	11.9	1.1	53.2
1961/62	73.0	13.8	2.9	62.1
1962/63	79.0	13.3	0.2	65.9
1963/64	80.0	14.1	0.2	66.1
1964/65	88.0	14.4	--	73.6
Average 1960/61 - 1964/65	76.8	13.5	0.9	64.2
1965/66	80.0	12.2	--	67.8
1966/67	85.0	17.1	--	67.9

Source: The Ministry of Planning

Table 45: PRODUCTION AND CONSUMPTION OF COMMERCIAL FERTILIZERS

(in thousand tons)

	1955	1956	1957	1958	1959	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Production														
Nitrogenous /1						244	590	762	692	931	947	1,011	1,075	
Phosphatic /2						175	185	171	158	175	260	260	262	
Consumption														
Nitrogenous /1	734	655	849	886	993	1,100	1,166	1,235	1,353	1,463	1,631	1,805	1,701	
Phosphatic /2	137	157	177	177	175	210	218	249	257	268	293	345	286	
Potassic /3			1.3	1.7	3.7	5.1	4.3	2.2	2.0	1.7	1.5	9.4	3.5	

/1 15.5% N through 1959-60, and 15% N thereafter.
/2 15% P_2O_5
/3 48% K^2O_5

Source: Ministry of Agriculture, Bureau of Agricultural Economics and Statistics.

Table 46 : PRODUCTION OF CRUDE OIL

(Quantities in 1000 Tons)

Year	Sinai	Other Fields	Total	Foreign Share	Local Share
1964/65	5,049	1,288	6,337	--	6,337
1965/66	4,896	1,540	6,436	--	6,436
1966/67	4,406	1,933	6,339	220	6,117
1967/68	--	5,701	5,701	1,943	3,758
1968/69 (estimate)	--	11,737	11,737	4,097	7,640
1969/70 (estimate)	--	14,990	14,990	5,320	9,670
1970/71 (estimate)	3,250	22,430	25,630	8,400	17,230
1971/72 (estimate)	2,820	24,660	27,480	9,420	18,060
1972/73 (estimate)	2,370	26,120	28,490	10,120	18,370
1973/74 (estimate)	2,000	28,070	30,070	10,990	19,080
1974/75 (estimate)	1,730	33,940	35,670	13,490	22,180

Source: The General Organization for Petroleum

Table 47: QUANTITY & VALUE OF LOCAL CONSUMPTION OF PETROLEUM PRODUCTS (VALUED AT IMPORT PRICES)

Year	Quantity (1000 Tons)	Value (1000 Pounds)	Production Quantity (1000 Tons)
1964/65	5,548	42,143	7,842
1965/66	6,001	46,411	7,915
1966/67	6,674	51,842	8,106
1967/68	5,668	42,772	5,059/1
1968/69 (estimate)	5,999	48,432	6,643
1969/70 (estimate)	6,274	51,385	6,889
1970/71 (estimate)	7,725	51,506	8,027
1971/72 (estimate)	8,148	62,694	8,256
1972/73 (estimate)	8,595	65,920	8,939
1973/74 (estimate)	9,074	69,757	9,386
1974/75 (estimate)	9,584	73,641	9,794

/1 Including Aden.

Source: The General Organization for Petroleum

Table 48: TOURIST NIGHTS 1962 - JAN./NOV. 1968
(In thousands)

YEAR	ARABS	EUROPEANS	AMERICANS	OTHERS	TOTAL
1962	1,963.8	1,349.1	303.1	550.[illegible]	4,166.5
1963	1,869.2	1,311.3	434.4	608.5	4,223.4
1964	3,856.2	1,986.2	426.0	755.9	7,024.3
1965	7,067.7	2,327.7	394.9	610.5	10,400.8
1966	6,439.3	2,326.8	423.7	593.7	9,783.4
1967	3,959.6	1,597.0	395.6	417.5	6,369.6
Jan/Sept 1968	2,631.2	464.7	87.0	135.2	3,320.0
Jan/Nov 1968					4,044.6

Source: The Ministry of Tourism

Table 49: CENTRAL GOVERNMENT - CURRENT REVENUE

(LE million)

	1963/64	1964/65	1965/66	1966/67	1967/68 Prov.	1968/69 Est.
Tax Revenues	271.9	317.3	341.8	348.2	341.2	360.5
Taxes on immovable property	7.6	6.7	7.1	8.7	11.0	18.9
Personal income taxes	14.5	16.9	18.4	21.2	21.6	26.2
Business Profit Taxes	32.8	53.8	70.5	88.9	68.3	67.7
Estate and Succession Duties	3.6	2.0	2.1	2.1	2.2	2.1
Excise and Consumption Duties	49.6	48.5	45.9	44.4	51.1	49.3
Custom Duties	144.3	164.5	172.2	154.2	144.5	151.2
Stamp Duties	11.0	14.3	17.0	16.4	26.2	28.8
Other	8.5	10.6	8.6	12.3	16.3	16.3
Non-Tax Revenues	97.0	113.0	131.9	177.3	173.4	165.4
Services Revenues	43.4	36.9	54.1	63.7	17.5	22.9
Miscellaneous and extraordinary receipts	53.6	76.1	77.8	113.6	155.9	142.5/1
Total	368.9	430.3	473.7	525.5	514.6	525.9

/1 Profits of the Ministry of Supply are no longer included. See footnote 5 to Table 51.

Source: Ministry of the Treasury

Table 50: CENTRAL GOVERNMENT - CURRENT EXPENDITURE

(LE million)

	1963/64	1964/65	1965/66	1966/67	1967/68 Prov.	1968/69 Est.
Organizational Services	238.5	278.4	301.4	269.5	325.6	359.6
Defense	176.8	213.5	235.0 /1	184.4	258.0 /2	278.9 /3
Security and Justice	37.3	39.1	41.0	40.4	43.2	49.7
Others	24.4	25.8	25.4	24.7	24.4	31.0
Social and Economic Services	177.5	199.5	226.6	222.8	225.9	253.4
Agriculture	9.7	11.2	11.4	11.6	15.0	19.3
Irrigation and Drainage	14.1	13.8	16.8	17.2	18.6	22.1
Education	82.0	91.7	90.0	99.2	103.1	116.5
Health	20.9	24.2	23.3	28.9	31.7	34.9
Transport and Communications	10.2	9.3	9.7	7.5	3.4	7.9
Culture and Entertainment	11.2	12.3	12.2	10.4	12.3	10.8
Others	29.4	37.0	63.2	48.0	41.8	41.9
Debt Service	28.7	35.2	40.5	59.3	18.2 /4	12.7
Pensions and Other Remunerations	15.8	17.6	19.6	20.2	21.1	24.5
Cost of Living Subsidies	32.4	45.0	51.0	46.2	41.0	8.1 /5
Sub-Total	492.9	575.7	639.1	598.0	631.8	658.3
Settlement of Arrears	-	-	45.7	65.0	-	-
GRAND TOTAL	492.9	575.7	684.8	663.0	631.8	658.3

/1 Includes LE 60 million which the official figures classify under "Settlement of Arrears"

/2 Includes LE 60 million for "emergency appropriations" which the official figures classify under "Others".

/3 Includes a large amount of "emergency appropriations" (estimated by the mission at LE 100 million) which is financed through the so-called Emergency Fund

/4 No longer includes repayment of principal, as in the past.

/5 Only the net result of the operations of the Ministry of Supply is now reported. Total subsidies are estimated at LE 33.1 million as against profits of LE 25 million.

Source: Ministry of the Treasury

Table 51: INVESTMENT IN THE PUBLIC SECTOR

(LE million)

	1963/64	1964/65	1965/66	1966/67	1967/68 Prov.	1968/69 Est.
Business Budget						
Agriculture	48.6	43.2	49.1	47.5	33.0	32.3
Electricity	18.8	19.8	27.4	24.2	20.3	17.7
High Dam	62.9	47.8	59.8	57.2	46.0	31.7
Industry	109.8	80.2	63.8	41.5	42.5	112.7
Transport and Communications	20.2	20.3	22.8	14.6	21.9	32.6
Suez Canal	5.6	7.1	5.3	8.0	-	-
Housing and Public Utilities	16.5	12.8	16.4	13.2	5.0	5.7
Health	2.1	1.1	1.9	1.6	1.0	0.7
Culture and Tourism	11.7	9.2	6.1	2.5	1.7	3.5
Supply and Storage	2.8	3.1	5.1	2.4	2.4	5.5
Financial and Commercial Services	3.3	2.2	2.1	1.3	0.8	1.9
Unspecified Allocations	-	-	-	14.6	13.6	13.8
Sub-Total	302.3	246.8	259.8	228.6	188.2	260.1
Services Budget/1	67.1	47.4	40.4	42.6	30.6/2	51.8
TOTAL	369.4	294.2	300.2	271.2	218.8	311.9

/1 Including investment expenditure of governatorates

/2 This includes "unclassified" investment for LE 24.7 million

Source: Ministry of the Treasury

Table 52: GROSS (PUBLIC & PRIVATE) INVESTMENT IN AGRICULTURE IN CURRENT PRICES

(LE. Millions)

Year	Agriculture (a)	Irrigation & Drainage (b)	Combined (c)	High Dam (d)	Total National Investment (e)	Percent Col (c) of (e) (f)
1959-60	16.7	8.6	25.3	4.2	171.4	14.8 %
1960-61	16.6	14.8	31.4	6.8	225.6	13.9
1961-62	17.8	19.7	37.5	14.4	251.1	14.9
1962-63	20.6	29.2	49.8	24.0	299.6	16.6
1963-64	30.9	36.4	67.3	34.8	372.4	18.1
1964-65	32.5	37.9	70.4	18.6	364.3	19.3
1965-66	30.7	32.6	63.3	19.0	383.8	16.5
1966-67	31.3	34.4	65.7	16.5	365.8	18.0
1967-68			49.9			
1968-69 (Estimate)	24.6	28.8	53.4	9.5		

Source: Compilation on the basis of data from B. Hansen, Planning and Economic Growth in the UAR (Egypt), 1960-65 in Egypt Since the Revolution, and information from the Ministry of Planning.

Table 53: DISTRIBUTION OF PUBLIC INVESTMENT IN AGRICULTURE

(E.E. Million)

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	Total	Percent
Yield-Increasing											
Crops	4.0	3.8	4.0	5.6	6.2	7.4	3.3	1.3	4.4	40.0	8.3 %
Livestock	1.3	1.4	1.0	1.8	2.4	2.5	3.2	2.3	1.5	17.4	3.6
Subtotal	(5.3)	(5.2)	(5.0)	(7.4)	(8.6)	(9.9)	(6.5)	(3.6)	(5.9)	(57.4)	(11.9)
Irrigation and Drainage	11.7	11.9	14.5	9.7	9.6	5.2	9.4	6.9	8.8	87.7	18.3
Subtotal	(17.0)	(17.1)	(19.5)	(17.1)	(18.2)	(15.1)	(15.9)	(10.5)	(14.7)	(145.1)	(30.2)
Area-Increasing											
Reclamation (Construction)	12.7	21.8	21.1	39.1	44.7	49.4	42.4	32.6	31.7	295.5	61.7
Reclamation (Farming development)	0.2	1.5	2.5	3.0	3.2	3.0	7.4	7.3	10.5	38.6	8.0
Subtotal	(12.9)	(23.3)	(23.6)	(42.1)	(47.9)	(52.4)	(49.8)	(39.9)	(42.2)	(334.1)	(69.7)
TOTAL	29.9	40.4	43.1	59.2	66.1	67.5	65.7	50.4	56.9	479.2	100.0

Source: Compilation on the basis of data from the Ministries of Agriculture, Irrigation and Land Reclamation.

Table 54: FACTORS AFFECTING LIQUIDITY, MONEY SUPPLY & QUASI-MONEY

(Revised Figures)

(LE Millions)

	1962/63	1963/64	1964/65	1965/66	1966/67	June 1967/68	June/ Nov. 1967	June/ Nov. 1968
Money Supply	15.9	94.4	60.1	62.2	1.5	-19.5	36.1	80.1
Quasi Money	43.8	30.6	19.5	16.7	16.3	11.3	- 7.0	- 1.1
TOTAL	59.7	125.0	79.6	78.9	17.8	- 8.2	29.1	79.0
1. Foreign Assets (net)	-36.6	-15.1	11.2	-30.6	-12.4	-51.0	-65.0	-21.2
2. Claims on Government (net)	50.0	138.2	31.3	112.5	74.1	28.2	24.8	23.1
Claims on Government (gross)	65.8	182.2	62.5	105.5	67.1	42.9	32.9	21.7
Government Deposits	5.9	-26.2	-32.5	17.0	14.7	-11.2	- 8.2	9.6
Counterpart Funds	-21.7	-17.8	1.3	-10.0	- 7.7	- 3.5	0.1	- 8.2
3. Claims on Non-Government Sector	42.1	6.9	17.6	6.0	-21.9	29.6	69.4	83.0
Claims on Specialized Banks	16.4	8.0	20.2	1.3	-25.5	5.3	- 9.7	-17.2
Claims on other non-Government	25.7	- 1.1	- 2.6	4.7	3.6	24.3	79.1	100.2
4. Other factors	4.2	- 5.0	19.5	- 9.0	-22.0	-15.0	- 0.1	- 5.9
Unclassified Assets	15.8	4.1	9.5	- 6.1	- 0.7	0.9	16.9	- 2.7
Unclassified Liabilities	-13.3	-10.9	- 0.2	13.3	8.4	- 8.2	- 9.7	- 3.5
Float	5.6	3.8	4.0	0.5	-24.8	1.8	- 1.5	3.3
Capital accounts	- 3.9	- 2.0	6.2	-16.7	- 4.9	- 9.5	- 5.8	- 3.0
5. Total Credit Expansion 2 + 3 + 4	96.3	140.1	68.4	109.5	30.2	42.8	94.1	100.2
Changes in cotton financing outstanding (- increase)	-17.6	4.6	- 0.1	5.4	11.6	2.0	-73.0	-79.4
6. Credit Expansion adjusted for cotton financing	78.7	144.7	68.3	114.9	41.8	44.8	21.1	20.8

Source: The Central Bank of Egypt.

Table 55: COST OF LIVING AND WHOLESALE PRICES

(1939 = 100)

		Cost of Living Index	General Wholesale Price Index	Foodstuffs	Industrial Products and Materials
December	1962	296	420	403	438
December	1963	302	425	403	448
December	1964	339	453	445	462
July	1965	353	474	478	471
December	1965	377	490	499	480
July	1966	390	506	529	484
December	1966	394	526	568	485
July	1967	388	551	624	485
December	1967	392	553	618	494
July	1968	381	517	538	497

Source: Central Agency for Public Mobilization and Statistics

Table 56: WHOLESALE AND RETAIL PRICES OF SELECTED COMMODITIES

ITEMS	UNIT	DECEMBER 1963	1964	1965	1966	1967
	A. WHOLESALE PRICES (In Egyptian Pounds)					
Wheat flour (extract 82%)	100 kg.	3.48	3.49	3.49	3.39	3.39
Rice bleached	100 kg.	3.03	3.03	3.03	7.30	7.58
Maize	100 kg.	3.63	3.64	3.36	4.67	5.03
Beans (whole)	155 kg.	8.73	7.71	6.63	8.12	8.60
Woollen textiles (imperial)	Meter	3.13	3.13	3.53	3.64	3.64
Cotton, ginned (Menoufi/good)	50 kg.	14.40	15.50	15.50	15.50	16.10
Sugar (granulated)	45 kg.	4.10	4.55	5.04	5.04	5.04
Tobacco (Hemmy, Syrian)	kg.	--	--	--	7.61	7.61
Tea (India, unpacked)	kg.	1.04	1.04	1.04	1.45	2.26
Coffee beans (of Yemen, crible)	45 kg.	37.62	37.62	37.62	37.62	37.62
Kerosene (36 litre)	Two tins	--	--	--	.50	.90
Coal (cardiff)	Ton	--	--	--	14.37	14.93
Fertilizers (nitrate of soda natural)	Ton	23.75	23.75	23.75	23.75	23.75
Diesel	Ton	12.90	12.90	12.90	15.20	15.20
Benzine (36 litre)	Two tins	1.72	1.72	1.72	1.72	1.72
Mazout Oil	Ton	6.90	6.90	6.90	7.50	7.50
Solar oil	Ton	13.07	13.07	13.07	13.07	15.70
	B. RETAIL PRICES (In Piasters: 100 Piasters = £E 1)					
Mutton (baladi)	kg.	28.0	53.0	63.8	59.0	47.3
Beef (baladi)	kg.	23.5	40.3	53.8	55.3	47.6
Fish (Bolti)	kg.	15.0	20.8	27.2	26.1	23.4
Eggs	Ten	12.0	13.0	15.0	15.0	15.0
Fresh butter	kg.	43.8	53.9	60.4	66.7	58.8
Melted butter	kg.	57.6	69.7	80.4	83.7	74.6
Local cheese	kg.	24.8	28.6	34.6	36.1	35.9
Potatoes (baladi)	kg.	2.7	3.0	4.2	4.7	4.7
Onions	kg.	1.3	2.7	3.9	4.8	4.7
Beans (whole)	kg.	6.8	6.9	7.0	7.6	8.3
Bananas	kg.	8.8	9.3	10.0	10.2	10.2
Dates dry	kg.	8.5	9.1	11.4	12.9	12.3
Electricity	Kwh	3.0	3.0	3.0	3.0	3.0
Soap, olive oil	Piece, 225 gms.	6.0	6.0	6.0	6.0	7.0
Soap for laundry	Piece, 400 gms.	4.0	4.0	4.0	4.0	5.0

Source; Central Agency for Public Mobilization and Statistics

Table 57: PRICES PAID BY FARMERS FOR SELECTED INPUTS IN RECENT YEARS

Item	Definition	Unit	Price L.E.
Fertilizers /1, /2			
Ammonium Sulphate	21% N	100 kg	2.9
Calcium Nitrate	26% N	"	3.58
Urea (46% N)	46% N	"	6.4
Superphosphate	15% P_2O_5	"	1.35
Potassium Sulphate	48-52% K_2O	"	2.6
Pesticides (in 1968)			
Deptrix		1.25 kg	1.68
Sevin		1 kg	1.34
Malathion		"	1.12
Zinc Phosphate		"	0.485
DDT	50%	"	0.284
Sulphur		50 kg	2.965
Andrine	19.5%	Liter	0.210
Lindane		"	0.105
Kalthine Oil		"	0.53
Cobravit		20 kg	12.0
Ikatin		Liter	1.06
Machinery Services (in 1968)			
Thresh /3		Hour	0.45
Plow plus Harrow /3		Acre	1.90
Seed (in 1968)			
Corn	Hybrid	150 kg	7
	Open	"	5
Wheat		"	6
Rice		120 kg	3
Cotton		"	1.8
Machinery (in 1968) /4			
Tractor	Diesel 50 HP		1,500
Cultivator	9-tin		125-140
Disc Harrow	One-way 12		200
Land Leveller	12 ft.		200-240

/1 1965 through 1968. Prices have not changed during this period.

/2 Prices CIF Alexandria for fertilizers were:

		U.S.$ per M.T.	L.E. per 100 kg
Ammonium Sulphate (20.6%N):	1966-67	38-44	1.65-1.91
	1967-68	30-35	1.30-1.52
Calcium Ammonium Nitrate (26%N):	1966-67	51	2.22
	1967-68	42-45	1.83-1.96
Potassium Sulphate (48% K_2O):	1966-67	85	3.70
	1967-68	70-83	3.04-3.61

/3 These are cooperative society rates. Private operators quote up to 50 percent higher.

/4 Customs duties are 21 percent value cif on crawler tractors and 11 percent on wheel tractors. Cooperative societies are not required to pay these charges.

Source: Compilation on the basis of the findings of the mission.

Table 58 : PRICES AT WHICH STAPLE FOODS HAVE BEEN MADE AVAILABLE TO THE FOOD TRADE BY THE GENERAL ORGANIZATION FOR SUPPLY

(L.E. per ton)

ITEM	1965/66	1966/67	1967/68	1968/69
Wheat	30	30	30	31
Flour (extra)	46	46	46	28
Maize	26	26	33	33
Lentils	76	76	76	80
Sesame (Upper Egypt)	80	107	107	107
Sesame (Sharbia)	85			
Edible Oil (rationed)	50	43	50	50
Edible Oil (factory)	100	100	100	100
Soap fats (solid)	123	123	123	123
Soap fats (in containers)	130	130	130	130
Edible fats	180	180	220	220
Sugar (rationed)	66	66	66 to 70	70
Sugar (free)	138	160	160	160
Tea (Indian/Chinese/Turkish)	1,141	1,141	1,166	1,166
Tea (Yacout Indian)	1,449	1,449	2,263	2,263
Tea (Ceylon)	1,822	1,822	2,778	2,778
Tea (Extra)	2,536	2,536	4,036	4,036
Coffee (Brazilian)	674	674	674	674
Coffee (Yemenese)	814	814	814	814

Source: The General Organization for Supply

Table 59: INVENTORY OF THE GENERAL ORGANIZATION FOR SUPPLY

(As at June 30 - Tons)

Commodity	1965/66	1966/67	1967/68	1968/69
Wheat	268,916	181,000	414,000	400,000
Flour Extra	129,001	56,094	185,000	100,000
Maize	---	37,768	155,182	---
Lentils	---	6,018	9,767	---
Sesame	---	2,386	4,703	---
Edible Oil	24,000	34,000	45,000	41,000
Soap Fats	1,000	2,000	4,693	3,000
Edible Fats	0,500	0,600	3,970	1,000
Sugar	228,300	230,700	247,400	296,300
Tea	9,670	7,500	9,380	10,500
Coffee	0,900	1,059	0,575	1,559

Source: The General Organization for Supply

Table 60: CASH GAINS AND LOSSES BY COMMODITY IN STAPLE FOODS SUPPLY AND PRICE STABILIZATION, 1967-68 AND 1968-69

Item	1967-68 Explanation (Tons)	1967-68 L.E.Thousand	1968-69 Explanation (Tons)	1968-69 .E.Thousand
A. Losses				
Wheat	1,660,000 /1	18,839	1,840,000 /1	13,675
Flour	514,000 /1	4,750		
Maize	135,000 /1	1,043	200,000 /1	1,198
Lentils	15,000 /1	540	17,000 /1	1,085
Oils	88,000 /1	3,865	83,000 /1	8,943
Sesame	15,000 /1	522		
Beans & Lentils	Local	521	Local	676
Sugar	209,000 /2	3,344	210,000 /2	
Sugar	/3	609		6,103 /4
Sugarcane	Price differential	1,047		
Camels & cows	Currency premium /1	276	Currency premium/1	276
Rice		0	Transport	150
TOTAL		35,356 /8		32,106 /9
B. Gains				
Oils	13,100	216		
Oils	36,000 /5	4,321		3,991
Cottonseed	6,200 ardeb/6	2,046		
Tea	23,570	6,533	24,000 T.	6,998
Coffee	4,800	625	5,000 T.	869
Sugar	170,000	18,951	224,000 T.	11,432
Flour			600,000 T.	2,982
TOTAL		32,692		26,272 /10
C. Other Charges				
Reserve	/7	144	/7	607
Operating Expenses		900		
TOTAL		1,044		607
B-A-C		3,708		6,441

/1 Imported
/2 Rationed
/3 Containers and storage
/4 Includes cost of guards
/5 Unrationed Distribution
/6 Distribution
/7 For sundry losses.
/8 This figure is carried as 39,956 in the source document. Presumably the error is arithmetic.
/9 This figure is carried as 32,605 in source document. Presumably arithmetic error.
/10 Wrongly added in source document.

Source: The General Organization for Supply

Table 61 : BALANCE OF PAYMENTS 1962/63 - 1967/68

(£E million)

	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
Current Account						
Exports	199.7	243.1	244.8	251.0	263.9	253.4
Suez Canal receipts	69.8	74.4	82.8	90.6	95.2	-
Travel and other receipts	38.4	43.7	54.6	44.1	59.8	44.1
Other receipts	22.5	17.2	16.9	24.7	19.9	15.2
TOTAL	330.4	378.4	399.1	410.4	438.8	312.7
Imports	367.0	429.3	394.0	423.2	414.4	386.8
Interests and dividends	11.7	14.1	14.7	15.9	19.0	16.4
Government expenditure	26.4	27.1	35.3	38.8	35.7	25.5
Other expenditures	40.5	48.6	42.1	49.1	49.0	38.7
TOTAL	445.6	519.1	486.1	527.0	518.1	467.4
Balance	-115.2	-140.7	- 87.0	-116.6	- 79.3	-154.7
Capital Account						
Grants and local currency loans	56.0	63.0	49.7	32.0	8.9	-
Foreign currency loans and other receipts	51.1	103.7	111.8	121.1	154.6	172.6
Total receipts	107.1	166.7	161.5	153.1	163.5	172.6
Debt amortization and other payments	- 27.2	- 63.5	- 86.5	- 51.7	- 64.6	- 68.8
Balance	- 79.9	-103.2	- 75.0	101.4	98.9	103.8
Financial Balance	- 35.3	- 37.5	- 12.0	- 15.2	19.6	- 50.9
Foreign exchange reserves /1	- 19.7	- 0.8	- 15.1	- 29.5	26.3	- 35.0
IMF /2	- 7.0	- 8.1	- 0.9	1.1	10.8	- 3.5
Non-resident accounts /3	- 8.4	- 23.9	7.0	15.5	- 16.0	- 14.6
Errors and omissions	- 0.2	- 4.7	- 3.0	- 2.3	- 1.5	2.2

/1 Minus signs indicate decrease in assets
/2 Net use of resources; minus signs indicate drawings
/3 Net change; minus signs indicate increase in UAR liabilities

Source: Central Bank of Egypt

Table 62: BALANCES ON CLEARING AND OTHER ACCOUNTS (PAYMENTS AGREEMENTS)

(LE million)

	31/12/67	31/3/68	30/6/68	30/9/68	30/11/68
Bilateral Accounts					
Albania	- 0.1	- 0.2	- 0.2	- 0.2	- 0.2
Algeria	+ 1.2	+ 1.2	+ 1.5	+ 0.9	+ 1.6
Bulgaria	- 0.8	- 1.5	- 0.6	- 0.6	- 1.3
Cameroon	+ 0.1	-	-	-	-
Ceylon	- 0.2	- 0.3	- 0.3	- 0.7	- 0.7
China	- 6.8	- 6.3	- 5.4	- 6.3	- 7.0
Cuba	+ 0.6	+ 0.4	+ 1.4	+ 0.7	+ 0.3
Czechoslovakia	- 4.7	- 1.7	+ 1.8	+ 1.3	- 1.9
Denmark	-	- 0.1	- 0.1	- 0.1	- 0.1
E. Germany	- 2.1	- 1.5	- 1.3	- 2.0	- 2.7
Ghana	+ 0.2	+ 0.3	+ 0.3	+ 0.5	+ 0.6
Greece	- 2.1	- 1.9	- 1.7	- 2.3	- 3.3
Guinea	+ 1.8	+ 1.8	+ 1.8	+ 1.9	+ 1.9
Hungary	+ 0.2	+ 1.1	+ 1.1	+ 0.9	- 0.4
India	- 6.7	- 6.9	- 2.6	+ 1.7	+ 0.3
Indonesia	+ 0.7	+ 1.0	+ 1.0	+ 1.0	+ 1.0
Iraq	- 0.2	-	+ 0.2	+ 1.0	+ 1.5
N. Korea	+ 0.1	-	-	- 0.2	- 0.2
Lebanon	- 0.1	- 0.8	- 0.8	- 0.6	- 0.6
Libya	+ 0.7	+ 0.6	+ 0.7	+ 0.2	+ 0.2
Meli	+ 4.9	+ 5.4	+ 5.4	+ 5.2	+ 5.2
Morocco	- 0.4	- 0.4	- 0.3	- 0.3	- 0.3
Poland	- 2.6	- 1.8	- 0.5	- 0.8	- 0.6
Rumania	- 6.5	- 4.7	- 4.5	- 5.1	- 1.7
Saudi Arabia	- 1.3	- 1.3	- 1.2	- 1.2	- 1.0
Somalia	- 0.9	- 0.7	- 0.6	- 0.5	- 0.5
Spain	- 6.2	- 4.4	- 5.9	- 6.8	- 6.4
Sudan	- 4.5	- 4.7	- 4.4	- 3.8	- 3.6
Switzerland	- 0.4	- 0.5	- 0.4	- 0.4	- 0.3
Syria	- 4.0	- 3.6	- 4.2	- 4.8	- 4.9
Tunisia	- 0.1	- 0.1	- 0.1	- 0.1	- 0.1
U.S.S.R.	-30.7	-32.0	-35.9	-40.9	-33.0
Vietnam	-	-	- 0.1	- 0.1	-
Yemen	-16.8	-16.6	-16.5	-16.5	-16.4
Yugoslavia	- 2.4	- 2.0	- 2.6	- 3.9	- 4.4
TOTAL	-90.1	-82.2	-75.0	-82.9	-78.2
Other Accounts/1					
France	- 1.8	- 1.3	- 2.8	- 2.3	- 2.3
Italy	-29.7	-29.8	-30.9	-30.6	-36.5
Saudi Arabia	- 0.2	- 0.2	- 0.1	- 0.1	-
Syria	+ 2.3	+ 2.3	+ 2.3	+ 2.3	+ 2.3
Turkey	- 1.1	- 1.4	- 1.4	- 1.3	- 1.1
U.K.	- 0.7	- 0.1	-	-	-
W. Germany	-	- 0.2	-	-	-
TOTAL	-31.2	-30.7	-32.9	-32.0	-37.6
GRAND TOTAL	-121.3	-112.9	-107.9	-114.9	-115.8

/1 Funding arrangements including Saudi Government Special a/c and loan to Syria.

Source: The Central Bank of Egypt

Table 63 : COMPOSITION OF TRADE

(LE millions)

	1965/66	1966/67	1967/68
Exports			
Fuels	14.0	14.7	6.8
Raw materials	161.7	149.2	128.5
Semi-finished commodities	33.8	35.6	32.9
Finished commodities	43.7	53.0	70.2
Other commodities	3.0	5.3	6.3
Total	256.2	257.8	244.7
Imports			
Fuels	21.4	29.0	20.0
Raw materials	81.5	80.7	92.2
Intermediate commodities	168.4	121.2	114.0
Capital commodities	108.5	76.7	71.0
Consumer's commodities			
a) durable	7.9	4.9	3.6
b) non-durable	50.8	46.4	28.1
Other commodities	19.1	17.7	16.6
Total	463.5	376.5	345.5
BALANCE	-207.3	-118.6	-100.9

Source: Central Agency for Public Mobilization and Statistics Annual Bulletin of Foreign Trade

Table 64 : DIRECTION OF TRADE

(In percent)

	1955/56-1959/60 Annual Average	1959/60	1960/61-1964/65 Annual Average	1964/65	1965/66	1966/67	1967/68
Imports from:							
Arab countries	7.9	9.1	7.6	8.6	6.6	7.0	6.1
Eastern Europe	24.7	25.4	21.0	19.6	24.9	30.1	41.4
Western Europe	41.2	36.5	33.4	33.4	33.3	27.2	32.3
The Americas	13.2	17.8	26.1	27.6	20.0	22.3	6.2
Far East	10.1	9.2	9.2	8.4	12.5	11.7	8.6
Other	2.9	1.9	2.6	2.4	2.7	1.7	6.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Exports to:							
Arab countries	11.3	11.3	10.1	7.1	8.9	9.0	12.3
Eastern Europe	41.0	42.3	43.9	47.8	51.2	49.9	42.3
Western Europe	22.8	20.9	22.9	22.2	18.8	18.9	21.8
The Americas	4.1	5.5	6.9	5.0	4.5	2.9	2.5
Far East	18.1	18.2	13.4	15.3	14.7	15.3	15.0
Other	2.6	1.7	2.8	2.5	2.8	4.0	7.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computations on the basis of data of the Public Agency for Mobilization and Statistics - Annual Bulletin of Foreign Trade - The Central Bank of Egypt and the General Organization for Trade.

Note : Percentages do not always add up because of rounding of the figures.

Table 65: FOREIGN TRADE INDEXES AND THE TERMS OF TRADE

	1962	1963	1964	1965	1966	1967
Exports						
Value	69.6	100.0	102.8	115.5	114.8	105.7
Price	90.7	100.0	106.8	113.2	109.8	117.1
Quantity	76.8	100.0	96.3	102.0	104.6	90.3
Imports						
Value	76.5	100.0	103.1	98.7	116.5	88.6
Price	84.9	100.0	103.5	103.3	100.3	89.2
Quantity	90.2	100.0	99.6	95.5	116.2	99.4
Terms of Trade						
Net rate	107.0	100.0	103.0	110.0	109.0	131.0
Gross rate	117.0	100.0	105.0	98.0	111.0	110.0
Income rate	82.0	100.0	100.0	112.0	114.0	118.0

Source: Central Agency for Public Mobilization and Statistics

Table 66 : Realized Export Prices for Agriculture Commodites

(Average Prices by Sterling Pounds per ton)

Commodity	1965/66	1966/67	1967/68
Rice	50	53	74
Onions Raw	29	54	51
Potatoes	29	29	33
Garlic	89	127	169
Ground nuts	123	113	125
Flax	158	133	118
Cereals	61	45	59
Onions Dehydrated	201	217	277
Tomatoes	50	123	114
Vegetables	83	79	87
Medicinal herbs	244	56	193
Watermelons	31	71	95

Source: The Ministry of Supply

Table 67: COTTON EXPORTS BY VARIETY

Variety	August/July 1964/65	1965/66	1966/67	Modal Staple Length
	--- 1,000 bales (478 lbs each)---			--inches---
Karnak	9.7	1.1	-	-
Menoufi	816.2	744.6	519.1	1 - ½"
Giza 45	90.2	140.9	122.4	1 - 9/16"
Giza 68	6.8	46.6	149.1	1 - 15/32"
Giza 47	351.7	292.9	204.4	n.a.
Dendera	167.7	205.9	78.2	1 - 9/32"
Giza 67	6.9	55.9	166.3	1 - 3/8"
Ashmouni	91.9	6.1	42.1	1 - ¼"
Giza 66	12.4	78.3	126.9	1 - 9/32"
Others	11.2	9.6	25.0	n.a.
TOTAL	1,564.7	1,581.9	1,433.5	-

Source: I.C.A.C. "Cotton - World Statistics", October 1968 and "Cotton Production Survey 1968."

Table 68 : PRODUCTION, EXPORTS AND IMPORTS OF RICE

Year	Area Planted (thousand feddans)	Yield (tons per feddan)	Production (thousand)/1	Exports (thousand)/2	Imports (thousand)/2	Domestic Consumption (thousand)/2
Average 1935/39	446	1.53	685	--	--	--
Average 1950/54	519	1.56	830	111.0	--	428.4
Average 1955/59	654	2.11	1385	227.8	9.5	682.1
1960/61	706	2.10	1486	299.1	--	666.8
1961/62	537	2.13	1142	70.6	--	671.7
1962/63	830	2.46	2039	386.1	--	938.6
1963/64	959	2.31	2219	532.6	--	905.9
1964/65	962	2.12	2036	352.5	--	993.0
Average 1960/61 - 1964/65	799	2.23	1784	328.2	--	835.3
1965/66	848	2.11	1788	327.9	--	--
1966/67	844	1.99	1679	364.5	--	--
1967/68	1075	2.12	2279	527.0	--	924.0

/1 Paddy
/2 Rice

Source: Ministry of Planning.

Table 69: EXPORTS OF MANUFACTURE

(Value in 1000 Pounds)

	1961	1962	1963	1964	1965	Annual Average 1961/1965	1966	1967	Jan.-Nov. 1968	Increase in Jan.-Nov. 1968 over 1961/65 average
Cotton Yarn	7,898	12,237	19,137	29,173	31,252	19,939	31,648	30,568	30,153	51
Textiles	6,908	8,678	10,377	12,457	11,939	10,071	14,200	15,020	18,863	87
Waste, Rags	590	731	936	691	695	728	1,075	1,151	1,477	103
Crude Oil, Products	7,381	15,058	16,723	21,259	13,984	14,881	15,270	960	6,555	-56
Sugar	2,428	1,854	638	185	588	1,138	206	431	2,542	123
Cigarettes	40	113	223	487	708	314	830	1,373	218	70
Dehydrated Onions	714	1,804	1,973	1,291	968	1,350	1,087	796	1,272	- 6
Dehydrated Garlic		29	103	52	35	43	20	43	87	100
Edible Preparations	2,237	2,920	5,473	4,707	4,242	3,915	1,420	1,834	5,738	47
Cement	2,720	2,166	1,223	1,460	2,345	1,982	2,266	1,916	5,248	165
Mining Products	2,953	2,303	2,510	2,906	2,748	2,684	136	352	2,700	1
Chemical Products	295	339	471	520	610	447	2,593	2,587	1,332	198
Metal, Engineering, Products	465	685	1,432	687	457	745	2,699	4,164	2,513	237
Articles of Leather	843	579	792	752	420	677	208	186	2,784	311
Furniture and Wood Products	100	175	163	110	93	124	188	180	242	95
Drugs	50	92	87	143	267	128	448	486	678	429
Souvenir, Articles										
Books, Newspaper	1,061	1,203	1,500	1,814	1,875	1,491	1,822	1,022	573	-69
Other Goods	7,852	4,292	10,724	1,311	5,117	5,859	7,999	13,595	11,662	127
TOTAL	44,532	47,909	62,261	80,005	78,343	66,516	84,516	76,662	95,532	44

Source: General Organization for Trade

Table 70 PETROLEUM BALANCE OF PAYMENTS

(Value in 1000 Pounds)

	1964/65	1965/66	1966/67	1967/68	1968/69 estimate	1969/70 estimate	1970/71 estimate	1971/72 estimate	1972/73 estimate	1973/74 estimate	1974/75 estimate
1. Imports:											
A) Crude Oil	29,692	22,447	24,118	13,781	8,462	11,450	-	-	-	-	-
B) Petroleum Products	4,166	6,484	5,056	15,310	9,322	5,412	5,525	5,284	5,334	5,735	6,695
C) Total Imports	33,858	28,931	29,174	29,091	17,784	16,862	5,525	5,284	5,334	5,735	6,695
2. Exports:											
A) Crude Oil:											
- Contracted	-	-	603	1,906	4,185	1,197	5,429	3,360	3,840	-	-
- Free:											
Sinai	9,483	4,375	2,239	-	-	-	11,285	9,953	8,325	6,993	6,031
Other Fields	1,806	1,700	2,754	543	1,670	13,512	17,955	23,940	23,355	29,655	42,840
Total	11,289	6,075	5,596	2,449	5,855	14,709	34,669	37,253	35,520	36,648	48,871
B) Petroleum Products	10,907	9,677	10,743	4,748	7,564	9,055	12,012	11,374	13,764	14,757	15,634
C) Total Exports	22,196	15,752	16,339	7,197	13,419	23,764	46,681	48,627	49,284	51,405	64,505
3. Balance (2 - 1)	-11,662	-13,179	-12,835	-21,894	- 4,365	6,902	41,156	43,343	43,950	45,670	57,810

Source: The General Organization for Petroleum

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Table 71: UNITED ARAB REPUBLIC - EXTERNAL PUBLIC DEBT OUTSTANDING AS OF JUNE 30, 1968 /1

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

Source	Debt Outstanding June 30, 1968	
	Disbursed only	Including undisbursed
TOTAL EXTERNAL PUBLIC DEBT /2	1,686,797	1,687,594
Privately held debt	280,537	280,537
Suppliers	210,124	210,124
Australia	1,066	1,066
Austria	1,836	1,836
Belgium	794	794
Canada	1,701	1,701
Denmark	5,022	5,022
Finland	637	637
France	5,095	5,095
Germany	91,168	91,168
Greece	1,729	1,729
Italy	12,278	12,278
Japan	31,619	31,619
Mexico	9,880	9,880
Netherlands	244	244
Spain	11,451	11,451
Sweden	13,628	13,628
Switzerland	1,934	1,934
United Kingdom	16,848	16,848
United States	3,195	3,195
Financial institutions	67,679	67,679
Italy	27,079	27,079
Kuwait	40,600	40,600
Other Privately held debt	2,735	2,735
Loans from international organizations - IBRD	33,500	33,500
Loans from governments /3	1,371,304	1,372,101
Canada	3,317	3,791
China Mainland	19,803	19,803
Czechoslovakia	44,728	44,728
East Germany	28,600	28,600
France	25,719	25,719
Germany (Fed. Rep. of)	121,137	121,137
Greece	8,712	8,712
Hungary	18,797	18,797
Italy	76,606	76,606
Kuwait	116,600	116,600
Poland	39,660	39,660
Rumania	7,918	7,918
United Kingdom	6,348	6,348
United States	170,938	171,247
U.S.S.R.	657,057	657,072
Yugoslavia	25,364	25,364
Nationalization	1,456	1,456

See footnotes at end of table.

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Table 71: UNITED ARAB REPUBLIC - EXTERNAL PUBLIC DEBT OUTSTANDING AS OF JUNE 30, 1968 /1

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

/1 Debt with an original or extended maturity of over one year.

/2 Includes arrears of principal and excludes arrears of interest up to June 30, 1968 as shown below:

(In thousands of U.S. dollars)

	Principal	Interest
Total	71,935	14,875
Austria	322	80
Canada	669	91
Germany (Fed. Rep. of)	2,521	926
Japan	9,021	1,184
Kuwait	4,200	2,520
Mexico	3,120	-
United Kingdom	8,373	1,251
United States	43,709	8,823

/3 Excludes an amount outstanding of $3,565,000 to Saudi Arabia as it is repayable in local currency.

/4 Does not include the uncommitted portions of the following frame agreements:

(In thousands of U.S. dollars)

Total	399,005
Bulgaria	12,000
China Mainland	68,642
Czechoslovakia	90,970
East Germany	44,451
Hungary	1,454
Poland	5,991
U.S.S.R.	159,944
Yugoslavia	15,553

Statistical Services Division
Economics Department
August 8, 1969

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars) Page 1

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
	TOTAL EXTERNAL PUBLIC DEBT			
1968	1,615,658/1	138,232	28,037	166,269
1969	1,519,195	177,651	33,632	211,283
1970	1,341,544	201,920	38,038	239,958
1971	1,139,624	180,628	30,565	211,193
1972	958,996	162,396	24,574	186,970
1973	796,600	141,897	19,130	161,027
1974	654,703	123,964	14,372	138,336
1975	530,739	104,171	10,969	115,140
1976	426,568	84,873	8,377	93,250
1977	341,695	80,610	6,438	87,048
1978	261,085	70,622	6,708	77,330
1979	190,463	65,077	3,179	68,256
1980	125,386	45,802	1,810	47,612
1981	79,584	41,986	1,068	43,054
1982	37,598	5,436	433	5,869

Note: Includes service on all debt listed in Table 72 prepared August 4, 1969, with the exception of the following principal in arrears, for which repayment terms are not available:

Suppliers	$20,637,000
Financial institutions	4,200,000
Loans from governments:	
Canada	669,000
Germany	2,521,000
United Kingdom	1,224,000
United States	42,684,000
	$71,935,000

See footnote at end of table.

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars) Page 2

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
	TOTAL PRIVATELY HELD DEBT			
1968	255,699 /1	46,868	9,307	56,174
1969	219,034	59,156	10,663	69,819
1970	159,878	47,089	8,079	55,168
1971	112,789	35,712	5,639	41,350
1972	77,077	26,973	3,865	30,838
1973	50,104	22,214	2,501	24,715
1974	27,889	13,194	1,330	14,524
1975	14,695	7,867	732	8,599
1976	6,829	6,623	294	6,918
1977	205	205	5	210
	SUPPLIERS			
1968	189,485 /1	38,717	5,745	44,461
1969	159,150	47,350	7,440	54,790
1970	111,800	35,783	5,518	41,301
1971	76,017	24,905	3,685	28,591
1972	51,111	18,354	2,501	20,855
1973	32,757	17,467	1,512	18,980
1974	15,289	8,994	616	9,610
1975	6,295	3,667	270	3,937
1976	2,629	2,423	84	2,508
1977	205	205	5	210

See footnote at end of table.

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
	TOTAL PRIVATELY HELD DEBT			
	FINANCIAL INSTITUTIONS			
1968	63,479/1	8,151	3,562	11,713
1969	57,149	11,259	3,080	14,339
1970	45,890	10,759	2,448	13,207
1971	35,131	10,259	1,871	12,130
1972	24,872	8,072	1,312	9,383
1973	16,800	4,200	966	5,166
1974	12,600	4,200	714	4,914
1975	8,400	4,200	462	4,662
1976	4,200	4,200	210	4,410
	OTHER PRIVATELY PLACED DEBT			
1968	2,735/1	-	-	-
1969	2,735	547	143	690
1970	2,188	547	113	660
1971	1,641	547	83	630
1972	1,094	547	53	600
1973	547	547	23	570

See footnote at end of table.

Table72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
	LOANS FROM INTERNATIONAL ORGANIZATIONS			
	IBRD			
1968	33,500 /1	4,000	2,093	6,093
1969	31,500	4,000	1,830	5,830
1970	27,500	5,500	1,567	7,067
1971	22,000	5,500	1,237	6,737
1972	16,500	5,500	907	6,407
1973	11,000	5,500	577	6,077
1974	5,500	5,500	247	5,747
	LOANS FROM GOVERNMENTS			
1968	1,325,004 /1	87,073	16,596	103,669
1969	1,267,496	113,913	21,081	134,994
1970	1,153,583	148,749	28,367	177,116
1971	1,004,834	139,417	23,690	163,107
1972	865,417	129,923	19,802	149,725
1973	735,494	114,182	16,052	130,234
1974	621,312	105,270	12,795	118,065
1975	516,042	96,304	10,238	106,542
1976	419,738	78,250	8,083	86,333
1977	341,488	80,405	6,434	86,839
1978	261,083	70,622	4,708	75,330
1979	190,461	65,077	3,180	68,257
1980	125,384	45,802	1,811	47,613
1981	79,582	41,986	1,068	43,054
1982	37,598	5,436	433	5,869

See footnote at end of table.

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
		LOANS FROM GOVERNMENTS		
		CANADA		
1968	3,122 /1	223	79	302
1969	2,899	446	160	606
1970	2,453	446	140	586
1971	2,007	446	114	560
1972	1,561	446	87	533
1973	1,115	446	60	506
1974	669	446	33	479
1975	223	223	7	230
		CHINA MAINLAND		
1968	19,803 /1	1,586	-	1,586
1969	18,216	1,586	-	1,586
1970	16,630	-	-	-
1971	16,630	891	-	891
1972	15,739	2,020	-	2,020
1973	13,719	2,019	-	2,019
1974	11,701	2,020	-	2,020
1975	9,681	2,019	-	2,019
1976	7,662	2,020	-	2,020
1977	5,642	1,128	-	1,128
1978	4,514	1,129	-	1,129
1979	3,385	1,128	-	1,128
1980	2,257	1,129	-	1,129
1981	1,128	1,128	-	1,128

See footnote at end of table.

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
	LOANS FROM GOVERNMENTS			
	CZECHOSLOVAKIA			
1968	44,728 /1	5,450	871	6,321
1969	40,246	6,229	1,053	7,282
1970	34,017	7,262	925	8,187
1971	26,755	6,388	725	7,113
1972	20,367	6,631	533	7,163
1973	13,736	2,821	347	3,168
1974	10,915	2,807	125	2,931
1975	8,108	2,480	99	2,579
1976	5,628	2,346	73	2,419
1977	3,282	2,348	47	2,395
1978	934	934	24	958
	EAST GERMANY			
1968	28,600 /1	2,484	466	2,950
1969	27,264	3,579	861	4,440
1970	23,684	3,579	644	4,223
1971	20,105	3,366	529	3,896
1972	16,739	2,797	430	3,227
1973	13,942	2,630	353	2,983
1974	11,312	2,177	281	2,458
1975	9,135	2,076	228	2,304
1976	7,059	1,678	179	1,857
1977	5,381	1,627	131	1,759
1978	3,754	1,572	93	1,665
1979	2,182	1,241	55	1,296
1980	941	941	22	962

See footnote at end of table.

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
	LOANS FROM GOVERNMENTS			
	FRANCE			
1968	25,719 /1	7,348	1,554	8,902
1969	22,045	7,348	1,162	8,510
1970	14,696	7,348	739	8,088
1971	7,348	7,348	317	7,665
	GERMANY			
1968	118,617 /1	8,081	2,598	10,679
1969	110,588	15,114	4,582	19,696
1970	95,474	15,172	3,782	18,954
1971	80,302	15,720	3,122	18,842
1972	64,582	16,269	2,437	18,705
1973	48,313	13,769	1,603	15,372
1974	34,545	8,623	989	9,612
1975	25,922	4,950	735	5,685
1976	20,972	4,678	585	5,263
1977	16,294	4,454	449	4,903
1978	11,840	4,405	318	4,723
1979	7,435	4,093	189	4,282
1980	3,342	1,717	82	1,799
1981	1,625	1,083	41	1,124
1982	542	542	8	550

See footnote at end of table.

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars) Page 8

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
		LOANS FROM GOVERNMENTS		
		GREECE		
1968	8,712 /1	1,538	256	1,794
1969	8,712	2,562	218	2,780
1970	6,150	2,050	154	2,204
1971	4,100	2,050	103	2,153
1972	2,050	2,050	51	2,101
		HUNGARY		
1968	18,797 /1	2,890	302	3,192
1969	17,479	2,633	274	2,906
1970	14,846	2,722	278	3,000
1971	12,125	2,866	276	3,142
1972	9,259	2,676	211	2,887
1973	6,583	2,345	146	2,491
1974	4,238	1,846	96	1,942
1975	2,393	1,039	50	1,090
1976	1,354	809	26	835
1977	545	389	7	396
1978	156	156	-	156

See footnote at end of table.

REVISED

Table 2: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars) Page 9

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
		LOANS FROM GOVERNMENTS		
		ITALY		
1968	76,606 /1	-	-	-
1969	76,606	5,327	2,198	7,525
1970	71,279	10,327	3,005	13,332
1971	60,951	10,327	2,529	12,856
1972	50,624	10,327	2,052	12,379
1973	40,297	10,327	1,576	11,903
1974	29,970	10,327	1,099	11,426
1975	19,642	8,661	623	9,283
1976	10,982	3,661	329	3,990
1977	7,321	3,661	220	3,880
1978	3,661	3,661	110	3,770
		KUWAIT		
1968	116,600 /1	2,280	1,014	3,294
1969	115,160	2,280	887	3,167
1970	112,880	10,280	4,188	14,468
1971	102,600	10,280	3,809	14,089
1972	92,320	10,700	3,427	14,127
1973	81,620	10,700	3,033	13,733
1974	70,920	10,700	2,640	13,340
1975	60,220	10,700	2,246	12,946
1976	49,520	11,120	1,849	12,969
1977	38,400	11,120	1,441	12,561
1978	27,280	10,520	1,033	11,553
1979	16,760	10,520	625	11,145
1980	6,240	3,240	216	3,456
1981	3,000	1,000	120	1,120
1982	2,000	1,000	80	1,080

See footnote at end of table.

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Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLI DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars) Page 10

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTI-ZATION	INTEREST	TOTAL
	LOANS FROM GOVERNMENTS			
	POLAND			
1968	39,660 /1	1,469	231	1,700
1969	38,337	1,666	266	1,932
1970	36,672	5,842	923	6,764
1971	30,830	4,350	783	5,133
1972	26,481	4,182	669	4,850
1973	22,299	3,923	563	4,486
1974	18,376	3,340	464	3,804
1975	15,036	3,340	380	3,720
1976	11,696	3,340	295	3,635
1977	8,356	2,987	212	3,199
1978	5,369	2,684	136	2,820
1979	2,685	2,685	71	2,756
	RUMANIA			
1968	7,918 /1	509	82	590
1969	7,579	996	151	1,147
1970	6,583	1,181	156	1,337
1971	5,402	1,181	127	1,308
1972	4,222	1,181	98	1,279
1973	3,041	1,181	77	1,258
1974	1,860	1,003	41	1,044
1975	857	672	14	686
1976	185	185	2	187

See footnote at end of table.

Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
		LOANS FROM GOVERNMENTS		
		UNITED KINGDOM		
1968	5,124 /1	576	149	725
1969	4,548	1,152	254	1,406
1970	3,396	1,152	192	1,344
1971	2,244	1,152	127	1,279
1972	1,092	1,092	53	1,145
		UNITED STATES		
1968	128,563 /1	21,030	2,946	23,976
1969	107,533	31,108	3,181	34,289
1970	76,426	12,866	1,734	14,600
1971	63,561	5,900	972	6,872
1972	57,661	5,965	794	6,732
1973	51,695	2,581	621	3,201
1974	49,114	1,835	543	2,378
1975	47,279	1,932	517	2,448
1976	45,349	2,026	489	2,515
1977	43,322	2,026	461	2,487
1978	41,296	2,027	433	2,461
1979	39,270	2,026	406	2,432
1980	37,243	2,026	377	2,404
1981	35,217	2,027	351	2,378
1982	33,190	2,026	323	2,350

See footnote at end of table.

REVISED

Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars) Page 12

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
	LOANS FROM GOVERNMENTS			
	U.S.S.R.			
1968	657,072 /1	28,674	5,632	34,306
1969	647,254	27,865	5,187	33,052
1970	619,389	64,562	10,974	75,536
1971	554,827	63,401	9,738	73,139
1972	491,426	59,918	8,665	68,583
1973	431,508	57,951	7,480	65,431
1974	373,557	57,414	6,393	63,807
1975	316,143	57,106	5,320	62,426
1976	259,037	46,090	4,255	50,345
1977	212,947	50,664	3,465	54,129
1978	162,283	43,535	2,561	46,096
1979	118,748	43,383	1,834	45,217
1980	75,365	36,748	1,112	37,860
1981	38,617	36,747	556	37,303
1982	1,868	1,868	22	1,890
	YUGOSLAVIA			
1968	25,364 /1	2,936	414	3,350
1969	23,029	4,021	647	4,668
1970	19,008	3,960	532	4,492
1971	15,048	3,751	418	4,169
1972	11,297	3,670	305	3,975
1973	7,627	3,490	193	3,683
1974	4,137	2,733	91	2,824
1975	1,404	1,106	18	1,124
1976	298	298	-	298

See footnote at end of table.

REVISED

Table 72: UNITED ARAB REPUBLIC - ESTIMATED FUTURE SERVICE PAYMENTS ON EXTERNAL PUBLIC DEBT OUTSTANDING INCLUDING UNDISBURSED AS OF JUNE 30, 1968 (CONT.)

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars) Page 13

YEAR	DEBT OUTST (BEGIN OF PERIOD) INCLUDING UNDISBURSED	PAYMENTS DURING PERIOD AMORTIZATION	INTEREST	TOTAL
		NATIONALIZATION		
1968	1,456 /1	291	42	333
1969	1,165	582	59	641
1970	582	582	25	608

/1 Amount outstanding is as of June 30, 1968; payments are for the entire year.

Statistical Services Division
Economics Department
August 8, 1969

RESTRICTED

Report No. P-753

FILE COPY

INTERNATIONAL DEVELOPMENT ASSOCIATION

REPORT AND RECOMMENDATION

OF THE

PRESIDENT

TO THE

EXECUTIVE DIRECTORS

ON A

PROPOSED CREDIT

TO THE

UNITED ARAB REPUBLIC

FOR THE

NILE DELTA DRAINAGE PROJECT

November 5, 1969

REPORT AND RECOMMENDATION OF THE PRESIDENT
TO THE EXECUTIVE DIRECTORS ON A
PROPOSED CREDIT TO THE UNITED ARAB REPUBLIC
FOR THE NILE DELTA DRAINAGE PROJECT

1. I submit the following report and recommendation on a proposed credit in an amount in various currencies equivalent to U.S. $26 million to the United Arab Republic.

PART I - HISTORICAL

2. The United Arab Republic has been a member of the Bank, IFC and IDA since the beginning years of each institution. The Bank Group has so far had only one operation in the UAR, a loan of U.S. $56.6 million equivalent (243 UAR) in 1959 to the Suez Canal Authority for canal improvement. On September 30, 1969, U.S. $27.5 million remained outstanding.

3. Relations between the U.A.R. and the Bank Group have been more active over the years than the volume of lending would indicate. The Bank assisted the United Nations in supervising the clearing of the Suez Canal after the 1956/57 interruption, and Mr. Black, Mr. Woods and Sir William Iliff were instrumental in bringing about in 1958 an agreement on the compensation to be paid by the U.A.R. as a consequence of the Suez Canal nationalization. Economic reports were prepared and distributed to the Executive Directors in 1962 and again in 1966.

4. The nationalization in the early 1960's of almost all industrial, commercial and financial enterprises in the country, both Egyptian and foreign, and the protracted negotiations concerning the payment of compensation for these properties have been a serious obstacle to Bank Group lending. In addition, the U.A.R. began in 1965/66 to fall into arrears in debt payments, mostly for suppliers' credits. By early 1967, however, progress was being made in the rescheduling of some debts, in agreeing on compensation for nationalized properties and in making arrangements for the payment of arrears to the International Monetary Fund. The June war temporarily interrupted these developments. Negotiations with the Fund resumed and led to the repayment of outstanding arrears in March 1968, followed by drawings on the Fund. A Bank economic mission visited the UAR in March 1968. I myself made a visit in July 1968, and this was followed by further visits of officers and staff of the Bank Group. In discussing possible fields for Bank Group assistance, priority was given by the Government to the Nile Delta Drainage Project because of its high benefits.

5. The arrears on external debt repayments have now been rescheduled through agreements with all of the countries concerned, with the exception of the United States, and repayments have been proceeding in accordance with the new schedules. In the case of the United States, discussions between representatives of the two governments have been underway during the past months. Both sides have made considerable efforts towards reaching agreement, and the discussions are now at a stage where the positions of both sides are very close, so that final agreement should soon be achieved. In all of the rescheduling arrangements the U.A.R. has tried to avoid or minimize a net capital outflow by seeking new credit facilities from its creditors at the same time. However, since the new credit facilities are mostly on suppliers' credits terms, they have not provided significant relief from the rather heavy debt service burden which is discussed in Part V of this report.

6. Most of the claims against the U.A.R. which arose out of the nationalization of foreign properties in the early 1960's have been settled. Discussions have been taking place between the governments concerned in the few outstanding cases, which involve complicated questions of asset valuation, and progress has been made recently. The representatives of the U.A.R. Government have stated their willingness and intention to find a solution in these cases. Representatives of countries whose citizens have been affected have confirmed that active negotiations are in process in this respect.

7. The appraisal of the Nile Delta Drainage Project was carried out in the field in December 1968. Negotiations for the proposed credit were held in Washington in September 1969. The head of the U.A.R. delegation was Mr. Hamed El Sayeh, Undersecretary of State for the Ministry of Economy and Foreign Trade; other members included Mr. Fouad El Kholy, Undersecretary of State for the Ministry of Irrigation, Mr. Gad Labib Gad, Deputy (Legal) Counsellor in the Council of State and other representatives from the two principal Ministries involved.

8. With regard to further operations, a railway improvement project has been appraised by the Association and is expected to be ready for presentation to the Executive Directors later in this fiscal year. Other possible projects under preparation in the UAR include the expansion and improvement of inland waterways. The Bank has also offered assistance to the Government in the formulation and carrying out of a study of the economic utilization of Nile waters presently available to the U.A.R.

PART II - DESCRIPTION OF THE PROPOSED CREDIT

9.	BOROWER:	United Arab Republic
	PURPOSE:	To finance the foreign exchange cost of providing tile drainage for about 950,000 feddans (986,000 acres) of irrigated lands in the delta of the Nile River.
	AMOUNT:	U.S. $26 million equivalent in various currencies.
	AMORTIZATION:	In fifty years, including a ten year period of grace, through semi-annual installments of one half of one percent from November 1, 1979 to May 1, 1989 and of one and half percent from November 1, 1989 through May 1, 2019.
	SERVICE CHARGE:	Three-fourths of one percent (3/4 of 1%) per annum on the principal amount of the Credit withdrawn and outstanding from time to time.
	ESTIMATED ECONOMIC RATE OF RETURN:	18 percent.

PART III - THE PROJECT

10. A report entitled "United Arab Republic - Nile Delta Drainage Project" (PA-12a) is attached.

11. Two recent economic missions to the U.A.R., in March 1968 and January 1969, have given special attention to the agricultural sector and have confirmed the very high priority accorded to the drainage program by the Government. The introduction of modern drainage is particularly necessary in the Nile Delta where rising water tables and increasing salinity have been affecting crop production adversely for some time. Better drainage has become especially important with the completion of the Aswan High Dam, which is making an increase in perennial irrigation possible throughout the Nile Valley in the U.A.R.

12. The project proposed for financing by the Association would be the first phase of a multi-stage program to provide improved drainage throughout four million feddans in the Nile Delta and eventually throughout the entire Nile Valley in Egypt. The project would provide tile drainage for about 950,000 feddans over 6-1/2 years at a total cost of approximately U.S. $147 million equivalent. The proposed credit would cover the total

foreign exchange costs of U.S. $26 million. The principal elements of the project would be: the installation of tile drains by mechanized means; the remodeling of open drains and structures to discharge the greater drainage flows; the construction of eleven pump stations; the construction of workshops and procurement of transport for supporting services; and the employment of consultants to advise and assist the project authority.

13. About 360,000 feddans have already been tile drained by hand in the Nile Delta. Very substantial increases in yields for the principal crops, rice, cotton, wheat and maize, have been observed throughout the newly drained areas. The rate of implementation has been fairly slow, however, considering the threat of declining productivity of the undrained soils in the Delta, and the presently proposed project would accelerate implementation by using mechanized tile-laying methods. The methods to be used in the project were proven in a UNDP pilot project.

14. The priority of the project is only partially reflected in the quantifiable economic return of 18%, which is in itself very high for agricultural improvement projects. Additional indirect benefits would include not only the prevention of further deterioration of the fertile soils of the lower Nile Delta, but also increased re-use of drainage waters for irrigation purposes and increased modernization of agricultural methods which would be induced by the prospects of higher and more predictable yields. Improved drainage appears to be the most efficient way of keeping agricultural production ahead of population growth in the medium term.

15. The project would be carried out by the Nile Delta Authority for Tile Drainage Projects, which was established by Presidential Decree in September 1969. The Authority is an independent governmental agency under the supervision of the Ministry of Irrigation and will be responsible for the construction and initial maintenance of all tile drainage projects in the Nile Delta. The managerial and technical staff would be transferred to the Authority primarily from the Ministry of Irrigation but also from other ministries and agencies of government, and would have considerable experience in most of the work to be carried out under the project. Provision would be made in the IDA credit for financing overseas training of selected staff of the Authority in recently developed management techniques. A firm of consultants would be employed to assist the Chairman of the Authority in the overall planning and programming of project implementation, the organization and establishment of a training program and several other important aspects of project implementation. In addition an accounting firm would be employed to assist in establishing effective project cost accounting and budgeting methods in the Authority. Until the project is completed, the Authority will not undertake other work than that included in the project, unless the Borrower shall have first satisfied the Association that the execution of such other work would not adversely affect the prompt and efficient completion of the project.

16. All contracts to be financed by the Association would be awarded after international competitive bidding, except for a few small items whose aggregate value will not exceed U.S. $100,000. The contracts would be primarily for importation and installation of pumping machinery and for tile-laying machinery and other equipment and spares. Egyptian manufacturers of trucks, tractors and motorcycles would participate in the bidding for these items with a margin of preference in bid comparisons of 15% or the actual rate of customs duties, whichever is lower. For such locally produced items, disbursements under the credit would cover the estimated foreign exchange component (65% of the ex-factory price). All civil construction, apart from the pumping stations, would be awarded on the basis of local bidding. Egyptian contractors have shown themselves to be efficient both domestically and in international competition. Two of these firms have been engaged in projects financed by the Bank Group.

17. Part of the costs of the project would be recovered through a special drainage charge which is designed to cover the maintenance costs of the field tile drainage and, over a period of twenty years without interest, the capital invested in field tile drainage in the area of the project. In addition, the land tax in the UAR, which is based on agricultural productivity, is reassessed shortly after the completion of public works which affect the productivity of the land. This is expected to have the effect of covering the balance of operational and maintenance costs and the provision of necessary agricultural extension services, as well as recovering the remaining capital costs over the life of the project.

PART IV - LEGAL INSTRUMENTS AND AUTHORITY

18. The draft Development Credit Agreement between the United Arab Republic and the Association, the Recommendation provided for in Article V, Section 1 (d) of the Articles of Agreement of the Association and the text of a Resolution approving the proposed Development Credit are being distributed to the Executive Directors separately.

19. The provisions of the Development Credit Agreement conform generally to the pattern of Association credit agreements for irrigation and drainage projects.

PART V - ECONOMIC SITUATION

20. An economic report entitled "Current Economic Position and Prospects of the United Arab Republic" (No. EMA 10a dated August 18, 1969) was distributed to the Executive Directors on August 27, 1969.

21. The U.A.R. economy has been undergoing a series of structural changes since the revolution in 1952. After expanding at about 6.5 percent per annum during the first five-year plan period (1961/65), the growth rate declined. An overall slowdown started in 1965/66 when an unfavorable harvest aggravated an already difficult external payments situation. This, in turn, had the effect of curtailing industrial production by limiting the availability of imports. External debt payments began to fall in arrears. Starting in 1966 the Government made efforts to reschedule the accumulating arrears. In 1966/67 it introduced fiscal and monetary restrictions in addition to efforts to improve the balance of payments position by reorganizing institutional arrangements for foreign trade, especially to promote exports. After having reached a peak in 1965/66, the overall budget deficit, as well as the current budget deficit, were reduced in 1966/67 and have been maintained at roughly the same levels in the following years despite the June 1967 war. The balance of payments situation improved in 1966/67 but again deteriorated in 1967/68 because of the consequences of the war. Canal earnings were lost, tourist receipts declined and, as a result of the loss of the Sinai oilfields, oil exports dropped while imports of petroleum products increased. Most of these losses were compensated, however, by the grants-in-aid coming from Kuwait, Libya and Saudi Arabia, and the balance of payments situation has recently improved as a result of rapidly increasing output of oil in the Western Desert and elsewhere and increases in exports and further declines in imports due to import controls.

22. The U.A.R. is a country with a high level of defense expenditures. Despite a high ratio of tax revenues to GDP, total public savings have been low. This situation has arisen partly from the high rate of increase of defense expenditures, which are now around 10 percent of GDP. However, other current expenditures, especially for education and health, have also been rising more rapidly than government revenues and GDP. Consequently, public investment expenditures fell continuously between 1964 and 1968.

23. In 1969 steps were taken to reactivate the economy. One of the main measures in this direction was an increase in the investment budget which had been reduced in the previous years. These policies were supported by favorable developments affecting the balance of payments, such as increases in oil production, continued expansion of exports of non-traditional items and signs of revival of tourist earnings. Of long-term significance could be the policy discussions about the reorganization of economic administration, particularly of state economic enterprises, which were initiated in late 1968 and are still underway.

24. In considering the future prospects for the U.A.R. economy, some favorable factors should be mentioned. One of them is the prospect for increasing exportation from a growing agricultural output. Between 1960 and 1965 the value of agricultural production is estimated to have increased between 3 and 3.5 percent per annum. In the near future the investments in the High Dam and associated land development, including

drainage, should lead to larger increases. Prospects for oil production appear to be very favorable. Political conditions permitting, tourist earnings could increase considerably. If all these opportunities are taken to good advantage, and assuming continuation of the grants-in-aid from other Arab countries as long as there are no earnings from the Suez Canal, GDP could expand during the next five years as rapidly as during the first half of the 1960's.

25. The service ratio on already existing debt is projected to decline from around 25% in 1970 to about 10% in 1975, but the new borrowings necessary to sustain a satisfactory level of economic growth would impose very substantial additional burdens if they were incurred on conventional terms. At this juncture I consider that any assistance to the UAR from the Bank Group should take the form of IDA credits.

PART VI - COMPLIANCE WITH THE ARTICLES OF AGREEMENT

26. I am satisfied that the proposed credit would comply with the Articles of Agreement of the Association.

PART VII - RECOMMENDATION

27. I recommend that the Executive Directors approve the proposed credit.

Robert S. McNamara
President

Attachment

Washington, D. C.
November 5, 1969

RESTRICTED

Report No. PA-12a

115-11
E-4-18

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

NILE DELTA DRAINAGE PROJECT

UNITED ARAB REPUBLIC

October 14, 1969

Agriculture Projects Department

CURRENCY EQUIVALENTS

US$1.00 = £E 0.43

£E 1.00 = US$ 2.30

WEIGHTS AND MEASURES - METRIC SYSTEM

1 millimeter (mm)	= 0.039 inches
1 meter (m)	= 39.37 inches
1 kilometer (km)	= 0.62 miles
1 feddan (fed)	= 1.038 acres
1 square kilometer (km^2)	= 0.386 square miles
1 cubic meter (m^3)	= 35.31 cubic feet
1 milliard cubic meters (1,000 Mm^3)	= 0.81 million acre-feet (M ac-ft)
1 kilogram (kg)	= 2.2046 pounds
1 cubic meter per second (m^3/sec)	= 35.31 cubic feet per second

UAR = United Arab Republic

UNITED ARAB REPUBLIC

NILE DELTA DRAINAGE PROJECT

APPRAISAL REPORT

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ANNEXES

MAP

This report is based on the findings of a Bank appraisal mission which visited the UAR in December, 1968, composed of Messrs. Malone, Bolt, ffrench-Mullen, Myint and Hulsbos (consultant).

UNITED ARAB REPUBLIC

NILE DELTA DRAINAGE PROJECT

SUMMARY

i. The Government of the United Arab Republic (UAR) has requested an IDA credit to assist the newly established Nile Delta Authority for Tile Drainage Projects ("the Authority") in financing part of its plan to provide tile drainage in irrigated areas. The project proposed for IDA support would cover an area of about 950,000 feddans of land in 17 catchment areas located in the Nile Delta, to be completed within a 6-1/2 year period beginning in 1969. The project is a continuation of the UAR's drainage plan in which about 360,000 feddans of land have already been tile drained.

ii. The project would be implemented by the Authority and would include:

(a) mechanical installation of covered tile drains;

(b) the construction of pump stations;

(c) the remodeling of open drains and structures;

(d) building facilities for equipment maintenance and technical training, and the provision of transport for agricultural extension services; and

(e) the employment of consultants to advise and assist the Authority.

In addition, the project would provide for expatriate technicians to assist in equipment maintenance and operational training.

iii. The total cost of the project would be LE64 million (US$147 million equivalent). The foreign exchange component is estimated at about US$26 million, equivalent to about 18% of the cost, and would be financed by the proposed IDA Credit. The Credit would be disbursed against evidence of foreign exchange expenditure, or against the estimated imported component (with a maximum of US$1.7 million) of some locally manufactured types of vehicles where local suppliers would participate in bidding with a preference allowance of 15%. All local currency expenditure would be met by government budget allocations.

iv. By improving groundwater control and surface drainage in the area, the project would lower the water table and reduce soil salinity, thus preventing the decline of existing crop production and raising crop yields by at least 20%. The project would lead to substantial increases in the incomes of about 250,000 farm families and would improve the balance of payments by increasing export earnings from cotton and rice and reducing the need for wheat imports. The rate of return to the economy is estimated at about 18%. In addition, substantial indirect benefits would be obtained. The project would be suitable for an IDA credit of US$26 million on standard terms. The borrower would be the Government of the United Arab Republic.

UNITED ARAB REPUBLIC

NILE DELTA DRAINAGE PROJECT

APPRAISAL REPORT

I. INTRODUCTION

1.01 The Government of the United Arab Republic (UAR) has requested an IDA credit to help finance part of its drainage program in irrigated areas. A Bank economic mission visited the UAR in February/March 1968 and reported that salinization due to lack of field drainage was the most important limiting factor to any increases in agricultural production. Subsequently, a Bank mission consisting of Messrs. D. J. Parsons, C. M. Bolt, J. P. Bhattacharjee (FAO) and T. N. Jewitt (consultant) visited the UAR in September, 1968 to assist the Ministry of Irrigation in the preparation of a drainage project in the Nile Delta. The Ministry's feasibility report was submitted to the Bank in October, 1968. An appraisal mission consisting of Messrs. J. M. Malone, C. M. Bolt, M. D. ffrench-Mullen, J. K. Myint and W. C. Hulsbos (consultant) visited the UAR in December, 1968.

1.02 The Government plans to improve drainage throughout the whole irrigated area of about four million feddans in the Nile Delta by 1985. Some 360,000 feddans have already been equipped with tile drains and the rate of construction, which reached a maximum of 80,000 feddans in one year, has averaged 50,000 feddans a year during the last seven years. To complete the drainage of the irrigated area of the Delta by 1985, the Government would have to achieve a vastly increased rate of development, which would only be achieved by using mechanized methods. The initial Government proposal to the Association was for a project covering 1.4 million feddans, to be carried out over eight years. In view of the uncertainties involved in achieving and sustaining the proposed rate of development, a more limited project is now proposed which would cover 950,000 feddans in 6-1/2 years, with an initial construction rate of 40,000 feddans for each of the first two years.

1.03 The project would be the largest single tile drainage operation ever undertaken, and substantial organizational changes and improvements in planning techniques would be needed for its implementation. A measure of flexibility would be maintained against the possibility that the proposed rates of implementation might not be achieved, since the project consists of a number of separate and independent drainage units, whose construction can be rephased in the light of experience.

1.04 The project appraisal is based on documents and material submitted by the UAR authorities, on the results of a UNDP pilot project 1/ for which the FAO were the executing agency (see Annex 1), and on the findings of the appraisal mission. This report was prepared mainly by Messrs. Bolt, ffrench-Mullen and Myint.

II. BACKGROUND

General

2.01 The UAR has a population of about 32 million and a total land area of about one million km^2. About 96% of the area of the country is barren desert, and the remaining 4%, concentrated mostly in the valley of the Nile and its delta, is intensely cultivated. These irrigated areas support almost the whole population of the UAR, and have a density of about 800 persons per km^2.

The Role of Agriculture in the UAR

2.02 The agricultural sector is dominant in the economy and provides employment for over 50% of the population; it contributes about 27% of the total GDP, as against 21% for industry. About 80% of exports are agricultural products, mainly cotton, rice and onions. Agricultural programs are given a high priority in the government's development planning, with particular emphasis on increasing production of food to reduce imports and on increasing export crops, primarily through further development and improvement of the irrigation and drainage systems of the country.

2.03 Between 1960 and 1965, the value added by agriculture increased annually by 3 to 3.5%. Despite this increase, the food grain deficit has been widening due to an annual population growth of 2.8%, government controlled low consumer food prices, and static productivity caused mainly by deteriorating drainage conditions. The UAR imports large quantities of wheat and flour, with lesser quantities of maize, sugar and edible oils, and over 100,000 head of livestock annually, at a cost of about £E90 million (US$207 million equivalent).

2.04 The area under cultivation amounts to about 6.8 million feddans and is practically all irrigated including half a million feddans of recently reclaimed land, some of which is not yet in full production. With an average of 1.6 crops per annum on each feddan, the Egyptian farmer is already making good use of the area available to him. A recent change of policy has given higher priority to increasing even further the productivity per feddan in existing irrigated areas, rather than to relatively costly new developments on the fringes of the Nile Valley. Under this policy considerable capital

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1/ "Pilot Project for Drainage of Irrigated Land", United Arab Republic, 1961-65. Contractors:- NEDECO; sub-contractors:- ILACO of Arnhem, the Netherlands.

has recently been invested in the conversion of older, non-perennial basin irrigation areas to perennial cropping. Sizeable investment has also been made in drainage and in agricultural research, extension and supporting services. Further details of the UAR's agricultural sector, services and input provisions are included in Annex 2.

2.05 Two major constraints to increasing productivity -- water-logging and salinity -- have not yet been tackled on a scale sufficient to arrest the worsening situation, and there is urgency in proceeding with this work, particularly in the Delta. The ameliorating effect of good drainage on crop yields has already been spectacular on some of the 360,000 feddans already tile drained (see Annex 1).

Irrigation and Drainage

2.06 The irrigation and drainage systems stretch almost continuously from Luxor to Alexandria, a distance of over 700 km. The systems have been planned, constructed, maintained and firmly controlled for the past 130 years by the former Public Works Department Irrigation Service, now the Ministry of Irrigation.

2.07 In line with government policy, the Ministry has allocated priority to schemes in areas where the need for drainage improvements is acute, in which increasing salinity conditions are likely to affect crop yields seriously in the near future, where investigations are advanced, and which will give the highest returns on investment. The Ministry has estimated that the cost ofE282 million (US$650 million equivalent).

2.08 The scheme given the highest priority by the Government is located in the Nile Delta, which contains a formerly very fertile area of about 4 million feddans under irrigation. The project area is in the southern part of the Delta (see Map 1), where salinity is becoming critical, and in which a considerable amount of investigation has already been carried out. The Authority was established in September, 1969 to implement all tile drainage projects in the Delta, with special reference to the present project.

III. THE PROJECT AREA

General

3.01 The project covers 17 drainage catchment units containing some 950,000 feddans in the Nile Delta, from within 25 km of the Mediterranean in the north, to 140 km away from the coast at the project's southern limit. The project is located in 23 districts 1/ of seven of the governorates in the Delta. As shown on Map 1, it is situated as follows:

1/ District boundaries do not coincide exactly with drainage catchment boundaries of the project area. Most statistics were available on a district basis only.

Location	Area '000 feddans	No. of Drainage Catchments
Eastern Delta Group		
East of the Damietta Branch of the Nile Delta;	251	4
Central Delta Group		
Between the Damietta and Rosetta Branches of the Nile Delta;	349	7
Western Delta Group		
West of the Rosetta Branch of the Nile Delta;	350	6
TOTAL	950	17

Climate, Topography and Soils

3.02 The climate in the area is warm and dry, with pronounced changes between day and night temperatures. The cool winter season continues from November to March; the summer season begins in May and ends in September. Only about 180 mm of rain falls at the coast annually, mainly between November and February. The amount decreases rapidly inland to about 26 mm at Cairo. Near Tanta, in the center of the project, the mean daily temperatures over a 30-year period vary from a maximum of 34.7°C in August to a minimum of 5.3°C in January. The topography is flat, and slopes gently from Cairo towards the sea. The soils consist of heavy deltaic alluvium, being somewhat lighter in the southern part of the project area, and becoming heavier to the north (Annex 3). The alluvium averages some 9 to 10 m in depth and overlies deep deposits of water bearing sands and gravels. The soils are suitable for the cultivation of cotton, rice, maize, wheat, Egyptian clover, barley, beans, vegetables and fruit, provided they are supplied with irrigation water and drainage. There are salinity problems, particularly in the northern part of the project, which are rapidly worsening due to inadequate drainage, and which are adversely affecting crop production.

Population and Land Tenure

3.03 The rural population of the districts in which the project is contained has been estimated to be 5.2 million. About 39% of the farms are owner-cultivated, with an average size of 3.86 feddans; 28% are rented with an average size of 2.66 feddans and the remainder are made up of owner-tenant operated holdings with an average size of 4.27 feddans. In the project area itself, average farm sizes are slightly smaller (see para. 6.09).

Cropping Pattern and Yields

3.04 Cropping rotations are well established throughout the project area, with cotton and rice as the principal cash crops (Annex 2). The Ministry of

Agriculture and Agrarian Reform regulates by decree the area planted under cotton each year throughout UAR, and this is currently fixed at one third of the arable land in the project area. Irrigated rice is restricted by decree to the northern governorates, and the area cultivated is dependent on the amount of irrigation water available after the demands of the cotton crop have been met. In 1968, about 40% of the area in the rice-growing governorates was cultivated under rice. Cotton is grown on the same land every third year and is the controlling factor in the crop rotation. After cotton is planted, it is normally succeeded by wheat and clover in winter, and by maize in the following summer in the southern part of the project area; in the northern part, irrigated rice or maize is grown in the following summer. The rotation presently practiced is well suited to the conditions in the Delta and no major change is envisaged in the near future. Up to the present, the area under cotton and rice has been limited by the amount of irrigated water available in summer. With the completion of the Aswan High Dam, this constraint should be removed.

3.05 In the Delta, yields of the major crops, while high by world standards, have remained relatively constant for the past decade, in spite of the use of improved varieties and increasing quantities of fertilizer and other inputs and associated services. In general, the data available indicate that there is a slight long-term fall-off in yield which becomes more noticeable in the northern areas of the project, where drainage has deteriorated further than in the south, and there are indications in the northern, north-western and north-eastern sections of the project that impeded drainage and salinization might reach a point in a few years where yields may fall sharply. There appears to be considerable variation in the yield of cotton, usually directly related to drainage conditions, although other factors such as infestation and humidity clearly have an effect.

Marketing, Credit and Transportation

3.06 The policy of the government is to extend to cooperatives a monopoly in marketing of all crops; this is currently enforced for cotton, rice and onions. Cooperatives also make substantial purchases of wheat, beans, maize and other crops. They take delivery, at fixed prices, of the amount of produce which has to be sold to the government (Annex 2, para. 6). Wholesale markets for grain, livestock, fruit and vegetables, owned and operated by the Ministry of Supply or cooperative market associations, are located in several parts of the country, and are expanding.

3.07 The Organization of Agricultural Credit in Cairo deals with an agricultural credit cooperative in each governorate. In turn, these make loans to each of the 4,500 farmer cooperative societies in the villages, and all farmers, both owner-cultivators and tenants, are members. These societies supply credit both in cash and goods to the farmer on the basis of the area planted to a specific crop. Farmers receiving credit are closely supervised and receive advice from extension personnel as to the recommended methods of cultivation, fertilization, pest and disease control, livestock management, etc. In 1967, the loans made amounted to £E80 million (US$184 million). Although no interest is charged, a fee of 4% on loans is levied on the village cooperatives, who in turn charge a 7% fee to the farmers.

3.08 In general, sufficient credit and supplies of farm inputs and equipment are available to all farmers on reasonable terms, and there are sufficient crop processing facilities. The area is adequately served by the existing system of paved and unpaved roads, as well as by a railroad, providing good access to urban and rural consuming centers, processing plants and to ports.

Supporting Services

3.09 The supporting services available to the farmer are generally adequate. The extension service reaches the farmers through an extension agent, often a graduate officer, stationed in the village and assisted by the director of the farm cooperative in the village and backed up by district and governorate organizations, staffed with a full team of specialists. The area farmed by a village varies from 500 to 2,000 feddans. There is however a need to improve the mobility of extension workers and their farmer training equipment (para. 5.11).

Irrigation

3.10 The intensity of irrigation in the Delta is exceptionally high. About 90% of the 4 million feddans 1/ commanded by the canals in the Delta receive a perennial irrigation supply once every 18 days in summer and winter, and every 15 days in spring and fall. Rice areas, however, receive a supply every eight days in summer.

3.11 The annual volume of water available for diversion from the Nile in the Delta since the first barrage was commissioned in 1890, averaged about 26 billion m^3 (21 M ac-ft.). Continuance of this adequate supply, amounting to a depth of about 1.3m of water each year, has been assured by the construction of the High Dam, now nearing completion. The Nile water has a low salt content averaging about 200 parts per million. Nevertheless, the quantity of salt passing annually into the Delta soils for the last 80 years has been about 1.5 tons per irrigated feddan; it is now evident that too low a proportion of this salt is being leached out of the soil by effective percolation, with the result that the salt accumulation has already reached a level which is potentially dangerous to crops in more than half of the northern part of the Delta (Annex 3).

Drainage

3.12 Since the introduction of perennial irrigation 80 years ago, the natural drainage of the Delta has been increasingly incapable of discharging the large quantity of surface run-off and year-round seepage from the fields, canals and branches. Despite the construction of a widespread system of surface drains and pump stations over 40 years ago, the groundwater has gradually risen in consequence; it is now less than 60 cm from the surface in much of

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1/ Statistics in remainder of chapter relate to the entire Delta.

the area for several months of the year (Annex 4). The high water table causes water-logging and prevents leaching of incoming salts from the root zone. Crops suitable for Delta conditions are not particularly salt tolerant and, if the productivity of the area is to be maintained, accumulated salinity must be removed and the high water table must be lowered. The installation of sub-surface drainage on a massive scale thus becomes a prerequisite for preserving this otherwise well-developed and productive area of Egypt's limited lands under irrigation.

3.13 Of the three methods of groundwater extraction and control in use in the Delta at present, tile drainage, as proposed for the project, is the most appropriate. It removes excess soil moisture through concrete or clay pipes buried horizontally below the crop root zone, does not require permanent removal of land from crop production, needs only minor maintenance, has been fully tested in 360,000 feddans in the Delta, and has been shown to be successful. The other two alternative methods, deep open field channels and tubewell drainage, are discussed in Annex 4.

IV. THE PROJECT

Introduction

4.01 The project would be part of an overall program to provide tile drainage in much of the Nile Valley within the UAR over the next 20 years. The estimated cost of the project would be £E64 million (US$147 million equivalent). The program has been held up due to the lack of foreign exchange required for drainage pumping machinery, and for mechanical drain-laying equipment to be used in accordance with the Ministry of Irrigation's policy of mechanizing construction wherever this would result in reduction of cost and faster implementation.

4.02 The project is contained within that part of the Delta in which it has been known for some time that tile drainage is the most economical and effective method of groundwater control (Annex 4). Similar projects will be started in the remaining areas in the Delta and elsewhere as soon as appropriate techniques have been developed and when the necessary construction capacity and equipment become available.

Project Description

4.03 The project is designed to achieve the following objectives:

(i) to increase crop production in the Delta by improving soil moisture and salinity conditions (para. 6.03 and Annex 2);

(ii) to effect discharge of excess groundwater from the project area, so as to depress the water table to a depth of about one meter below the surface (except in rice-growing areas), in less than five days after irrigation in any season (Annex 4);

(iii) to desalinize the soil through leaching excess salts from the root zone by control of the water table, and the maintenance of this improvement at minimum cost (Annex 2 and para. 5.11); and

(iv) to dispose of the subsurface drainage effluent and surface irrigation waste from the project area, by low-lift drainage pumps (Annex 4).

4.04 The physical works in the project would consist of:

(i) the construction of 11 drainage pump stations;

(ii) the remodeling of about 1,700 km of main open drains and their associated structures;

(iii) the installation of tile field drainage in 950,000 feddans of irrigated land by mechanical equipment; and

(iv) building facilities for equipment maintenance and for the training of staff and operators in tile drainage construction.

The project would also provide:

(i) transport and farmer training facilities for the agricultural extension services (para. 5.06 and Annex 2);

(ii) tile drain maintenance equipment;

(iii) equipment suppliers' technicians to assist in maintenance and operational training; and

(iv) consultants for advisory services in management and training (para 5.08).

The Project Works

4.05 The project would include the installation of tile field drains 1/ in 17 drainage catchments adjacent to the existing tiled area, as well as the means of discharging effluent from these catchments into the present disposal system as shown on Map 1. Drainage flows would be pumped from the suitably

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1/ Tile drainage consists of clay, concrete or plastic pipes laid continuously at a slight slope below the crop root zone. When groundwater rises above the tile field drains, due to either the application of irrigation supplies or upward pressure, water from the saturated soil seeps through the open joints or slots of the pipes into the field drains, and thence into collector drains, until all the drainable surplus water is removed from the soil above the drain. The crop root zone is thus relieved of waterlogging, and the effluent carries with it the surplus soluble salts.

deepened open drains in 11 of these catchments (numbered II to XV on Map 1), which vary in size from 24,000 to 90,000 feddans, with a total of 637,000 feddans. The pumps would discharge the effluent either into large irrigation channels for dilution and re-use, or into main drains flowing to outfalls on the coast. In the other six catchments (numbered OE, OM and OW), totalling 313,000 feddans, the land levels are sufficiently high to permit the effluent to flow into the branches of the Nile or main drains without pumping, and thence to discharge into other systems or to sea outfalls.

4.06 The tile field drains or laterals would be installed at about 1.4 m below ground level by machines which would excavate a narrow trench and lay the 10 cm diameter tiles continuously. Concrete tiles would be used 1/, and altogether about 270 million pipes of 30 cm length would be required. The manufacture, inspection, storage and transport of these pipes is in itself a very considerable undertaking; it would need 50 semi-automatic moulding machines, to be provided under the credit, in several factories for the production of an average of 900,000 pipes a week. The laterals would be about 200 m long, with a spacing dependant on soil conditions and averaging 50 m, each flowing into a piped collector drain. The total length of laterals in the project would be about 80,000 km. The collector drains would discharge into the existing open channel branch drains which would be deepened by about one meter and widened to receive the deeper inflow. The main drains would also be remodeled accordingly, and all drain control structures and bridges would be lengthened or rebuilt to suit. About 23 million m^3 of earth would have to be excavated from the branch and main drains. The remodeling process would be the minimum practicable and, because of the high value of land, would be less costly to construct and maintain than the alternative arrangement with deeper, wider drains and greater distances between pump stations.

4.07 To dispose of the increased amount of drainage effluent from the project area which would have to be lifted from the deepened main drains, some existing pump stations would be replaced by new stations having larger lift and discharge capacities, and additional stations would be constructed at new locations. Eleven stations would be built in the project, with 47 pumps installed and a total pumping capacity of 213 m^3/sec, and with operating heads varying from 1.2 to 4.6 m. Details of the mechanical and electrical pumping equipment proposed are given in Annex 5. The installed pumping capacities proposed are satisfactory (see Annex 4, paras. 26-27). The power transmission lines to the pump stations would be quite short, and would be included in the project together with a new substation. Assurances have been obtained that the power supplies would be provided in phase with the scheduled requirements of the project.

1/ Sulfate resistant cement, which is available in the UAR, would be specified and incorporated where necessary to prevent deterioration of tiles by chemicals in the soil or drainage water.

Equipment Maintenance

4.08 A large, well-equipped government central workshop is available in Cairo for the assembly, testing and major repair of machinery. The storage, distribution, maintenance and repair facilities are, however, inadequate in the project area. To carry out normal repairs and maintenance of equipment and vehicles, about 10 mobile field workshops and 4 divisional workshops would be set up and equipped under the project. Arrangements for the scheduled establishment of these facilities, under the direct control of the Authority, would have to be made as soon as possible. Assurances have been obtained during negotiations the divisional workshops would be completed within eighteen months of the effective date of the credit.

4.09 Competent foreign technicians would be provided by the equipment suppliers under their contracts and would be resident on site. They would be responsible for the maintenance and minor repair of the equipment. Assurances have been obtained that import licenses for equipment and spares for the project would be issued without delay when required. Major overhauls and repairs would be carried out in the additional divisional workshops as necessary under the supervision of the equipment contractors' technicians. In this way it could be expected that a reasonable level of construction equipment serviceability and output would be maintained. Assurances have also been obtained that all equipment supply contracts would contain suitable provisions for the attendance of suppliers' technicians (see para. 5.09).

Engineering

4.10 The detailed engineering for the whole of the proposed works is in a preliminary stage of preparation by the staff of the Authority, who are technically capable of designing and specifying the works. In the gravity flow drainage catchments, many of the open drains have already been deepened, and about 160,000 feddans are ready for tile laying to start. Bid documents and drawings are in preparation for the first tile drainage installation contracts in these areas. Bid documents for the supply of tile laying machines, excavators and pumping machinery are being drafted by the Mechanical and Electrical Department.

4.11 The present capacity for the production of printed drawings and other documents are not adequate for the project, and it would be necessary to import additional, modern drawing office and reproduction equipment and materials, which have been allowed for in the cost estimates.

4.12 The design for the tile drainage would be based on seven years of experience gained in the Delta on the successful FAO/UNDP Pilot Project for Drainage of Irrigated Land (Annex 1) and other tiled installations, now totalling about 360,000 feddans. The criteria used by the government Drainage Research Bureau for design of the systems are appropriate and are on the whole satisfactory. The present staff, transport and equipment for pre-drainage field surveys is far from sufficient but could readily be expanded to meet the maximum requirements for the project. Most of the survey and design work for the remodeling of the open main drainage system has already been completed, and surveys are regularly updated. Detailed design of pump stations

and pumping equipment would be done by the construction and equipment supply contractors, to the specifications and approval of the Authority.

Construction Schedule

4.13 The phasing of equipment supply and construction within the project is determined by the rate of increase in tile drainage installation capacity which could be achieved by the Authority and the contractors, the progress already achieved in drain remodeling, and rate of the construction of pump stations. A reasonable division of work load between the Eastern, Central and Western Delta Drainage Groups is another factor in determining the construction program.

4.14 From previous experience in the Delta, the Authority's engineers have programmed the work so that all open drains would be remodeled to the appropriate depth and, in pumped drainage areas, all new pump stations would be operational, before starting the installation of tile drains in a catchment unit. This procedure has been followed in the construction schedule shown in Annex 6. The phasing of pump station construction, drain remodeling and tile drainage installation would have to be carefully coordinated and maintained. Installation would be in progress generally in not more than four drainage catchments simultaneously although at increasing rates, so that the extent of logistical effort in the last year of the project would be six times that in the first year. Delays in obtaining access and the acquisition of rights-of-way are not anticipated, since the necessary powers were vested in the Ministry by laws updated and decreed in 1968; no problems in this respect have arisen since then.

4.15 While the project does not contain unusual engineering features the intended rate of tile laying, planned to rise from 3,300 km/year (40,000 feddans/year) to 20,000 km/year (240,000 feddans/year) in five years, entails a massive task of construction management and logistics (Annex 5). The maximum implementation rate is the highest attempted anywhere. It is only achievable with mechanical tile laying machines, successfully developed and proven in Europe and the USA and already in operation in the UAR. A fleet of 100 such machines could achieve an average production of about 22,500 km/year when provided with reasonably efficient operators, good logistical support and regular maintenance. This would be 10% more than the maximum intended with the same number of machines under the project; the proposed implementation rate would be feasible under the conditions outlined, provided that the implementation agency is adequately supported (see para. 5.08).

4.16 The Ministry has achieved installation rates of 80,000 feddans a year but the present annual achievement is only about 40,000 feddans. This rate would be the target for the first two years of the project. However, in the third year the full benefit of the new tile-making and laying machinery (Annex 7) would be achieved and the annual rate would jump to 130,000 feddans; at full production, in year 6, the target would be 240,000 feddans. The phasing of the program, by catchment areas, is given in Annex 6 and summarized below.

Annual Rates of Implementation

Financial Year:/1	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
Project Year:	1	2	3	4	5	6	7(part)
	('000 feddans)						
Area tile drained:	40	40	130	170	200	240	130
Cumulative area:	40	80	210	380	580	820	950

/1 July 1 to June 30.

The first tile installation contracts could be started in some of the gravity flow areas towards the end of 1969, and the project could be substantially completed by the end of 1975. However, construction of further projects in the drainage plan must start in 1973 in order to maintain the momentum of the overall drainage plan.

Cost Estimates

4.17 Cost estimates for the pump stations and their machinery are based on unit prices for similar stations recently constructed in the Delta. The quantities and rates for the deepening of drains are accurately known from surveys and current work, and the cost of mechanical tile laying was estimated from details recorded in the FAO/UNDP Pilot Project as well as on present contracts. The foreign exchange costs of the equipment and machinery are based on current sellers' quotations for the UAR. Contingency factors of 5 to 20% have been applied as appropriate, with an overall average of 10%, and varying allowances have been included for escalation in equipment and labor costs (see Annex 8). These estimates are considered reasonable. The cost of the project is estimated to be about £E64 million (US$147 million equivalent) including the residual value of construction equipment on completion of the project. The foreign exchange component is estimated at £E11.3 million equivalent (US$26 million), mostly for equipment, and the average cost per cultivated feddan is £E66 (US$152 equivalent). The costs are summarized in the following table and further details are given in Annexes 7 and 8.

Cost Estimates 1/

	£E million equivalent			US$ million equivalent		
	Local	Foreign	Total	Local	Foreign	Total
1. Tile Drainage:						
Equipment 2/	0.1	5.6	5.7	0.1	13.0	13.1
Construction	23.0	-	23.0	53.1	-	53.1
Training center, offices, workshops and stores	0.9	-	0.9	2.0	-	2.0
2. Remodeling Main Drainage:						
Equipment 2/	0.1	1.2	1.3	0.1	2.8	2.9
Construction	9.7	-	9.7	22.3	-	22.3
3. Pump Stations:						
Equipment, machinery and construction 3/	2.7	2.9	5.6	6.2	6.8	13.0
4. Crop compensation	4.7	-	4.7	10.8	-	10.8
5. Administration, supervision, training and consultants	4.7	0.3	5.0	10.8	0.6	11.4
6. Tile drain maintenance equipment	-	0.1	0.1	-	0.2	0.2
7. Agricultural extension service vehicles	-	0.2	0.2	-	0.5	0.5
8. Contingencies	4.7	0.9	5.6	10.8	2.1	12.9
9. Customs duties	2.1	-	2.1	4.8	-	4.8
Total project cost:	52.7	11.2	63.9	121.0	26.0	147.0

1/ All figures rounded.

2/ Includes machines, vehicles, workshop, office, stores and training equipment, spares, freight, foreign suppliers' technician costs and allowances for escalation.

3/ Includes pumps, motors, switchgear, electrical transmission, imported construction equipment and contractors' overhead costs.

Financing

4.18 The proposed IDA credit would cover the foreign exchange requirements of the project, estimated at about US$26 million, or 18% of the total project cost. Government allocations would provide the balance of the project cost, some US$121 million equivalent, and disbursements would be required approximately according to the following schedule:

Financial Year/1	1969/ 1970	1970/ 1971	1971/ 1972	1972/ 1973	1973/ 1974	1974/ 1975	1975/ 1976	Total Project Requirements
Project Year:	1	2	3	4	5	6	7	
	US$ million equivalent							
Government Contribution:	6.1	9.1	20.2	26.2	25.5	23.2	10.7	121.0
IDA Credit:	0.3	6.1	9.5	7.4	1.7	1.0	-	26.0
Project Totals	6.4	15.2	29.7	33.6	27.2	24.2	10.7	147.0

/1 July 1 to June 30.

Annual public investment in agriculture, irrigation and drainage has recently been more than LE60 million (US$138 million equivalent), including amounts of at least LE9.5 million (US$22 million) for the Aswan High Dam now nearing completion. The annual local currency requirements for the project should, therefore, be readily available within the government budgetary allocations.

4.19 Nearly 90% of the foreign exchange would be required during the first four years of the project for the importation of equipment and for the services of consultants and expatriate maintenance and training technicians. Some of the machinery and equipment financed would not be fully depreciated under the project and assurances have been obtained that they would be used for the continuation of the government's drainage plan.

Procurement and Contract Procedures

4.20 Construction equipment, drainage pipe manufacturing machinery, vehicles and associated spares would be procured by international competitive bidding in accordance with the Association's standard procedures, except for minor contracts not exceeding US$10,000 individually and US$100,000 equivalent in aggregate. Local manufacturers of trucks, tractors and motorcycles would be allowed to bid, with a preference of 15% or the actual customs duty, whichever is lower.

4.21 International bids would be obtained for the construction of the 11 pump stations, complete with pumping equipment. It is anticipated that, when bidding, foreign manufacturers would either enter into joint ventures with Egyptian civil engineering contractors, or would sub-contract the structural work to approved Egyptian concerns. However, in accordance with the Association's normal procedures, no preference would be given to local civil works contractors in comparison of bids.

4.22 There are a large number of experienced Egyptian construction concerns, including two who have been successful in international bidding on Bank Group projects. In the near future, with the completion of the

High Dam, these concerns will have a considerable amount of excess capacity. It was therefore agreed during negotiations that contracts solely for civil engineering work would be awarded on the basis of local bidding. Although the larger Egyptian construction firms have been nationalized, they continue to operate on commercial lines and there would be an adequate degree of competition in bidding. Since very few of these concerns have the specialized equipment required for the project field works, contracts would include provision for the purchase of construction machinery from the Authority (see para. 4.20). The terms and conditions of purchase by contractors were agreed with the Association during negotiations and include that the price to be paid by the contractors for the machinery would be that paid by the Authority with the addition of a 10% administration charge; that payment would be made by installments over the contract period; that the contractor shall submit a letter of guarantee covering the full price of the machinery; that the machinery shall remain Government property until the completion of the contract; and that the machinery shall be constantly maintained in good working order. It is intended that the 300 million drainage pipes required would be supplied by local manufacturers under contract, and that the pipe moulding machinery to be purchased by the Authority under the credit would be resold to them on similar terms to those agreed for the resale of construction equipment.

Disbursement

4.23 The proposed credit would be disbursed against evidence of:

(i) certified payments made under contracts for construction of complete pump stations; disbursements would be made on the basis of the foreign exchange element of the contract price;

(ii) the landed, foreign exchange cost of construction equipment and spares imported for the project and the foreign exchange element of salaries for manufacturers' technicians who would be resident in the UAR under the equipment supply contracts;

(iii) the foreign exchange component, agreed as 65% of the invoiced price, of contracts for trucks, tractors and/or motorcycles if supplied by Egyptian manufacturers;

(iv) the foreign exchange element of fees, expenses and salaries reimbursable under contracts for foreign consultants and technicians who would provide advisory services for the project; and

(v) the foreign exchange costs of overseas training to be given to operators and staff participating in the project, as certified by consultants to be responsible for the supervision of this training.

Accounts and Audit

4.24 The Ministry of Irrigation, like all other ministries of the UAR Government, is subject to an annual external audit by the government's Central Organization for Accounts and Audit, which reports directly to the Presidency. In addition, resident auditors are stationed in field inspectorates of the

Ministry of Irrigation to pre-audit accounts before disbursement. These procedures would also apply to the Authority. Assurances, however, have been obtained for:

(i) establishment and maintenance of separate project accounts by the Authority;

(ii) annual auditing of such accounts by an independent accountant and the Central Organization for Accounts and Audit, in accordance with procedures satisfactory to the Association;

(iii) submission of copies of each audit report to the Association within six months of completion of each financial year.

V. ORGANIZATION AND MANAGEMENT

Ministerial Responsibility

5.01 The Minister of Irrigation would be responsible for the general supervision of the implementing agency for the project, and for the maintenance and operation of the works after completion. The Minister of Agriculture and Agrarian Reform would be responsible for providing extension services, on-farm inputs and agricultural credit through the cooperative organizations, to enable full benefits to be achieved from the project.

Project Authority

5.02 Executive responsibility for construction of the project has been vested in the Nile Delta Authority for Tile Drainage Projects, which is an independent government agency under the supervision of the Ministry of Irrigation, established by Presidential Decree in September 1969. The Authority is in process of formation on the organizational pattern shown in the chart on page 1 of Annex 9. Its management would be comprised of a Chairman and a Board of eight directors, five of whom would be executives on the project. The Minister of Irrigation can in addition appoint the Under Secretary of Agriculture and two other directors of high technical competence. The administrative and technical staff would be transferred to the Authority mainly from associated departments of the Ministry of Irrigation, and also from other agencies of the government.

5.03 The formation of the Authority provides the basis for the efficient implementation of the project, since the staff would be engaged solely on project execution, and the Authority would have the necessary control of all technical, administrative and financial aspects of the project. These include:

(i) planning, budgeting and progress control;

(ii) investigations and detailed engineering;

(iii) procurement of goods and services;

(iv) acceptance, storage, sales and distribution of equipment and spares;

(v) training facilities for project staff and operators;

(vi) coordination and supervision of all project field forces on drain remodelling, pump station construction and tile laying;

(vii) equipment maintenance and repair facilities;

(viii) funding and allocation of local currency requirements;

(ix) separate project accounting and audit procedures; and

(x) planning of project maintenance and introduction of monitoring and evaluation of agricultural benefits.

All these activities would be concurrent throughout the first four years, while most of them would be continuous for the full period of the project, and thereafter for subsequent phases of the overall drainage plan.

5.04 The organizational scheme as presented would be adequate to enable the Authority to direct, coordinate and supervise the numerous activities of all the government forces, local construction concerns and foreign suppliers involved in the project. The selection and appointment of competent, experienced and suitably qualified officials for top management posts in the Authority would be one of the most important elements for the success of the project. The government recognizes this and during negotiations agreed to make every effort, including that of keeping the Association informed on any significant changes prior to the event, to maintain an effective organization and management structure.

Staff Availability and Training

5.05 A summary of technical staff requirements for the implementation of the project is given in Annex 9. More than 200 engineers and 400 technicians would be needed in the Authority for the design and supervision of construction of civil works, and for supervision of erection of mechanical and electrical plant. The total present technical staff of the Ministry of Irrigation is also shown in Annex 9, and it is evident that the number of civil engineering staff required for the project would be available from the Ministry, while the mechanical engineering staff needed would be available from the Ministry's Mechanical and Electrical Department. Assurances have been obtained that the required numbers of qualified staff would be transferred to the Authority in accordance with a timetable which has been agreed with the Association. Sufficient numbers of foreign technicians, to be provided by the equipment suppliers, would be resident in the UAR to ensure proper assembly and maintenance of the imported equipment. It was agreed during negotiations that the supply contracts would require these personnel to be available from the date of delivery of the construction equipment to the construction contractors until completion of its use on the project or, in the case of pump station equipment, a six-month training period for operating staff has been completed after the commissioning of each installation.

5.06 The agricultural extension service provided by the Ministry of Agriculture and Agrarian Reform to farmers in each governorate, district and village is presently staffed with an adequate range of specialists to meet the needs of crop and livestock production in the project area, and for the ginning of cotton, together with the production and storage of cotton seed (see Annex 2). The extension staff is backed up by suitable research organizations in crop, livestock and all necessary specialist disciplines. Similarly, the cooperative and agricultural credit organization is adequate. The extension services in the project area would be considered adequate if the mobility of field officers and the availability of training aids were improved. To meet this need, allowances have been made in the cost estimates for appropriate vehicles and equipment. These items would be specified by the Ministry of Agriculture and procured on their behalf by the Authority under international competitive bidding in accordance with the Association's procedures. (See also Annex 2).

5.07 Agencies of the UAR government have the proven capability of implementing very large projects (viz: the operation and widening of the Suez Canal and the completion of the High Dam). However, in order to achieve significantly faster drainage construction rates than at present, their engineers and technicians need additional training to up-date their management and operating methods. The provision of trained personnel would be a critical aspect of the execution of the project. The principal training requirements for the project are for tile laying machinery operators and mechanics, drainage investigation technicians, tile drain layout designers and supervisory engineers, as well as for planning and construction control engineers. The requirements are related to the increasing rates of installation which would have to be achieved on the project (see Annex 9). The scale on which new technical skills would have to be acquired by large numbers of lower echelon staff in preparatory survey work, drainage design and installation, would necessitate the establishment of a project training center in the Delta. It would be important to prevent untimely dispersion of trainees to other work. Assurances have been obtained that staff who have been trained under the project programs would return to and remain on the project for a minimum period of at least two years in the field in which they were trained. Until the full requirements of trained staff for the project were met, the Authority would not be in a position to undertake similar drainage projects elsewhere themselves without detriment to the project. Assurances have been obtained that no other similar work would be undertaken by the Authority during the construction period of this project without first having satisfied the Association that its prompt and efficient completion would not be adversely affected.

Consultants

5.08 There is an urgent need to plan and implement appropriate training courses for project personnel, both at the proposed training center and overseas, in modern methods of project management and control as well as equipment operation and maintenance. It would, however, be beyond the initial capacity of the Authority to make all the necessary arrangements for this in the short term. To ensure that the training programs would be carried out rapidly and effectively, it would be necessary for the Authority

to engage a firm of consultants to devise and assist in the training programs in the UAR and overseas. Before trained Egyptian personnel could be made available or fully effective, the firm of consultants would also have to provide advice and assistance to the Authority's staff in planning, coordination, and progress control; in establishing appropriate procedures for the survey, design and the production of drawings for the project; in procedures for bid evaluation, equipment maintenance and for stores control. It was agreed during negotiations that a firm of consultants would be appointed under terms and conditions acceptable to the Association. Summarized terms of reference for the consultants are given in Annex 9. The appointment of consultants acceptable to the Association would be a condition of effectiveness of the proposed credit agreement. The foreign exchange costs of consultants' services is provided for under the proposed credit.

Operation and Maintenance

5.09 After their construction and formal acceptance from the contractors, the project works would be handed over by the Authority to established Departments of the Ministry of Irrigation which would then be responsible for all operation and maintenance. The staff required for operation and maintenance of the project drainage system are shown in Annex 9, and they would be trained at the Authority's training center. The continuous monitoring of the general effect of tile drainage on soil conditions and crop production in the project area would be an important element in the evaluation and design of future projects. Assurances have been obtained that suitable monitoring services would be set up and maintained by the Authority.

Operation and Maintenance Costs

5.10 Operation and maintenance cost estimates for the pump stations and the open drain system within the project have been based on actual expenditures previously experienced on similar works in the Nile Delta. Estimates of the cost of maintenance of the tile drains were based on expenditures incurred on the FAO/UNDP Pilot Project for Drainage of Irrigated Land and elsewhere in the project area, as well as on costs of similar work in Syria and in Europe. Appropriate adjustments were also made to reflect the improved level of operation and maintenance assumed for the project. The estimates include charges for wages and salaries, energy and lubricants, repairs, materials, replacements of parts for pumps and motors, and a contingencies element of 15%. These costs would be incurred by the Drainage, Tile Drainage Maintenance and Mechanical and Electrical Departments of the Ministry of Irrigation.

5.11 Operation and maintenance cost estimates during the six and a half years of the construction period would be as follows:

Financial year	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
Project Year	1	2	3	4	5	6	7
				millions			
Egyptian LE	-	0.04	0.08	0.16	0.26	0.45	0.63
US $ equivalent	-	0.10	0.18	0.37	0.59	1.03	1.45

After 1977 (year 9), the annual operation and maintenance cost is estimated at LE0.70M (US$1.6M equivalent) until 2003 (year 35), when replacements for the pumps and tile drainage would be necessary. Of this amount, about LE0.33M (US$0.76M equivalent) would be for the maintenance of field tile drains.

Recovery of Costs

5.12 The government is empowered by legislation to recover the costs of field tile drainage directly from beneficiaries by means of charges levied annually. The charges are designed to recover not only the capital cost of tile drainage over 20 years, free of interest after the addition of 10% to cover administrative charges, but also the maintenance cost of clearing pipelines. These costs and charges would be approximately as follows:

	LE	US$ Equivalent
Over Project Area:		
Capital cost of tile drainage in project area	33.3M	76.7M
Administrative charge, 10%	3.3M	7.7M
	36.6M	84.4M
Equivalent to: Annual capital repayment from project area over 20 years	1.8M	4.2M
In addition: Annual maintenance cost of tile drainage in project area (see para 5.11)	0.3M	0.8M
Per Cultivated Feddan /1:		
Annual capital repayment charge	1.92	4.42
Annual maintenance charge	0.35	0.80
Total charges:	2.27	5.22
Per Cropped Feddan /2:		
Annual capital repayment charge	1.63	3.75
Annual maintenance charge	0.29	0.67
Total charges:	1.92	4.42

/1 Cultivated area of 950,000 feddans in project.

/2 Taking double cropping into account, a cropped area of 1,176,000 feddans a year is assumed for the four main crops cotton, rice, maize and wheat in the project area (see Annex 11, page 2).

It was agreed during negotiations that suitable arrangements would be made to ensure that the cost of maintenance and the capital invested in field tile drainage would be recovered from beneficiaries by way of the charges described.

5.13 The other project costs, consisting of remodelling and maintaining main drains and the construction and operation of pump stations, plus the provision of agricultural extension services, research and training facilities, would amount to about £E30 million (US$70 million equivalent) over the 35-year life of the project, and would be met by budget allocations out of general revenue. A significant contribution to the revenue is made by a land tax which is related to the productive capacity of the land and which is reassessed shortly after the completion of public works which affect the productivity of the land. Anticipating yield improvements from the project, it would be reasonable to expect an increase of about £E1 (US$2.30 equivalent) per feddan in the average annual land tax paid in the project area, presently about £E4.50 (US$10.35 equivalent). This level of increase, extended over the 35-year life of the project, would more than offset the costs remaining after direct recoveries for field tile drainage. The benefits arising from the works would enable farmers to meet drainage charges and increases in land tax without impairing their incentives to increase production (see para. 6.09).

VI. PRODUCTION, MARKETS AND FARM INCOMES

Cropped Area, Production and Yields

6.01 At full development the project would halt the present tendency of crop yields to decline and also lead to considerable improvements in yields resulting in the increased production of principal crops as indicated below.

PRESENT AND PROJECTED CROPPED AREA, YIELDS AND ANNUAL PRODUCTION OF PROJECT

	CROPPED AREA '000 feddans	YIELDS m tons/feddan		PRODUCTION '000 m tons		INCREASE IN PRODUCTION '000	
		Present	Projected	Present	Projected	m tons	%
Cotton (lint)/1	316	0.32	0.38	101	120	19	18
Rice (paddy)	328	2.50	3.00	820	984	164	20
Maize (hybrid)	339	1.54	1.95	522	661	139	27
Wheat	193	1.12	1.35	217	260	43	20
Total	1,176						

/1 Cotton seed oil and cake have not been taken into account in evaluating the output as their value would be offset by ginning and other associated costs.

Most of the increased output of cotton and rice would be exported, while the increase of maize and wheat would help to replace imports and meet the needs of the increasing population.

6.02 In addition to the four principal crops grown in the rotation, which is expected to remain relatively unchanged, large areas are cultivated with Egyptian clover in the winter for livestock feeding. Beans and barley are also raised in winter, and throughout the year vegetables and fruit are grown, including citrus where drainage is adequate.

6.03 From information received from the Ministries of Agriculture and Irrigation, both in Cairo and in the field, as well as from farmers and others in areas that have been tile drained, there is no doubt that all crops grown in the Delta have responded favorably to improved drainage and the reduction in salinity which results therefrom. A conservative overall increase in yield reaching 20% in the third year following completion of the drainage work in any one area, has been assumed as the full quantitative benefit that would accrue from the project for cotton, rice and wheat, and 27% for maize. The incremental benefit attributable to maize assumes that only hybrid maize would be planted in the area on completion of the drainage works. In calculating the benefits, a 10% increase was anticipated in the yields of rice, cotton, wheat and maize in the first year following the completion of field drainage; 15% in the second year for cotton, rice and wheat, and 20% for maize. In the southern half of the project, those maxima may be reached earlier, while in some areas in the north, where there are more intense salinity problems, the maximum crop increases may be arrived at in four to five years; a three year period was therefore taken as an overall average for the project.

6.04 The project would also increase the availability of forage and roughage and, in the long term, grain available for livestock rations. This should lead to an improvement in the standard of nutrition of livestock, as well as to the expansion of the industry, thereby reducing imports and making available locally produced meat and milk.

6.05 No comparative yield data were available for Egyptian clover, the major winter forage crop in the Delta, and benefits for it could not be quantified. Nor was it possible to quantify benefits attributable to the prevention of any further decline of yields of all crops in the area. Because of these omissions, the incremental production attributable to the project has been very conservatively estimated.

Market Prospects and Prices

6.06 Cotton. As noted above, the project would result in an annual increase in cotton lint production of 19,000 m tons, consisting of about 56% of Egyptian Extra Long and 44% of Medium Long Staples, both of which are classified as Extra Long Staple (ELS) by international standards. This would be destined mainly for export and represents about 0.5% of current world cotton exports. Unlike shorter staple cottons, ELS has not been in surplus recently, and for the last five or six years world consumption, production, trade and prices have followed a practically stationary trend.

In the long run, however, the outlook for ELS cotton is likely to be influenced by increasing competition from man-made fibers; by the uncertainties surrounding imports by Soviet Bloc countries which have recently accounted for 35% to 40% of total world ELS imports; and by cotton policies of the USA (Annex 10). The UAR intends to meet this situation by a policy of careful control over production and exports, combined with a planned expansion of its textile industry. Nevertheless, market prospects for ELS cotton are such that it would be prudent to assume that the 1975 world market price would be about 25% lower than the average of the last few years, and in the evaluation of project benefits a range (according to staple lengths) of 30 to 37 US¢ per lb CIF Liverpool has been adopted.

6.07 Foodgrains. In spite of its rapidly growing foodgrain deficit, the UAR has found it advantageous to promote exports of rice, which is of minor importance in the Egyptian diet, especially since imports of other foodgrains have been available on relatively favorable terms. Accordingly, most of the increase of rice production resulting from the project would be exported. Its market prospects appear good, especially in the Arab and African countries. The valuation of the increase in rice production from the project is based on a price of US$115 per ton ex mill, which corresponds to current long run world market projection of US$140 per ton (5% broken FOB Bangkok) after adjustment for quality and other differences (Annex 10).

6.08 In view of the large current imports and the projected further increases in local demand, the market prospects for the increased output of wheat and maize from the project are unlikely to present any marketing problems. For the valuation of output from the project, the last five years' average import prices have been used for maize and wheat of US$65.71 and US$69.00 per ton respectively, adjusted for transportation and other charges.

Farm Incomes

6.09 The potential benefits obtainable under the project at full development would provide considerable incentive for farmers. The projected net income (after charges) from the four main crops 1/ of an owner cultivator with an average size holding of 3.75 feddans would be expected to rise from US$228 to US$293, or by US$65 - an increase of 28%. Similarly, the projected net income of a tenant cultivator with an average size holding of 2.5 feddans would rise from US$73 to US$120 - an increase of US$47 which represents a 65% increase. Details of the present and projected incomes incomes per cropped feddan are given below.

1/ All figures are rounded and relate only to the cotton, rice, maize and wheat crops.

Present and Projected Farm Income per Cropped Feddan for Owner and Tenant Cultivators /1

	Owner Cultivator			Tenant Cultivator		
	Present	Projected	Increase	Present	Projected	Increase
	(US$ equivalent per cropped feddan)					
Gross Production Value	156	183	27	156	183	27
Production Costs /2	85	88	3	85	88	3
Gross Income before project charges	71	95	24	71	95	24
Charges:						
Land Tax /3	10	13	3	5	6	1
Rent /4	-	-	-	37	37	-
Tile Drainage Assessment Charges /5	-	4	4	-	4	4
Net Income after Charges	61	78	17	29	48	19
Percent Increase	-----	28%	----	-----	65%	----

/1 All figures are rounded and relate only to the cotton, rice, maize and wheat crops.

/2 Includes both family and hired labor costs.

/3 The average annual land tax for the owner-cultivator is at present about LE 4.50 (US$10.35 equivalent) per feddan, and for the tenant (who pays 50% of the tax) LE 2.25 (US$5.18 equivalent) per feddan. Projected increases in the land taxes for both categories of farmers might be of the order of LE 1 (US$2.30 equivalent) and LE 0.5 (US$1.15 equivalent), respectively, at full development of the project.

/4 Assumes an average rent per annum for all crops of LE 16 (US$37 equivalent) per feddan.

/5 See para. 5.12.

VII. BENEFITS AND JUSTIFICATION

7.01 The major quantifiable benefits to be derived from the project would be the substantial increase of agricultural production (para. 6.01) and farm incomes (para. 6.09), affecting about 250,000 farm families. These would result from the improved drainage, desalinization, and other facilities enabling farmers to increase their yields per feddan. Additional annual output resulting from implementation of the project would consist of 19,000 m tons of lint cotton, 115,000 m tons of milled rice, 139,000 m tons of maize and 43,000 m tons of wheat. The project would contribute substantially to the UAR's balance of payments position through:

(i) an increase (valued at about US$28 million), in its annual exports of cotton and rice, and

(ii) annual savings (estimated at US$12 million) in imports of maize and wheat.

Benefits from increased production of Egyptian clover, which occupies a large part of the crop area in winter, have not been quantified owing to the absence of data relating to yields of this crop before and after drainage.

7.02 At full development the annual gross value of production from the project area is expected to reach about Egyptian £E92 million (US$215 million equivalent), which is about 17% more than present levels. After deducting production costs, the net value of agricultural production would reach £E48 million (US$112 million) 1/, of which more than two-thirds would consist of the value of cotton and rice. This net production would, at full development, represent a direct, annual benefit to the economy of about £E14 million (US$32 million) after deducting project operation and maintenance costs.

7.03 Investment costs were adjusted to remove customs duties. The rate of return to the economy, based on a useful life of 35 years for the installations, would be about 18% (Annex 11 page 1). This analysis does not take into account any indirect benefits of the project, such as the eventual increase in reuse of drainage water for irrigation, and the economic and social impact of preventing further deterioration of one of the UAR's finest assets - the fertile soils of the Lower Nile Delta - which otherwise stand in danger of being ruined by the rising groundwater table and increasing salinity.

VIII. CONCLUSIONS AND RECOMMENDATIONS

8.01 The project is technically sound and of high economic priority for the United Arab Republic. It is considered suitable for an IDA Credit of US$26 million on standard terms.

1/ Details in Annex 11.

8.02 During negotiations assurances were received on the following principal points:

(a) that the formation of the Nile Delta Authority for Tile Drainage Projects had been authorized by Decree, that the Authority had been given the necessary responsibility and control to implement the project, and that the required staff would be made available to the Authority (para. 5.05);

(b) that staff trained under the project training programs would be required to serve the Authority or contractors employed for the project, in the field for which they were trained, for a period of at least two years after completion of such training (para. 5.07);

(c) that the Authority would not undertake any work other than that included in the project until the project has been completed, unless the Association shall first have been satisfied that such work would not affect the prompt and efficient completion of the project (para. 5.07);

(d) that contracts for the supply of equipment would contain provisions for the attendance of qualified technicians experienced in the maintenance and repair of the equipment and who would be available in the UAR for suitable periods (paras. 4.09 and 5.05);

(e) that the terms of sale of imported equipment to local contractors would be acceptable to the Association and that on completion of their use on the project all construction equipment and vehicles obtained by means of the Credit would be used in carrying out similar works (paras. 4.19 and 4.22).

8.03 Agreement was also reached during negotiations on the phasing of construction of power transmission lines and provision of power supplies for pump stations (para. 4.07), on the construction and equipment of maintenance workshops (para. 4.08), on the establishment of project monitoring facilities (para. 5.09), on the establishment of separate project accounts and the transmittal of annual audit reports (para. 4.24), and the recovery of field tile drainage costs (para. 5.12).

8.04 A condition of effectiveness of the Credit would be that the Authority will have employed a firm of consultants acceptable to the Association, and on terms and conditions, as well as terms of reference, approved by the Association, to advise and assist in carrying out the project (para. 5.08).

U.A.R.

NILE DELTA DRAINAGE PROJECT

UNDP PILOT PROJECT FOR DRAINAGE OF IRRIGATED LAND

1. In 1958, the Government of the United Arab Republic asked for the help of the United Nations Special Fund in demonstrating the use of mechanical means of tile-laying in the drainage of irrigated lands in Egypt. The United Nations Special Fund accepted this request and asked the Food and Agriculture Organization to be the Executing Agency. The Plan of Operation was signed by the three parties on December 27, 1960, as follows:-

Special Fund Allocation:		US $ 456,200
consisting of: Special Fund contribution	US $ 428,105	
Government contribution towards local operating costs	US $ 28,095	
Government counterpart contribution in cash		US $ 4,000 equiv.
Government counterpart contribution in kind		US $ 810,000 equiv.
Duration		3 years
Executing Agency		Food and Agriculture Organization of the United Nations
Cooperating Government Agency		Ministry of Public Works United Arab Republic

2. The problem to be solved by this project was to determine, technically and economically, the value of tile drainage under conditions prevailing in the irrigated lands of Egypt. The studies included determination of spacing, depth and type of drains, method of execution of tile drainage, selection of suitable machinery and economic analysis of comparative costs and benefits.

3. Keeping the objectives of the project in mind, the following targets were fixed:

(a) Selection of five pilot areas, 1,500 to 2,000 feddans each, situated in separate localities, and with different soil characteristics prevalent on large areas of land.

(b) Collection of necessary field data and preparation of detailed designs of drainage systems for each of the five pilot areas.

(c) Supply, installation and operation of machinery required for tile-making as well as for tile-laying, including training of local personnel for operation of these machines.

(d) Execution of drainage systems by mechanical methods in four areas and by hand labor in the fifth.

(e) Economic analysis of comparative costs and benefits.

4. As Executing Agency, the Food and Agriculture Organization of the United Nations (FAO) entered into a contract with Netherlands Engineering Consultants (NEDECO) represented by Koninklijke Heidemaatschappij, International Land Development Consultants NV (ILACO) to undertake the field work on its behalf.

5. The field work was started on October 27, 1961 when the first members of the team arrived in Egypt. Initially, five sites for pilot areas were selected, predrainage surveys carried out and the necessary field data collected. Thereafter, the detailed designs of the drainage systems were prepared.

6. All collector drains were constructed by a contractor who used hand labor. In the case of laterals, imported tile-laying machines were assembled on schedule, and training of local operators took place. During this training period, collection of tiles and construction of some collectors went ahead. Mechanical laying of laterals actually began in the first pilot area towards the end of September 1962. Completion of the work in the first pilot area took nine months, a period longer than anticipated. This was due to inadequate experience of operators and also to the initial inertia in organizing repairs, spare parts, special tools and other matters. However, in the second pilot area the work progressed at a satisfactory rate; having started in October 1963, it was completed in February 1964, a period of five months. During the summer months, July through September 1963, no work could be accomplished due to cultivation of rice and cotton. In the meantime, the work in the third area was completed by hand labor as required in the Plan of Operation. Execution of the work in the fourth pilot area was delayed due to lack of tiles. The manufacture of tiles had to be put out to tender and the work in the third pilot area started in the last week of April 1964. Unfortunately, the construction work had to stop on July 15 due to rice and cotton cultivation. As of that date construction of all collectors and nearly half the laterals was completed. Thus, at the completion of the project period, construction of drainage systems was completed in three areas and nearly completed in the fourth.

7. The purpose of the project was largely achieved in developing a design for the drainage system suitable to the conditions prevailing in the Nile Delta, in demonstrating the possibility of mechanical means of tile-laying and in comparing the costs involved in mechanical methods with construc-

tion by hand labor. The actual execution of work in the pilot areas showed clearly the type of difficulties to be expected, such as necessary training of local machine operators, adequate prior preparation for servicing and repairs of machines, ensuring timely supply of tiles and proper scheduling of the working period to avoid any disturbance of the cultivation of cash crops.

8. The yield increases following installation of tile drains have been monitored in the pilot areas and elsewhere in the Delta by the Research Departments of the Ministry of Irrigation, Ministry of Agriculture, and Alexandria and Cairo Universities. These investigations have shown that yield increases, without additional inputs, of at least 20% can be expected in the main crops grown following tile drainage, provided that the drainage systems are maintained in good working condition without blockage by silt.

U.A.R.

NILE DELTA DRAINAGE PROJECT

AGRICULTURE

Agrarian Reform

1. Only 4 % of the area of the UAR is suited to agriculture. The rural population dependent on agriculture amounts to some 18 million, cultivating 6.3 million feddans together with recently reclaimed land of about half a million feddans, which is not yet fully settled.

2. Prior to 1952, land owners possessing more than 100 feddans numbered 5,000 and owned 1-1/2 million feddans or about 25% of the cultivated area. Most land owners were absentee proprietors and rented out their holdings. As a result of the competition for land amongst farmers, rents were high. In consequence, the Agrarian Reform Law was promulgated in 1952 which fixed the upper limit on land owned by an individual at 200 feddans, which ceiling was subseqnently reduced to 100 feddans, when the law was amended in 1961. Land in excess of the above limit was distributed to landless workers and small tenants. The law further regulated the landlord/tenant relationship by fixing an upper limit on rent at seven times the land tax, which resulted in reducing rents by more than 50%. The tenants' rights were further protected by fixing a minimum period of tenancy at 3 years and the provision of minimum wages for agricultural workers. Farmers Cooperative Societies were set up to provide agricultural credit, farm inputs and supplies, marketing facilities and other services. To date, about 760,000 feddans have been distributed amongst some 300,000 families. Incomes of peasant farmers have risen markedly and the wages of agricultural laborers have almost doubled in the last five years. Tenants have gained security of tenure: they can only be evicted for failure to pay rent.

Cooperative Societies and Agricultural Credit

3. The General Cooperative Organization supervises the technical and administrative operations of Farmers Cooperative Societies while the Agricultural Credit Organization supervises the Agricultural Credit Banks providing the Societies with credit and auditing personnel. Agricultural Credit Banks have been set up at Governorate, district and village levels and the Farmers Cooperative in each village (there are 4,500 such Cooperatives) obtain finance from the district and village credit banks for the purchase of seeds, pesticides and fertilizers, to be issued to farmers in kind and cash advances to finance wages for cultivation and harvesting as well as for livestock and fodder. Both the Agricultural Cooperative and Credit Organizations are responsible to the Minister of Agriculture and Agrarian Reform. No mortgage on the farmer's land is

required; the crop is the security used for the loan. Loans are made on a per feddan basis by crops. The authorized rates are given in the table as follows:

LOAN RATES PER FEDDAN BY CROP

	Cotton £.E.	Rice £.E.	Maize £.E.	Wheat £.E.
In Cash				
For services	5.000	4.000	-	-
For harvesting	5.000	-	-	-
Total	10.000	4.000	-	-
In Kind				
For seeds	1.500	2.665	1.180	3.670
For fertilizers	7.850	6.550	8.450	7.150
For pesticides	4.000	-	2.000	1.000
Total	13.350	9.215	11.630	11.820
Grand Total	23.350	13.215	11.630	11.820

Livestock loans are made for varying terms depending on the type of livestock being purchased. The amount of any one loan is generally not more than two-thirds of the purchase price. Additional monthly amounts of £.E.2-3 are allowed for a period of 6-12 months following acquisition for the purhcase of fodder.

4. In 1967, credits to the agricultural sector by the Cooperatives and Credit Banks amounted to about £.E. 80 m, (see Table hereunder):

SHORT TERM LOANS TO FARMERS

Year	Seed	Loans in Kind for Fertilizers	Loans in Kind for Pesticides	Cash Loans for Services	Total
		----(in '000 £.Es)----			
1964/65	3,032	25,328	6,041	24,257	58,658
1965/66	4,633	34,742	7,860	24,092	71,327
1966/67	5,859	38,049	9,699	25,509	79,116

It has been estimated by the authorities that over the next three years additional credit will be required in the region of £.E. 20 million annually.

Marketing

5. The producer sells his seed cotton to his village cooperative who in turn supply the ginneries operated by the Egyptian Cotton General Organization, which is a holding organization for six cotton export, five ginning and one export baling companies. The ginning equipment is reported to be several decades old and it is planned to re-equip and resite them commencing with 23 factories over five years. This was planned to begin two years ago but has been deferred because of the emergency. There are 100 ginneries of which 75 are presently ginning 1,575,000 m tons of seed cotton. The existing ginning capacity is 2.0 to 2.4 million m tons; there is therefore adequate reserve capacity. In general, the distribution of the ginneries throughout the cotton producing areas is poor. Serving the Delta, there are 63 ginneries with a total of 3,550 gins. Storage of seed cotton is in bags in the open and offers no problem in Egypt because of the lack of rainfall.

6. A farmer growing two or less than two feddans of rice must by law sell 1.25 m tons of the paddy harvested per feddan to the Government and if he grows more than two feddans, the compulsory delivery is increased to 1.5 m tons. The remainder of the harvest can be sold to the Government, or on the free market, or retained for home consumption. The price of paddy is fixed annually. There is reportedly adequate milling capacity. However, the mills are old and are liable to produce rice not up to the specification required for Western markets. The result is that the bulk of the rice is sold as cargo rice. The production of rice for export is being encouraged by fixing high retail prices for local consumption. The effort has been successful as judged by the fact that rice exports in 1967 amounted to some 700,000 m tons compared with less than half this tonnage prior to 1960. The sale of paddy to the Government is through the Farmers Cooperative.

7. The producer of maize is able to sell his produce on the free market. However, the Cooperative is prepared to buy any quantity of maize at prices announced annually.

8. The producers of wheat and beans are required to surrender a percentage, which varies from area to area, of his harvest to the Government, through his Cooperative. Present average quotas are 300 kg per feddan for wheat and 310 kg per feddan for beans. The remainder of these crops can be sold to the Government, on the free market or retained for food.

Consolidation of Land Use

9. The long established and efficient crop rotation used in the Delta, to which the farmers are accustomed, leads to the inter-mixing of different crops in small scattered areas which, in turn, affects the efficiency of cultivation, pest control and marketing. With a view to

to improving this situation on peasant farms which vary in size from less than a feddan upwards, the consolidation of land use and organization of a crop rotation project was introduced in the first five-year development plan, 1960-1965. This provided for the consolidation of crop areas in village into units of not less than 20 feddans. This consolidation was carried out by the Farmers Cooperative Society in the village with the consent and cooperation of its members. The project commenced with cotton and has subsequently been extended to other crops such as rice, maize, onions and sugar-cane. The consolidation has been especially valuable in pest control operations. It also enables tractor ploughing to be undertaken as well as mechanical threshing and improves the efficiency of irrigation and marketing.

Supporting Services

10. The Ministry of Agriculture and Agrarian Reform is equipped to provide the research and extension services required for Egyptian agriculture. Besides the main research station at Giza there are four crop research stations in the country as well as four livestock research stations. The varieties in use for all major crops namely cotton, rice, maize and wheat are the products of the research services. Work is carried out on the agronomy of the various crops, fertilizer requirements, pest and disease control etc. There is an efficient soil survey department and in general the Ministry is well equipped with research personnel and facilities to meet the requirements of the agriculture of the country.

11. An important aspect of the work of the Ministry is its extension operations which cover the whole country. The organization of this service at the Governorate, district and village level is illustrated in Annex 2 page 9. The staff is adequately qualified and, at the village level, the extension agent is quite frequently a graduate. The following table illustrates the staffing in five of the Governorates in which the project is situated and the spread of the staff down to the village level. The staffing intensity appears to range between one officer per 340 to 550 cultivated feddans, with a mean of about 400 feddans.

	PROVINCE				
	Beheira	Gharbiya	Minufiya	Qalyubiya	Sharqiya
No. of Provincial Staff	108	100	105	145	122
No. of District Staff	166	126	109	106	154
No. of Village Staff	695	184	395	243	749
Total	969	710	609	494	1,025

12. The extension staff at Governorate, district and village levels is short of suitable transport. Provision is made to supply each of the seven Governorate offices, as well as each of the 23 district offices in which the project is located, with one vehicle. Ten vans equipped with visual aid equipment are also allowed for, and 700 motorcycles would be provided for use of village agents and sub-agents.

Cropping Patterns and Rotations

13. The cropping pattern in the project area is based on a long established and efficient crop rotation and results in a cropping intensity of about 180%. The area under cotton, the major cash crop, is limited by decree to one-third of the arable area cultivated in any one summer. The cotton crop is preceded by a winter fallow or a catch crop of clover from which only one or two cuttings are obtained as the cotton crop is normally commenced in March and extends through to September. The remaining two-thirds is planted to winter crops, the most important of which are clover, alfalfa, beans and wheat. Other winter crops include barley, flax, potatoes, tomatoes and vegetables. These are generally followed by summer crops of maize and rice, maize being a main summer crop in all Governorates while irrigated rice is very limited in the southern part of the project area compared with the northern section, where it currently covers some 40% of arable acreage. Other summer crops are groundnuts, potatoes, tomatoes, vegetables etc. Orchard and fruit crops such as bananas and citrus, can be planted where drainage is adequate. However, it would be preferable to concentrate any expansion of orchard crops, such as citrus, olives, mangoes etc. in the reclaimed areas and along the fringes of the Delta where they have been proved to grow satisfactorily.

14. Livestock for draught purposes as well as for meat and milk is of considerable importance to the farmers in the project area. The majority of the land in the Delta is cultivated by water buffalo and oxen. Donkeys, horses and camels are used also for light cultivation and transport. The extensive areas of Egyptian clover cultivated throughout the Delta in winter are utilized for livestock feeding while cereal straws are used for summer feeding supplemented with cotton seed cake, cereals and beans. The older leaves of the maize crop are stripped and used for fodder during the summer.

Seed Production and Storage

15. Improved varieties of cotton, rice and wheat and hybrid maize seed are produced by the Research Stations of the Ministry of Agriculture. Once the varieties are released their dissemination to the farmers as well as the production of pure line seed becomes the responsibility of the extension service. In the case of hybrid seed, the research stations grow several thousand feddans for release to the farming community. A separate section under a Deputy Director General of the Extension Services, in each Governorate, is directly responsible for seed production, processing and

storage. Hybrid maize seed production should be expanded owing to the increased yields that can be obtained by its use. The projected benefit from maize production is based on the assumption that hybrid maize seed would be grown throughout the project area; this will involve a considerable increase in the annual production of hybrid maize seed.

16. Owing to the dry climate of Egypt, the storage of seed cotton and cereals in bags in the open offers no problem. The Government has large tower silos in which imported cereals are stored.

Fertilizers

17. Farmers use fertilizers in addition to farmyard manure. Egypt produces nitrogenous and phosphatic fertilizers which are the two main fertilizers required. The quantity of potassic fertilizers used is small, only amounting to a few thousand m tons. The production of nitrogenous fertilizers within the country, relative to total consumption, has been increasing steadily from just over 22% in 1959-60 to 63% in 1966-67. The consumption of nitrogenous fertilizers is presently 1.7 million m tons. The production of superphosphates is now practically equal to consumption, which is in the vicinity of 285,000 m tons. Fertilizers are available to the farming community on credit from their Cooperative Society and are supplied in kind in accordance with the recommendations of the Extension Services for the various crops. Farmers appeared to have no difficulty in procuring their requirements and the credit to finance them.

Crop Varieties and Yields

Cotton:

The main commercial varieties of cotton being grown in Egypt are as follows:

Type	Commercial Varieties	New Commercial Varieties
Extra Long Staple	Giza 45 Karnak 1/ Menoufi	Giza 59 Giza 68 Giza 70 2/
Medium Long Staple	Giza 47 1/ Giza 30 1/ Dandara	Giza 71 2/ Giza 67 Giza 69
Medium Staple	Ashmouni	Giza 66

1/ Being phased out of production

2/ Promising varieties not yet released.

18. Farmers in areas that have been tile drained reported yield increases of seed cotton of the order of 315-472 kg per feddan, with yields of the order of 620-945 kg before drainage. In general, the yields of Egyptian medium long staple cottons are higher than that of extra long staple and this was borne out by an analysis of area and production of cotton varieties in 19 of the 23 districts in which the Project is situated, which figures were obtained from the Ministry of Agriculture and Agrarian Reform. The weighted averages for these districts for 1962/67 indicate a decline in seed cotton yields as illustrated below:

	1962,	1963,	1964,	1965,	1966,	1967
Mean Yield per feddan in m tons	0.90	0.91	0.95	0.81	0.68	0.74

19. For purposes of calculating the benefits accruing from the Project mean yields prior to implementation were taken of 954 kg of seed cotton per feddan (353 kg lint) for medium long staple cottons and 738 kg (273 kg lint) for extra long staple. The drainage and salinization patterns in the project area (see Annex 2) were such that it was decided to assume that cotton yields would reach their maximum increase, on average, in the third year following the completion of tile drainage and would be of the order of 20%.

Rice

20. The local rice variety Nahda is grown on about 75% of the area cultivated in this crop and has been the standard variety for some 20 years. This variety is reported to be showing some signs of deterioration and is to be replaced by Giza 170 which outyields Nahda on average, by about 150 kg per feddan of paddy. The variety Giza 159 is similar in yield to Nahda under normal conditions but outyields Nahda in saline areas. The variety Arabi is also grown.

21. The weighted average yield of paddy in 19 of the 23 districts previously mentioned is as follows:

	1962,	1963,	1964,	1965,	1966,	1967
Mean Yield per feddan in m tons	2.73	2.41	2.09	2.11	2.05	2.25

For purposes of the project, present yields have been estimated to be 2.5 m tons of paddy per feddan and from the third year onwards 3.0 m tons.

Maize

22. The Ministry of Agriculture and Agrarian Reform has been producing Hybrid maize seed and currently there are three commercial hybrids in use namely DC51, DC186,and DC175. These outyield the main long established variety American Early by about 25%. The latter variety is grown on some 25% of the annual area planted to maize. A number of other local varieties are grown; their yields are inferior to that of American Early by about 15%.

23. The average yields of local varieties are of the order of 0.77 m tons per feddan, while that of American Early is 1.26 m tons and the hybrids 1.5 m tons. For purposes of the project, present yields are taken as 1.54 m tons per feddan, increasing to 1.95 m tons in the third year and subsequent years after drainage. It is assumed that only hybrid maize will be planted in the project area.

Wheat

24. Wheat varieties are Giza 155 and Giza 144. An improved variety Giza 156 has not yet been released. These varieties are reputed to be capable of yields of up to 2 m tons per feddan under research station conditions. Mexican wheat has not equalled in yield the standard wheat varieties grown in Egypt and is being used in the breeding program.

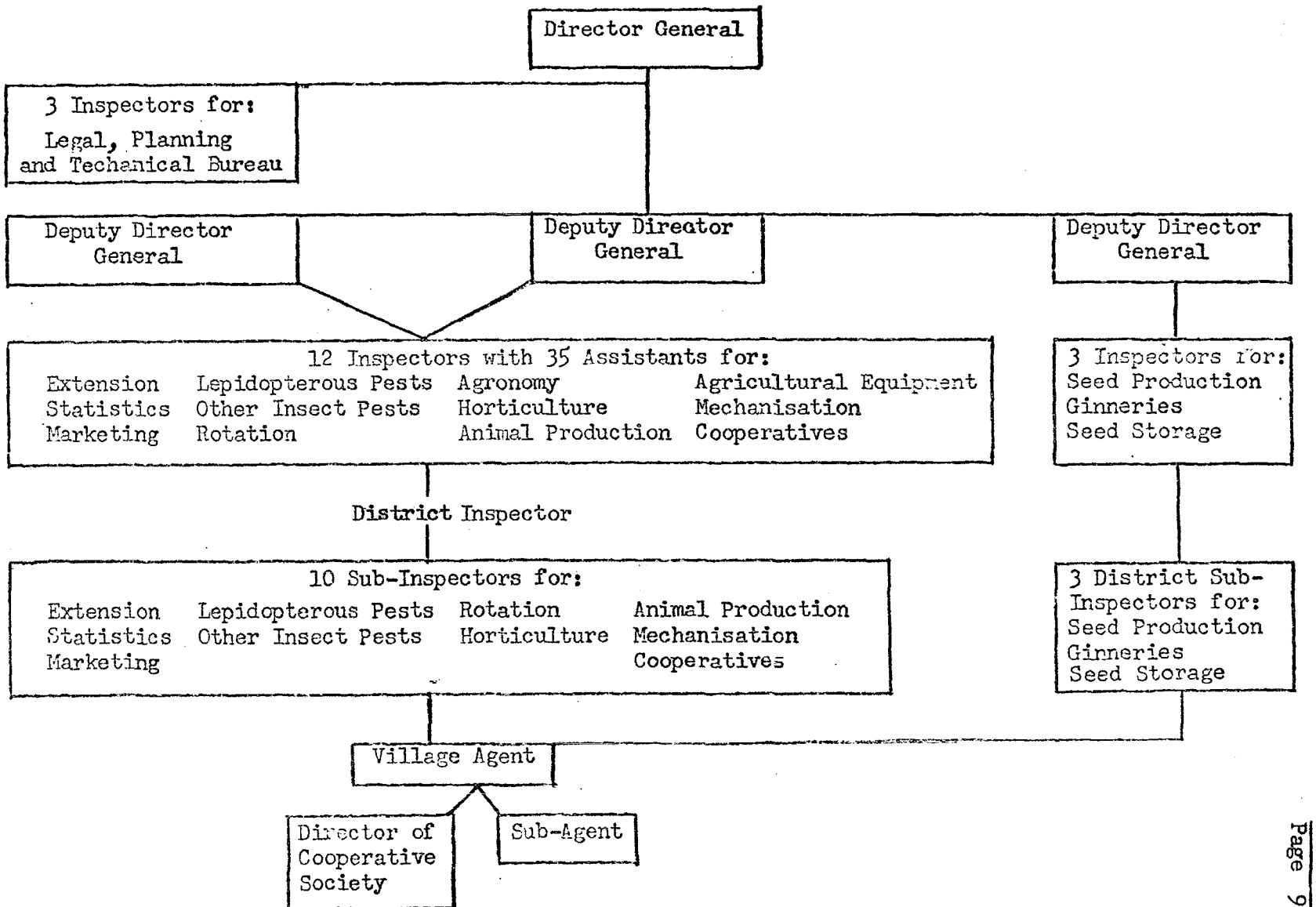
25. The weighted average yields of wheat in 19 of the 23 districts previously mentioned are as follows:

	1962,	1963,	1964,	1965,	1966,	1967
Mean Yield per feddan in m tons	1.10	1.14	1.19	1.05	1.15	1.00

For the purposes of the project, present yields have been estimated to be 1.12 m tons per feddan increasing to 1.35 m tons in the third and subsequent years after tile drainage.

October 14, 1969

ORGANIZATION OF THE AGRICULTURAL EXTENSION SERVICES IN EACH GOVERNORATE



October 14, 1969

U.A.R.

NILE DELTA DRAINAGE PROJECT

SOILS

General

1. The soils of the project area are recent alluviums, formed of material from the Abyssinian plateau brought down by the Nile river during flood. The are typical heavy deltaic alluviums with an average depth of 9-10 m and overlie deposits of varying or unknown thickness of water-bearing sands and gravels. The soils in the southern part of the Delta are homogenous clays, while in the north they become heterogenous, with either the comparatively lighter soils alternating with heavy clays, or the two types are stratified. A compressed, impervious peat layer exists at a depth of about 6 m in the north of the Delta.

2. The Soil Survey Department of the Ministry of Agriculture has for some years been conducting a soil classification of the cultivated lands of Egypt, and maps are available showing soil texture, drainage classes, depth of water-table and salinity. The project is spread over seven of the Governorates in the Delta namely, Beheira, Kafr El-Sheikk, Gharbiya, Daqahliya, Minufiya, Sharqiya, and Qalubiya. The area of cultivated land in each of the above Governorates is given in the table at the end of this Annex.

Texture

3. In general, the soils consist of medium heavy to heavy clay alluviums. In the southern part of the project area, the surface one meter of soil consists of 75-85% of fine silt and clay and 25-15% of very fine sand with very little coarse sand. In the northern part of the area, slightly heavier clays may be expected and a greater number of sandy layers exist in the profiles.

Structure

4. The structure of the heavy Nile alluvium is subangular and blocky in the arable layer. In its natural condition, the fresh deposits are angular, blocky with very sharp edges. With increasing depth the soil is macro- and micro-layered. When saturated, the soils often become structureless and, when dry, extremely hard. They are brown clays merging at depth into bluish grey.

Permeability

5. The permeability of the soil varies from less than 10 cm per day in most of the heavy soils, to 0.5 m per day or sometimes considerably more in the lighter soils. Some very sandy profiles may have a permeability of several meters per day. The following simplified relation may be taken as a

guideline; clay percentages over 50, between 40-50, between 30-40 and less than 25, results in average permeabilities of 0.1, 0.25, and 0.5, and 1 meter per day respectively. In homogenous clay profiles, the permeability tends to decrease with depth. In the arable layer and in the root zone values of 2 m per day have been measured occasionally, which decrease rather abruptly to values below 0.10 m per day at depths greater than 1 m.

Salinity and Alkalinity

6. Very little detailed information on salinity throughout the project area is available. Observations made during the FAO/UNDP Pilot Project for the Drainage of Irrigated Land, which was located in the project area, indicated that 30% to 80% (or sometimes even more) of the land has a salinity in the root zone exceeding 4 mmhos/cm. On this land, only salt tolerant crops will yield satisfactorily. There will be a definite improvement of crop yields following desalinization. For salt sensitive crops, such as maize, these yield increases may be more than 50% for the most saline part of the area.

7. Very little of the project is out of cultivation due to salinization and this is located in the northern part of the project area. The Soil Survey Department of the Ministry of Agriculture has over the past six years completed land classification maps of the Delta based on four salinity groups namely:

(a) Non-saline soils, less than 4 mmhos/cm
(b) Moderately saline soils, 4-8 mmhos/cm
(c) Highly saline soils, 8-16 mmhos/cm
(d) Very high saline soils, more than 16 mmhos/cm

The surveys on which the maps for the project area have been based have been carried out over a period of about six years. When comparing the degree of salinity between areas, care has to be taken, due to this time lapse and the continuing increase in salinity of the Delta. However, the maps clearly show that the southern part of the project area is much less saline than the northern section.

8. The Soil Survey Department considers that alkalinity affects only 5-10% of the land in the Delta. No alkalinity problem is expected in the project area.

9. Complete desalinization of the top 0.5 m of soil in the project area is expected to take 3 to 4 years, with most rapid leaching taking place immediately following the completion of the drainage. In some restricted, very saline areas, the desalinization will take more than 4 years. The proposed drainage system within the project will be able to reduce all salinity to a level where all crops can be grown without any depression of yield due to salinity or inadequate drainage.

CLASSIFICATION OF CULTIVATED LAND IN THE GOVERNORATES

	Classes of Cultivated Land				Total Cultivated Area	Total Area of Governorate
	First	Second	Third	Fourth		
Beheira and Alexandria, feddans	6,476	138,552	463,276	118,317	726,621	1,147,898
-- ditto -- %	0.56	12.07	40.36	10.31	63.30	100
Kafr El-Sheikk, feddans	--	63,007	296,469	69,719	429,195	817,671
-- ditto -- %	--	7.73	36.24	8.52	52.49	100
Gharbiya 1/, feddans	18,427	137,259	78,082	11,500	245,268	271,868
-- ditto -- %	6.78	50.49	28.72	4.24	90.22	100
Daqahliya 2/, feddans	3,014	102,139	226,933	43,236	375,322	522,908
-- ditto -- %	0.58	19.53	43.40	8.27	71.78	100
Manufiya, feddans	75.375	190,050	49,660	10,510	325,595	365,561
-- ditto -- %	20.61	51.99	13.58	2.88	89.06	100
Sharquiya 3/, feddans	13,058	172,437	189,576	35,704	410,775	492,167
-- ditto -- %	2.65	35.04	38.52	7.25	83.46	100
Qalyubiya, feddans	64,171	85,511	38,365	5,534	193,581	244,362
-- ditto -- %	28.60	38.11	17.1	2.47	86.28	100
Total, feddans	180,521	888,955	1,342,361	294,520	2,706,357	3,862,435
Total, %	4.7	23.0	34.8	7.6	70.1	100

1/ Except districts of El Mehallat & Somanoud.

2/ Except districts of Aga, Senbelawni, Mansoura and Nit Ghamu.

3/ Except districts of Menia El Kanh, Hosenia and Fahous.

April 18, 1969

U.A.R.

NILE DELTA DRAINAGE PROJECT

GROUNDWATER REGIME AND PROJECT DRAINAGE CRITERIA

Groundwater and Salt Accumulation

1. Prior to closure of the Aswan High Dam in 1964, the average volume of water which passed Cairo annually in the Nile was about 69,000 Mm^3 (56 M ac-ft) of which up to about 40,000 Mm^3 (32 M ac-ft) was diverted at the barrages in the Delta for irrigation of an area of 3.8 million acres. Before the annual flood was controlled by the High Dam, about 10 million tons of salt were transported past Cairo each year, of which at least 6 million tons were deposited in the Delta.

2. The capacity of the artificial drainage system provided in the Delta in the past has been insufficient to prevent disequilibrium arising in the groundwater aquifer. As a result there has been a gradual rise in the mean annual level of the water table in the southern Delta during the last half-century, and an increase in the upward pressure of the groundwater (piezometric pressure) under the clay soil cap in the north. In Delta areas which do not have tile drainage a seasonal rise of the water table occurs in winter, often to within 60 cm from the surface. In this season, Egyptian clover and wheat are grown and, being shallow rooted, they are not so directly affected by the rise. Perennial crops and orchards are adversely influenced, however, in some inadequately drained areas where the winter rise is excessive.

3. In midsummer the evapo-transpiration rate is such that throughout most of the Delta the soil moisture level is reduced to well below saturation point, down to a depth of 1.50 m or more beneath the surface, except during the two or three days after irrigation of crops other than rice. The water table is therefore at an average depth which is satisfactory for most crops in midsummer, including the varieties of cotton developed and grown in the Delta. In early and late summer, however, the water table in inadequately drained areas is at intermediate depths which are too shallow for the optimum development of the rooting systems of cotton or maize.

4. Following the introduction of controlled perennial irrigation, the increase in total quantity of irrigation water diverted and applied annually resulted in a comparable need for drainage water to be removed from the area. Although the irrigated lands are underlain at depth by very permeable strata, the overlying soil horizons are of comparatively low permeability, and give rise to a rather complex natural drainage system. The characteristics of the soil and the shallow slopes of the topography have not permitted the natural drainage to cope with the drainage demand imposed. The combined surface drainage and groundwater flows leaving the Delta have for some decades been insufficient to remove these salts in solution from the soil at the same rate at which they were brought into the area in the irrigation water. This imbalance has caused a serious increase in the quantities of salts

contained in the crop root zone throughout the irrigated areas of the Delta.

5. No systematically observed data on groundwater quality in the project area are available, apart from those mentioned in the report on the FAO/UNDP Pilot Project for Drainage of Irrigated Lands. These indicate that groundwater salinity increases towards the north, where up to 50,000 ppm of salts may be expected. The drainage effluent in these northern areas cannot be reused for irrigation, even when diluted.

Effect of Depth to Water Table on Crop Yields

6. It is extremely difficult to quantify the permissible groundwater depth for optimum production of various crops grown in the Nile Delta with any accuracy. In recent years some results have been obtained in Egypt from soil-filled tank experiments at Bahtim in the project area. Although it is doubtful whether all other factors affecting yields have been eliminated, the average results over the years 1965-68 may be used as a guideline. These show that maximum crop yields were obtained in typically heavy soil where depth from ground level to water table was stabilized as follows:

Cotton	- 1.30 m
Egyptian clover	- 1.0 m
Wheat	- 1.10 m
Maize	- 1.15 m

7. Very limited data are available on the direct effect of a fluctuating, shallow water table (as distinct from the effect of salinity) on crop yields, or on the effect of varying water table depths during the growing season. It may reasonably be assumed that early in the growing period and for short periods after each irrigation, higher non-saline water tables will not harmfully affect the yields, unless the root zones are waterlogged continuously for several days, in which case the affected roots of most dry-land crops, including cotton, will rot.

8. Rice is an important crop in the project area. About 550,000 feddans, or half the project area, are included in the so-called rice zone, which receives a considerably higher water supply at more frequent intervals than for dry-foot crops. In this area in summer, 30% to 60% of the land is inundated for rice.

9. The rice crop is at present inadequately drained by a simple surface drainage system without any appreciable subsurface drainage flow. Information obtained by the mission indicated that the rice crop itself also benefited from subsurface drainage and leaching resulting from the construction of tile drains, and that yield increase of up to 25% were obtained. Tile drainage leads to yield increases due to the removal of accumulated toxic elements in the root zone.

10. Land in the rice zone should also be provided with tile drains, to improve the water table control for dry-land summer crops and all winter crops, as well as to raise the yields of rice.

Project Criteria for Water Table Depth Control

11. Although only limited data on the seasonal and annual variation of the depth to water table throughout the project area are available, these data, and general knowledge of the soil hydrology of the area, indicate that during winter the water table rises practically to the surface after each irrigation application throughout the Delta. In summer, the water table is drawn down everywhere except in the rice zone, because of the high evaporation rate. It may reasonably be assumed that the whole project area is in need of water table control, since the depths to groundwater tables everywhere are significantly less than those mentioned in paragraph 1 above for several months of the year.

12. In addition, the accumulated salts can only be removed by leaching, which requires the water table to be lowered to a depth significantly below the root zone.

13. After adequate water table control has been achieved in the Delta areas, no special consideration need then be given to the salinization hazard. The cropping pattern is so intensive (averaging 180%) that the irrigation periods and associated leaching effect virtually cover all months of the year, thereby eliminating periods of salt accumulation by capillary rise except in the zones of seepage flows near canals and barrage ponds.

14. The design procedure to be adopted in the project would be the same as that used in the FAO/UNDP pilot drainage areas. This aims at controlling the depth to water table at about one meter midway between the field drains, with a drainage discharge of 1 mm/day, less the anticipated natural drainage, which varies from minus ½ mm/day (upward seepage) in the north, to ½ mm/day (down flow) in the south of the Delta. Consistent monitoring of the pilot areas has shown that the minimum required depth to water table of one meter is actually obtained in from one to five days, depending upon the season. This is a satisfactory result, and the established design procedure may safely be continued in the project.

15. The proposed criteria for water table control will be appropriate for the agricultural conditions in the project area during the effective life of the drainage system, which is considered to be between 30 and 40 years.

Project Criteria for Subsurface Drainage Design

16. The design criteria for the project are based on those recommended by the FAO/UNDP report which have proved satisfactory. The mission agreed that the estimated variation in field drain spacing would be from 40 to 60 m, and that the average spacing for the project area to be used for the cost calculations should be 50 m, taking into account the spacing for rice areas.

17. With regard to the question of increased drain spacing for rice areas to reduce the water losses during rice irrigation, there is at present no better solution than the one recommended by the FAO report, i.e. to increase the spacing by an arbitrary figure of 20%. It is important that the

Drainage Research Bureau concentrates on this problem so that this solution can be verified and if necessary modified during the construction period of the project.

Tile Drainage Construction Criteria

18. It is proposed in the project feasibility report that the depth of the lateral drains should be maintained at 1.5 m at the collector. This is reasonable since no saving in cost or other advantage would result from increased lateral depth.

19. In the FAO report it is claimed that, with proper construction under adequate supervision, no gravel filter around the tiles is required in the heavy soils and that this would result in a 15% reduction in cost per meter. During the mission's visit to some of the FAO pilot areas, it appeared that the drains without gravel were running well. However, since the scattered lighter soils in the project area would need a gravel filter around the drains, and since it provides a general insurance for the maintenance of the system, it would be advisable to cover all drains in the project area with a gravel filter, as proposed in the feasibility report. In the cost estimate, an allowance of LE 0.03 per m has therefore been included. Specifications should require separate deposition of the gravel in the drain trench after the tiles are laid, and only after the tile lines have been inspected.

20. The diameter of the field drains is 10 cm, which is far larger than the hydraulic design requires. However, as this provides a considerable safety margin against blockage due to silt, it would be advisable to use this diameter for the present Egyptian conditions. The Drainage Research Bureau should be required to investigate whether reductions in the diameter (and thereby the cost) would be justified in future projects.

21. In general there is a tendency to overdesign tile drainage systems in Egypt to compensate for shortcomings in their construction. To reduce these shortcomings field supervision would have to be intensified by providing one engineer per 5,000 feddans per year from the Ministry instead of one per 8,000 feddans of drainage installed per year as at present. The mission considered this to be an essential requirement.

22. Although the necessity for pre-drainage field surveys and design facilities are recognized in the feasibility report, there is at present a severe shortage of trained personnel available for carrying out this work. A properly staffed drainage construction training center for engineers and technicians will be essential to overcome this shortage, and is provided for in the project.

Drain Discharge Capacities

23. The design discharge capacities of the collector drains which are part of the field drainage system are to be based on 8 m^3/feddan/day for dry-land crop areas and 16 m^3/feddan/day for rice areas. They include an

adequate safety margin to allow for a decrease in hydraulic cross-sections through silting in. These capacities and the consequent areas served by the various diameters as mentioned in the feasibility report are those recommended by the FAO report.

24. The proposed peak design capacities for the project main drains vary from 7 m^3/feddan/day to 30 m^3/feddan/day. These are generally of the same order as the recommendations in the FAO/UNDP pilot area report, with the exception of the highest discharges to be provided for particularly low lying areas. The design capacity are acceptable even though the proposed drainage duties are somewhat lower than comparable peak discharges measured at existing pump stations (see paragraph 26).

25. Under existing conditions, waste surface irrigation flows add considerably to drainage quantities, especially in rice areas. With the development of drainage, it will be important for the irrigation system to be operated with a view to keeping losses to a minimum, not only to reduce wastage but also to prevent overloading of the drainage pump stations.

Project Pump Station Capacities

26. The pump station capacities proposed include at least one standby unit, and have an installed capacity which exceeds the design peak discharge by about 40%. This makes allowance for past experience of frequent lengthy breakdowns, and lack of manufacturer's service and spares.

27. Since the designed drainage duties are considered to be rather low, the actual over-capacity of the stations will be less than 40% and are acceptable. Particular attention will have to be paid to the establishment of maintenance routines and spares availability for the project pump station.

Possibilities for Vertical Drainage by Tubewells

28. Observations and investigations on vertical drainage in the Delta are insufficient to determine its technical and economic feasibility. The available data, however, indicate that groundwater pumping is not very effective in lowering the phreatic water table in the uppermost clay layer. The collection of more information on vertical drainage is urgently needed, though studies and investigations will take several years to complete.

29. An important additional advantage of vertical drainage research is that data on the possibility of groundwater development for additional irrigation supplies will also be collected. With a fully integrated use of groundwater and surface water in the zones with usable deep groundwater, vertical drainage may ultimately prove to be a better solution than tile drainage. This, however, will only be applicable to the southern part of the project area, as in the northern part groundwater will be too saline to reuse, and moreover groundwater pumping may induce sea water intrusion into the aquifer.

30. Vertical drainage, where practicable, will involve costs per feddan which would be comparable to those for tile drainage. Its feasibility will depend on consideration of the additional data to be collected, and on the possibility of reusing the drainage effluent. As there will be no demand for additional irrigation supplies for a long period after completion of the High Dam, vertical drainage is not considered to be a viable alternative to the method proposed in the present project. For the southern part of the project it may be possible that after the drainage system has depreciated it may then be replaced by a vertical drainage system.

Effect of Control by Aswan High Dam

31. The advent of complete control of the flow in the Nile downstream of the High Dam has resulted in considerable changes in the regime of the river and its branches in the Delta. The annual flood will now be impounded in Lake Nasser, and the high discharges which were experienced in the Rosetta and Damietta branches during September and October will no longer occur except during two or three years in a century. The Rosetta branch will act as a drain for most of the time, and areas adjacent to it will benefit from the drainage effect which can be expected to affect lands within about 1 km on either side. The Damietta branch will continue to act as a carrier for supplies to the Zifta Barrage, and so the drainage benefit will not apply to it. Neither branches will however contribute to the influx to the groundwater which used to take place from these, mainly during the flood season. In addition, seepage losses from the Delta Barrage pond to the groundwater aquifer will be reduced, since the average pond level will be lower and the level during September and October will be several meters lower than previously. These factors will reduce the influx to the groundwater, so reducing the drainage problem slightly. The canal losses in the Delta will, however, probably be increased, since the silt content of the irrigation supplies is now much lower than previously, and the self-sealing effect will be reduced.

32. The deep aquifer underlying the bed of the Nile is a major lateral contributor to groundwater influx in the extreme southern part of the Delta, and there are indications that its piezometric pressure has dropped since the elimination of the flood season in 1965. It should be borne in mind, however, that this lateral contribution is probably very minor in comparison with the vertical component of influx from percolation through the root zone. In general, the variations in the groundwater regime brought about by the commissioning of the High Dam will not significantly affect the design criteria for groundwater control in the project area.

U.A.R.

NILE DELTA DRAINAGE PROJECT

DESCRIPTION OF WORKS

Location

1. The existing sub-surface drainage system in the Nile Delta includes about 360,000 feddans of irrigated land between Cairo and Tanta in which tile field drains have been successfully installed. The proposed project would consist of the installation of tile drains in a further 950,000 feddans in 17 adjacent catchment areas in the Delta and the provision of disposal arrangements for the effluent from these catchments into the existing system of channels, as shown on the Map. From 11 of these catchments which vary in size from 24,000 to 90,000 feddans drainage flows would be pumped from existing open drains, suitably remodelled, either into irrigation canals for re-use, or into main drains flowing to sea outfalls on the Mediterranean coast. In the remaining 6 catchments, totalling 313,000 feddans the land levels are sufficiently high to permit drainage flow by gravity into main channels discharging into other systems or to sea outfalls.

2. Six of the catchment areas and five of the pump station sites are located in the western part of the Delta, lying on the left bank of the Rosetta Branch of the Nile in the Western Delta Drainage Inspectorate. Seven of the catchments and five of the pump station sites are situated in between the Rosetta and Damietta Branches and are in the Central Delta Drainage Inspectorate, while four of the catchments and one pump station site lie on the right bank of the Damietta Branch on the Eastern Delta Drainage Inspectorate.

Existing Drainage Facilities

3. The drainage facilities in the project area presently consist almost entirely of open branch drains which are from 0.5 to 1.5 m deep and spaced at about 2 km or more apart, running into main drains which are about 2 m deep. Except in the tile drained area referred to in para.1, farm drainage consists of narrow open ditches which are frequently too shallow to have any sub-surface drainage effect. They discharge into the branch drains in which water is often ponded up, due to inadequate fall and insufficient pumping capacity at their lower end. In this condition they are more likely to contribute to a high water table than to prevent it. The branch drains are in most cases of insufficient depth to receive tile collector drains.

4. The existing drainage system has evolved over 60 years or more and was based largely on natural drainage channels. Pump stations, mostly diesel-engined, were first installed before World War I and were extended over several decades. In many instances the effective life of the original

stations is at an end, and several have been replaced recently by electrically driven pumps, including some of the main outfall pump stations near the coast.

5. Between 1961 and 1964, a small-scale pilot project[1/] was implemented in the Nile Valley to test and demonstrate tile drainage methods. The project was executed by the FAO as agents for UNDP and financed by the UNSF and the Government of the UAR. It included five areas of between 1,300 and 2,250 feddans in the Delta. Most of the work was supervised by FAO's contractors, ILACO of Holland, and the remainder by the Drainage Project Office of the Ministry of Public Works, who have since monitored the effects. The results have been very satisfactory.

Tile Field Drains Installation

6. The basic element of the proposed project would be the network of the tile field drains or laterals, using very similar methods to those employed in the FAO/UNDP pilot project. Tile drains would be laid at an average depth of about 1.40 m below ground level in the irrigated area to be drained. The lines of drain laterals would consist of butt-joined 10 cm diameter pipes which would be laid to a continuous slight fall, and which would collect groundwater or excess, percolated irrigation water and discharge it either directly into a piped collector drain or into a manhole on the collector line. The pipes would be made of fine concrete and would be cast in semi-automatic electrically operated moulds at one main location and also, in some cases, in the vicinity of the installation work. Altogether about 270 M 10 cm pipes of 30 cm length would be required.

7. The laterals which would be about 200 m long, would be laid parallel to each other at spacings determined from field surveys of the permeability of the soil to be drained and the type of crop to be grown. The average spacing between laterals in the project area would be about 50 m and the total length of lateral lines would be of the order of 82,000 km. A layer of fine gravel would be poured to cover the pipes after they are laid, to act partly as a filter to prevent ingress of silt, but mainly to preserve a line of flow along the lateral in case of blockage or damage.

8. The collector drains would receive the flow from laterals and would be closed-jointed pipes of 30 cm to 60 cm diameter, laid at a fall to their outfall into the open branch drains, and buried about 1.50 m

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1/ FAO/UNDP Pilot Project for Drainage of Irrigated Land, United Arab Republic 1961-65. (See Annex 1).

to 2.0 m below ground level. They would generally be laid parallel to the adjacent collectors, and about 400 m apart. Collectors would be about 1 km in length, and would have manholes located on them at intervals of 100 to 200 m for maintenance purposes. Excavation would mainly be carried out by hydraulically controlled mechanical back-hoes.

9. The concrete drain pipes would be manufactured largely in the central factory at Tanta, and the installation of tile drains and collectors, using machinery to be imported under contract and sold at cost by the Ministry of Irrigation to the contractors. Some local contractors already have experience in constructing tile drains by the use of machines, while others have previously used hand labor. Contracts will be awarded by competitive tender between these nationalized concerns. Maintenance of collectors and laterals would be carried out annually by Ministry of Irrigation forces, using high-pressure water jets on small-bore flexible pipes introduced through the manholes, with pressure provided by mobile pumps.

Branch and Main Drains

10. The open channel branch drains would be deepened and widened to permit free-fall discharge of the piped collectors into them at the collector outfalls. This remodelling would lower the open drain water surface levels by about one meter. Remodelling would also be extended to cover all main drains in the system wherever this work has not already been carried out. This would also involve remodeling the drain control structures and bridges which in many cases would have to be widened or rebuilt. The quantity of earthwork which would have to be excavated from branch and main drains has been calculated to be about 23 million cubic meters, and the length of drains involved exceeds 1,700 km. This work would be supervised by the Ministry of Irrigation and carried out by local contractors who have considerable experience in the remodeling of channels. Contracts would be awarded by competitive tender. Maintenance of the open drains would also be carried out annually by contract.

11. The installation of tile drains would increase the amount of drainage effluent from the project area. To dispose of effluent which requires to be lifted from the deepened main drains, some existing pump stations would be replaced by stations having larger lift and discharge capacities, and in certain cases additional stations would be constructed at new locations. A total of 11 stations would be built within the project, with installed pumping capacities ranging from 8 to 42 m^3/sec, and with operating heads varying from 1.2 to 4.6 m. A total of 47 electrically driven pumps would be installed, with individual discharge capacities ranging from 2 to 7 m^3/sec. Details of the plant requirements are shown in the table on page 6 of this Annex.

12. The mechanical and electrical equipment for the pump stations would be imported and installed under construction contracts to be awarded

by international competitive bidding. The contractors would be required to provide their own technicians to install the equipment, to be resident in the UAR during the running-in period, and to establish a suitable supply of spares locally. The Ministry of Irrigation engineers have had many years of experience in handling this type of contract for pump station equipment.

13. The civil works associated with the construction of the 11 project pump stations would be straightforward and would be carried out by local contractors who have much experience in this field, acting as sub-contractors to the pumping equipment suppliers. The specification and supervision of the civil and mechanical works would be the responsibility of Ministry of Irrigation staff, who have previously engineered many similar pump stations in the Delta.

Construction Methods and Equipment

14. From previous experience in this work the Ministry of Irrigation has found that, before work is started on the installation of tile field drains, it is mandatory to have all the associated open drains completely remodeled to the appropriate depth, and all new pump stations in the system constructed and operational, wherever drainage flows have to be pumped. This work must be properly coordinated so as to ensure that the additional drainage affluent can always be safely disposed of. In the project, the large-scale remodelling of the open drains would be executed according to surveys and designs which have already been prepared, and the work would be done mainly by groups of dragline excavators as listed in Annex 7, supplemented by dredgers which are locally available for use in some of the larger drains. Some of this work has already been partly completed in about 160,000 feddans of the gravity flow drainage catchments in the east of the project area, where no pump stations would be required. These catchments would, therefore, be among the first in which the installation of tile drains would be started under the project, as shown in the construction schedule in Annex 6.

15. The building of pump stations would present no technical problems as the sites are within reach of good rail and road communications, and the techniques for constructing heavy foundations below the water table with steel piling are frequently used in the UAR.

16. The only really unusual engineering feature of the project is the very large scale of tile drainage construction which is envisaged. The intended rate of construction increases from 40,000 feddans, or 3,300 km, to reach 240,000 feddans, or 20,000 km of tile drains a year after 5 years. This rate would only be possible by using mechanical combined trenching and tile laying machines and, at peak drain production on the project, 100 machines would be in use. Fully tracked, narrow bucket chain excavators developed for this work have been successfully used in Europe, the USA and in the UAR for several years, and when operated and maintained by alert, trained personnel they can consistently exceed the construction output required in this project.

17. Such a fleet of these machines would require massive logistical support, including:

(i) timely setting-out of the designed drains layout;

(ii) land ready for access;

(iii) an adequate and continuous supply of cured and inspected drain pipes laid along the drain line;

(iv) readily accessible fuel and water supplies;

(v) adequate gravel supplies for filter material;

(vi) well-trained operators, relief operators and inspectors;

(vii) trained field maintenance crews and spares facilities on hand;

(viii) district workshop stores and transport facilities; and

(ix) experienced engineering supervision.

The total equipment needs for the project which are related to these requirements are given in Annex 7, and the staffing and organizational requirements are discussed in Annex 9.

Nile Delta Drainage Project

Pump Stations Data

Station and Catchment Area	Discharge	Area	Max. Head	No. of Units	Discharge of pump unit	Max. load of Station	No. of Rating of Trans-former	Remarks Drainage Duty D.D m^3/fed/day
	m^3/sec	1,000 fed.	m.		m^3/sec	KW	KVA	
Mahalet Roh II	8.1	70	3.5	4	3	680	2 x 500	10
Sadaka III	15.0	43	2.0	4	4	560	2 x 500	30
No. 5 IV	12.67	73	1.3	4	4.5	440	2 x 500	15
Khandak V	6.59	38	4.15	4	2.5	680	2 x 500	15
Samatai VII	9.55	55	1.85	4	3.5	440	2 x 500	15
Segaeya VIII	13.02	75	1.3	4	4.5	440	2 x 500	15
Khairi IX	21.0	57	1.95	4	5	1,000	2 x 1,000	30
Shereshra X	30.0	90	2.4	6	7	1,540	2 x 1,500	30
Ltay el Baroud XIV	4.16	24	4.65	4	2	600	2 x 500	15
No. 8 1/ XI	5.9 2/	34	1.8	5	7	320 3/	2 x 300	15
Shubr Khit XV	13.9	76	1.5	4	5	500	2 x 500	15
Total		635		47				

1/ Station to serve two additional catchments in the next phase of development.

2/ Relates to catchment XI only.

3/ Initial load only.

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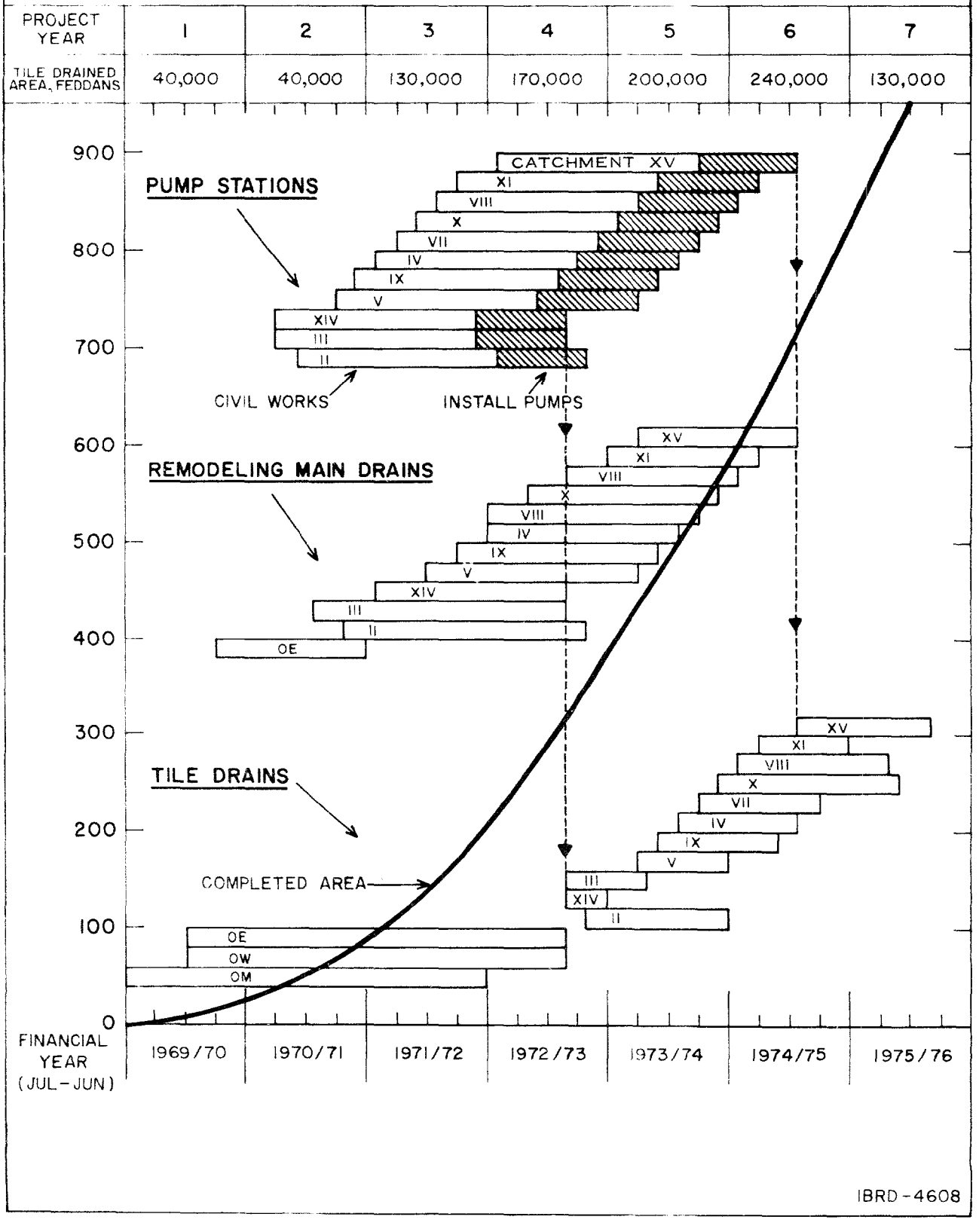
UAR: NILE DELTA DRAINAGE PROJECT

CONSTRUCTION SCHEDULE



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NILE DELTA DRAINAGE PROJECT

CONSTRUCTION SCHEDULE

Derivation of Tile Drainage Installation Capacities

used for Scheduling Construction

	Cotton areas	Rice areas	Average
Calendar days/year	365	365	
Days access not possible due to irrigated crop	50	100	
Calendar days remaining/year	315	265	
Non-working days/year	50	41	
Possible working days remaining/year	265	224	
Possible working hours remaining/year 1/	2,120	1,792	
Estimated productive hours/year 2/	1,270	1,075	1,170
Average installation capacity, meters/machine-hour			190
Tile installation rate, km/machine/year:	240	205	
Average installation rate on project:- km/machine/year; @ 85 m/feddan;			225 km 2,650 feddans/year

1/ Based on 8 working hours/day

2/ Assumed 60% effective working time, with foreign resident maintenance technicians*. Ineffective time assumed:

Transport of equipment	2%
*Maintenance time	0% (all out of normal working hours)
Repair time	7%
Waiting time	31%
Total ineffective time	40% (60% effective time)

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NILE DELTA DRAINAGE PROJECT

PHASING OF AREAS OF TILE DRAINS INSTALLED
(feddans '000s)

Financial Year:	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	
Project Year:	1	2	3	4	5	6		Totals Project
Annual Installed Area:	40	40	130	170	200	240	130	
Catchment Area: 1/								
OE1	5	5	30	40				80
OE2) OE3)	17	17	56	38				128
OM1) OM2)	10	10	20					40
OW	8	8	24	25				65
								313
II				20	50			70
III				23	20			43
IV					40	35		75
V					38			38
VII					12	43		55
VIII						45	30	75
IX					35	22		57
X					5	48	37	90
XI						34		34
XIV				24				24
XV						13	63	76
								637
Totals:	40	40	130	170	200	240	130	950

Areas:	Free flow areas	Pumped Areas	Total
In project:	313,000	637,000	950,000

1/ For location see Map 1.

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NILE DELTA DRAINAGE PROJECT

LIST OF EQUIPMENT TO BE IMPORTED

A. Tile Drainage construction Equipment:

Item	Quantity	Approx. unit price f.o.b., US$ [1]	F.o.b. cost US$ 000's	
(a) Tile making, laying and collector drain installation equipment:				
Tile laying machines	100	30,000	3,000	
Spare chains	1,600	230	368	
Excavators, hydraulic back hoe, including spares	10	30,000	300	
Tile making machines	50	14,000	700	
Transporter tractors, 10 ton)	10	20,000	200	
Transporter trailers, 10 ton)	10	11,500	115	
General purpose trailers, 3 ton	1,000	1,150	1,150	
Tractors, wheeled, 35 hp [2]	400	3,500	1,400	
Tractors, tracked, 50 hp, with trench backfiller attachment	50	5,500	275	
Spares	-	790,000	790	
			8,298	(1)
(b) Vehicles and workshop equipment:				
Trucks, 7 ton [2]	100	7,000	700	
General purpose trailers, 3 ton	100	1,200	120	
Road graders	4	42,000	168	
Pick-up trucks, 2½ ton	100	2,300	230	
Station wagons, 6 seats, 4-wheel drive	35	3,000	105	
General purpose vehicles, 4-wheel drive	70	2,000	140	
Sedans, 5seats	10	2,000	20	
Motor cycles [2]	50	500	25	
Spares for transport vehicles		690,000	690	
Divisional workshops and stores equipment	4	75,000	300	
Mobile workshops	10	8,000	80	
Caravan trailers	60	4,500	270	
Investigation equipment (incl. mobile auger), laboratory, training center and office equipment (inc. elevator, air-conditioning and printing machinery)		184,000	184	
Mobile cranes, 7 ton	4	30,000	120	
			3,152	
(c) Contingency allowance; 6% approx. of (1) and (2)			700	

1/ Escalation allowance of 8% included.
2/ Items which may be bid for by local manufacturers.

B. Drain Remodeling Construction Equipment

Item	Quantity	Approx. unit price, 1/ f.o.b., US$	F.o.b. cost US$ 000's	
(a) Construction equipment and vehicles;				
Excavators, dragline, 1½m³	3	70,000	210	
Excavators, dragline, 1m³	10	55,000	550	
Excavators, dragline, ½m³	17	37,000	629	
Excavators, hydraulic boom, ¼m³	18	25,000	450	
Transporter tractor, 40 ton	4	30,000	120	
Transporter trailers, 25 ton	3	23,000	69	
Trucks, tipper, 10 ton	7	13,000	91	
Trucks, pick-up, 2½ ton	20	2,300	46	
Station wagons, 6 seat, 4-wh. drive	4	3,000	12	
Mobile workshops	3	8,000	24	
Spares		230,000	230	
			2,431	(4)
(b) Contingency allowance; 5% approx.			126	(5)

C. Pump Station Machinery and Equipment

Item	Quantity	Cost c.i.f. US$ 000's	
(a) Electrical and Mechanical pumping machinery; Pumps, motors and switchgear	47 sets	4,796	(6)
(b) Power equipment; Transformers (incl. Kafr-el-Sheikh sub-station) and Transmission line equipment		1,116	(7)
(c) Civil works construction equipment; Sheet piling and dewatering equipment	11 sets	280	(8a)
(d) Contractors' overheads; Foreign exchange element of contractors' salaries, temporary housing, oncosts		635	(8b)
		6,827	
(e) Contingency allowance: 20% approx. of items (6)-(8)		1,350	(9)

1/ Escalation allowance of 8% included.

D. Tile Drain Maintenance Equipment

Item	Quantity	Approx. unit price, c.i.f., US$	Total cost US$ 000's
Tile drain flushing machines, spares and rod sets	40	5,000	200

E. Agricultural Extension Service Equipment

Item	Quantity	Approx. unit price, f.o.b., US$	Total cost US$ 000's
(a) Vehicles;			
General purpose vehicles	30	2,000	60
Motorcycles	700	500	350
Demonstration vans	10	5,000	50
Spares		35,000	30
			490 (11)
(b) Contingency allowance: 5% approx.			20

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NILE DELTA DRAINAGE PROJECT

COST ESTIMATES

A. Estimated Tile Drainage Costs

1. Foreign Exchange Costs:	US$ '000 equivalent
(a) Tile laying and collector drain installation equipment; 1/	8,298
Freight charges (5%);	423
Maintenance technicians (64 man-years @ $12,500);	800
(b) Vehicles and workshop equipment; 1/	3,152
Freight charges (5%);	153
Maintenance technicians (15 man-years @ $12,500);	188
Sub-total:	13,014
(c) Contingencies, 5%	700
	13,714

2. Local Currency Costs:	
(a) Freight charges (local)	140
(b) Tile laying: 950,000 feddans x 85 m lateral drain per feddan x LE 135 per 1,000 m 2/ = LE 10,900,000	
(c) Collector drains: 950,000 feddans x 13 m collector drain per feddan x LE 990 per 1,000 m 2/ = LE 12,200,000	
LE 23,100,000	53,100
(d) Training center, workshops, stores and office land, buildings and services	2,000
(e) Contingencies, 15% approx.	7,500
(f) Insurance of equipment in transit (Egyptian Insurance Organization)	150
(g) Customs duties (25%)	2,880

1/ Escalation allowance of 8% included. (See Annex 7).
2/ Excluding charges for imported equipment, and including 8% escalation.

B. Estimated Pump Station Costs

Station No.	II	III	IV 1/	V	VII 1/	VIII 1/	IX	X	XI 1/	XIV	XV	Totals £E, '000s	Totals US$ M equiv.
1. Foreign Exchange:					-	£E '000s		-					
(a) Pumps, motors & switchgear;	150	175	175	150	150	175	250	305	260	130	165	2,085	4.796
(b) Transmission line & transformers;	60	80	50	20	55	30	20	30	80	30	30	485	1.116
(c) Civil works & structures; 2/	35	37	37	35	35	37	37	38	35	35	37	398	0.915
Sub-total;	245	292	262	205	240	242	307	373	375	195	232	2,968	6.827
2. Local Currency: 3/													
(a) Pumping equipment;	28	35	35	25	28	52	37	45	40	26	32	383	0.881
(b) Transmission lines;	50	30	40	15	60	30	24	30	70	15	25	389	0.895
(c) Civil works;	120	148	138	120	130	138	165	185	155	120	138	1,557	3.581
(d) Housing;	30	30	30	30	30	30	40	40	30	30	30	350	0.805
Sub-total;	228	243	243	190	248	250	266	300	295	191	225	2,679	6.162

1/ Includes part cost of Kafr-el-Sheikh sub-station.

2/ Includes allowance for foreign contractors' staff, housing and overhead costs.

3/ Excluding supervision costs and contingencies.

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NILE DELTA DRAINAGE PROJECT

COST ESTIMATES

US $ million equiv.

Period: / Currency: 1/	Total L.C.	Total F.E.	Year 1 L.C.	Year 1 F.E.	Year 2 L.C.	Year 2 F.E.	Year 3 L.C.	Year 3 F.E.	Year 4 L.C.	Year 4 F.E.	Year 5 L.C.	Year 5 F.E.	Year 6 L.C.	Year 6 F.E.	Year 7 L.C.	Year 7 F.E.
1. Tile Drainage																
(a) Equipment costs:																
(i) Tile making, laying, and collector drain installation equipment;	-	8.38	-	-	-	0.50	-	3.33	-	4.14	-	0.33	-	-		
(ii) Freight charges on (i)	0.10	0.42	-	-	-	0.02	0.03	0.17	0.05	0.22	0.01	0.01	-	-		
(iii) Maintenance technicians;	-	0.80	-	-	-	0.05	-	0.20	-	0.25	-	0.20	-	0.10		
(iv) Vehicles, workshops, training center and office equipment	-	3.15	-	0.20	-	1.60	-	0.32	-	0.92	-	0.11	-	-		
(v) Freight charges on (iv);	0.04	0.15	-	0.01	-	0.08		0.01	0.02	0.04	-	0.01	-	-		
(vi) Maintenance technicians for (iv):	-	0.19	-		-	0.01		0.03	-	0.04	-	0.05	-	0.06		
	0.14	13.01	-	0.21	-	2.26	0.03	4.06	0.07	5.61	0.01	0.71	-	0.16		
(b) Construction costs:																
(i) Tile making and laying; (ii) Collector drain installation;	53.10	-	2.30	-	7.20	-	7.20	-	9.40	-	11.20	-	13.50	-	7.20	-
(c) Training Center, maintenance workshops, stores and office buildings	2.00	-	0.50	-	1.00	-	0.50	-	-	-	-	-	-	-	-	-
2. Remodeling Main Drainage																
(a) Equipment costs:																
(i) Excavators;	-	1.95	-	-	-	0.20	-	1.75	-	-	-	-	-	-	-	-
(ii) Freight charges on (i);	0.03	0.10	-	-	0.01	0.02	0.02	0.08	-	-	-	-	-	-	-	-
(iii) Maintenance technicians;	-	0.18	-	-	-	0.01	-	0.04	-	0.04	-	0.05	-	0.04	-	-
(iv) Vehicles and workshops equipment;	-	0.48	-	-	-	0.05	-	0.43	-	-	-	-	-	-	-	-
(v) Freight charges on (iv);	0.02	0.03	-	-	0.01	0.01	0.01	0.02	-	-	-	-	-	-	-	-
(vi) Maintenance technicians for (iv):	-	0.05	-	-	-	0.01		0.01	-	0.01	-	0.01	-	0.01	-	-
	0.05	2.79	-	-	0.02	0.30	0.03	2.33	-	0.05	-	0.06	-	0.05	-	-
(b) Construction costs:																
(i) Land acquisition;	0.48	-														
(ii) Excavation;	10.97	-														
(iii) Structures:	10.90	-														
	22.35	-	2.25	-	2.50	-	4.00	-	6.00	-	6.00	-	1.60	-	-	-
3. Pump Stations																
(i) Pumps, motors and switchgear;	0.88	4.80														
(ii) Power transmission equipment;	0.89	1.12														
(iii) Civil works;	3.58	0.91														
(iv) Housing:	0.81	-														
	6.16	6.83	-	-	0.90	2.70	2.10	1.85	2.30	1.10	0.70	0.73	0.16	0.45	-	-
4. Crop Compensation	10.80	-	0.50	-	0.50	-	1.48	-	1.84	-	2.20	-	3.00	-	1.28	-
5. Staff																
Supervision;	9.00	-	0.35	-	0.50	-	1.25	-	1.50	-	1.90	-	2.40			-
Administration;	1.79	-	0.10	-	0.10	-	0.20	-	.34	-	0.40	-	0.46	-		-
Training;	-	0.15	-	0.03	-	0.06	-	0.06	-	-	-	-	-			-
Consultants:	-	0.45	-	0.05	-	0.20	-	0.12	-	0.05	-	0.02	-	0.01	-	-
	10.79	0.60	0.45	0.08	0.60	0.26	1.45	0.18	1.94	0.05	2.30	0.02	2.86	0.01	1.19	-
6. Tile drain maintenance equipment	-	0.20	-	-	-	-	-	0.10	-	-	-	-	-	0.10		
7. Agricultural extension service equipment	-	0.49	-	-	-	-	-	0.30	-	-	-	-	-	0.19		
8. Contingencies	10.81	2.08	-	-	0.84	0.60	1.82	0.70	1.56	0.55	2.54	0.17	2.05	0.06	1.00	-
9. Customs duties	4.80	-	0.10	-	0.40	-	1.60	-	2.10	-	0.60	-	-	-	-	-
Totals L.C. and F.E.	121.00	26.00	6.10	0.29	9.09	6.12	20.21	9.52	26.21	7.36	25.55	1.69	23.17	1.02	10.67	-
Combined totals	147.00		6.39		15.21		29.73		33.57		27.24		24.19		10.67	
(W/O Customs)	(142.20)		(6.29)		(14.81)		(28.13)		(31.47)		(26.64)		(24.19)		(10.67)	

1/ L.C. = Local Currency
F.E. = Foreign Exchange

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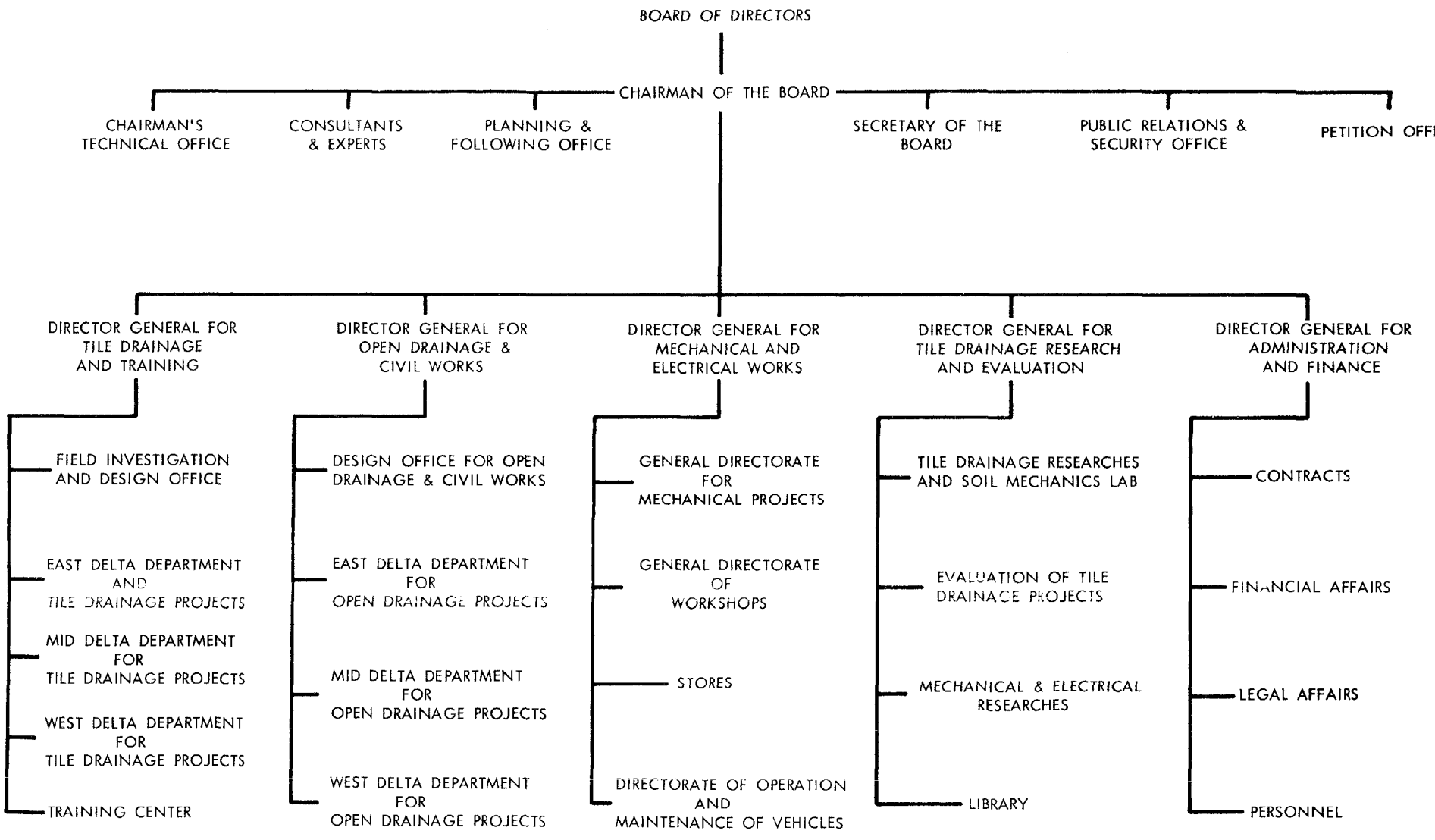
UNITED ARAB REPUBLIC: NILE DELTA AUTHORITY FOR TILE DRAINAGE PROJECTS

ORGANIZATION CHART



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NILE DELTA DRAINAGE PROJECT

CONSULTANTS AND STAFF REQUIREMENTS

Consultants

1. In para. 5.08 of the report, reference is made to the need for consultants to assist the Authority in planning and establishing the proposed project training center, and to advise on and assist in introducing management techniques and procedures suitable for the project.

2. An Egyptian firm of accountants would be selected by the Authority to assist in establishing effective project cost accounting and budget methods.

3. Another firm of consultants, who would have to be acceptable to the Association, would be selected by the Authority and appointed on terms and conditions approved by the Association. The foreign exchange cost of their services would be provided for under the credit, and their terms of reference would include the matters outlined below.

Consultants' Draft Terms of Reference

4. Objective

4.1 The Consultants' services are required for making detailed recommendations and introducing recently developed management techniques for planning, investigation, design, administration and evaluation of the project, and for training the Authority's staff in the methods to be adopted.

5. Scope of Service

5.1 Within the six-year construction period of the project, the Consultants are to provide qualified and experienced experts who will make detailed reviews of certain aspects of the project, make recommendations to the Chairman of the Authority for implementing these aspects, train the Authority's staff in the use of the appropriate techniques, and assist in their introduction and use on the project. In particular, the experts will apply themselves to the following activities:-

(a) the overall planning and programming of the implementation of the project, the coordination and control of construction of its component parts, together with appropriate methods of recording progress on all components;

(b) the organization and establishment of a center for technical and operational training for the project, and the planning and administration of a short-term study program in management techniques for selected executives of the project authority, including the necessary practical training overseas;

(c) the timely investigation of soil and drainage conditions prior to tile installation, using the latest survey and laboratory techniques, and the establishment of design and installation criteria for the project;

(d) the preparation of suitable documents for international bidding, the evaluation of bids for the supply of equipment, and the subsequent administration of these contracts;

(e) the timely production of large numbers of working drawings for the installation of tile drains;

(f) the storage of equipment and spares for use in the project, including the establishment of suitable stores control methods;

(g) the establishment of workshops for the maintenance and repair of all construction equipment, and the control of workshop activities;

(h) the recording and evaluation of physical improvements and economic benefits actually derived from the project.

5.2 Although the main emphasis of the Consultants' services will be on assisting in the application of management techniques to be introduced for the planning and control of the project construction activities, the Consultants will also be expected to demonstrate the techniques at the Authority's training center and to train staff in the methods introduced.

5.3 The objective and scope of the Consultants' services will require the following professional staff:-

Planning and Progress Engineer: (Required for about 4 years and at intervals subsequently).

To adapt and demonstrate recently developed, appropriate methods for the planning and programming of the coordinated implementation of the project; to assist with the preparation of detailed programs for preliminary work, procurement, construction and maintenance of the project; to devise methods for the continuous recording of progress on all aspects of the project, the indication of delays and their affect, and the hastening action taken; and to establish the forms of progress report as required.

Training Advisor: (Required for about 2 years).

To advise and assist in the organization and establishment of a center for technical and operational training for the project, and to assist in the administration of courses for all project requirements.

Drainage Engineer: (Required for about 1½ years).

To advise and assist in the introduction of the most appropriate survey and laboratory techniques for the investigation of soil and drainage conditions throughout the project area, and to assist in the establishment of drainage design and installation criteria for the project.

Senior Draughtsman: (Required for about 2 years, and at intervals subsequently).

To make recommendations for the introduction of drawing office methods and equipment appropriate for the production of the many working drawings required for tile drainage construction on the project, and to assist in ensuring their timely production and printing.

Contracts Engineer: (Required for about 6 months and at intervals subsequently).

To advise on the preparation of international bidding documents (time permitting), and the evaluation of equipment bids, and to assist in setting up the subsequent administration procedures for the equipment contracts.

Stores Specialist: (Required for about 1½ years and at intervals subsequently).

To establish and demonstrate stores control methods appropriate for the project, and to assist in their introduction and use.

Workshops Engineer: (Required for about 1½ years and at intervals subsequently).

To make recommendations for the equipment of workshops, to devise suitable procedures for the control of workshop activities (including programmed maintenance) and to assist in the introduction of the necessary equipment and methods.

Evaluation Specialist: (Required for about 1 year and at 6-monthly intervals subsequently).

To devise and introduce methods (in collaboration with the Ministry of Agriculture) for recording the incremental changes in drainage and soil conditions and crop yields in the project area, and to evaluate the agricultural production benefits.

5.4 It is expected that the team of consulting experts will individually be required in the UAR for varying periods from 6 months to about 4 years, approximately as indicated in 5.3 above and depending upon the requirements of project implementation. If needed, specialized assistance from the firm's head office, or elsewhere, should be made available for short-term assignments. The requirements for expert services will be reviewed at intervals of 6 months, and the Authority will determine whether any changes will be required in the numbers or duration of service of the experts.

6. Coordination

6.1 The Consultants are to provide supervisory control and technical review of the services rendered by their field staff and by visiting specialists. With this in view, a senior official of the firm will be made responsible for all official contacts and relations with the Authority and the Government, and will be technical and financial manager of the team.

7. Time Schedule and Reports

7.1 The Consultants will be required to start work in the UAR within 6 weeks of appointment. The team will be expected to be based in Cairo.

7.2 The Consultants will prepare and submit the following reports to the Chairman of the Drainage Project Authority within the time interval stated from the date of appointment.*

(a) Project Workshops and Stores: Proposals for building plans for stores and recommendations for workshops and stores equipment and procedures, with estimates of costs; within * months.

(b) Training Center: Proposals for staff organization for technical and operational training to meet project requirements; within * months.

(c) Drawing and Printing: Proposals for drawing office methods and equipment to meet project requirements, with estimates of equipment costs; within * months.

(d) Investigation and Design: Recommendation for the methods, equipment and criteria to be adopted for preparatory investigations and design of the tile drainage system in the project area; within * months.

(e) Bid Evaluation: Recommendations for the basis of bid comparison to be adopted for all international bids; within * months.

(f) Benefit Evaluation: Recommendations for methods and procedures to be adopted for monitoring the agriculture benefits achieved in the project area; within * months.

Staff Requirements

8. Estimates of the numbers of government technical staff required for the implementation of the project are given on page 5 of this Annex, and are listed by financial years. These figures do not include either the contractors' technical staff or foreign maintenance technicians. The technical staff availability within the Ministry of Irrigation is shown on page 6, from which it is evident that the project staff requirements would not necessarily overstrain the present organization's capacity to supply the engineers and supervisors for transfer and training.

9. The staff requirements for the operation and maintenance of the pump stations, tile drainage and main drainage systems within the project area are given on page 7. There would be no difficulty in meeting these requirements, and they would represent a small element of cost for a project of this size.

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* To be agreed between the Authority and the Consultants.

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NILE DELTA DRAINAGE PROJECT

RANGE OF NUMBERS OF TECHNICAL STAFF REQUIRED

	1969/70			1970/71			1971/72		
	CE 1/	ME 2/	Sup 3/	CE	ME	Sup	CE	ME	Sup
Pump Stations	5-7	5-7	-	9-11	5-7	15-20	15-17	7-9	27-32
Remodeling Main Drains	10-15	1-2	20-30	12-16	2-3	25-35	20-25	3-4	40-45
Tile Drainage	20-25	2-3	50-60	25-30	8-10	86-95	58-62	10-12	180-190
Project Office	5-6	2-3	-	6-8	4-6	-	8-10	6-8	-
	40-53	10-15	70-90	52-65	19-26	125-150	101-114	26-33	247-267

	1972/73			1973/74			1974/75		
	CE	ME	Sup	CE	ME	Sup	CE	ME	Sup
Pump Stations	15-18	14-16	32-37	12-15	17-19	46-50	7-10	20-22	50-55
Remodeling Main Drains	30-35	4-5	60-70	30-35	4-5	60-70	30-35	4-5	60-70
Tile Drainage	80-90	12-14	250-260	90-95	12-14	280-300	100-110	14-16	300-330
Project Office	10-12	8-10	-	12-15	8-10	-	15-17	8-10	-
	135-155	38-45	342-367	144-160	41-48	386-420	152-172	46-53	410-455

1/ CE = Civil Engineer)
) including 10% for senior divisional staff
2/ ME = Mechanical Engineer)

3/ Sup = Supervisors, including mechanics

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NILE DELTA DRAINAGE PROJECT

PRESENT TECHNICAL STAFF OF MINISTRY OF IRRIGATION

		Engineers	Technicians	Skilled Labor
1.	Head Office	15	4	31
2.	Egyptian Technical Organization for Nile Water	43	16	1,655
3.	Executive Authority for expansion on High Dam Water	226	226	178
4.	Irrigation Department	967	1,050	20,464
5.	Survey Department	193	3,970	4,578
6.	Mechanical and Electrical Department	664	561	7,142
	Total	2,109	5,827	34,048

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NILE DELTA DRAINAGE PROJECT

OPERATION AND MAINTENANCE STAFF AND EQUIPMENT REQUIREMENTS

1. Pump Stations:

4	mechanical/electrical engineers
35	machine attendants
8	drivers
70	laborers
4	cars
4	pick-up trucks

2. Main Drainage System:

4	civil engineers
8	supervisors
20	equipment operators
17	drivers
50	laborers
4	cars
8	pick-up trucks
15	dragline excavators
5	hydraulic boom excavators

3. Tile Drainage System:

8	civil engineers
50	supervisors
40	equipment operators
48	drivers
400	laborers
8	cars
50	motorcycles
40	drain flushing machines
40	pick-up trucks

October 14, 1969

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NILE DELTA DRAINAGE PROJECT

MARKET PROSPECTS AND PRICES

1. At full development of the project, the increase in cotton lint output from the project area has been estimated at 19,000 m tons, 56% of which would consist of extra long staple (ELS) types, and the other 44% being medium long staple cotton (Egyptian definition which corresponds to the lower levels of ELS under international classification). This increase would represent about 0.2% of the current total world cotton production, and about 0.5% of annual world cotton exports. These types of cotton, unlike the upland varieties, have not been in surplus in world markets. About 40% of the UAR's total production comprise ELS varieties, most of which are exported and account for almost 56% of the total value of the annual exports (1965). Three countries, the UAR, Sudan and Peru account for about 92% of the world's ELS cotton production.

2. World surplus stocks of upland cotton have been largely liquidated (through a substantial reduction in world output) over the last two years, with substantial improvement in prices. Prior to this, world cotton prices have generally been moving downwards since the Korean War, due largely to competition from man-made fibers and a recurring tendency for supply to exceed demand. Consumption on the one hand has been growing at a declining rate, due largely to increasing competition from man-made fibers - with substantial deterioration in cotton's competitive position occurring in the last two years because of higher cotton prices, coupled with dramatic reductions in prices of man-made fibers (due to over-production and increasing competition within the fiber industries). On the other hand, it is uncertain whether the tendency for production to rise faster than demand in earlier years has been arrested, despite the sharp reduction in production which has occurred as a result of voluntary United States curtailment of production to reduce world stocks.

3. While significant increases were registered in the fifties, world consumption, production, trade and prices of ELS cottons have moved along at a practically stationary trend over the last five to six years, and fluctuations from these trends have been caused mostly by fluctuations in area and yields attributable to weather conditions. In 1968-69, the world supply of ELS cotton will be the smallest in many years. Stocks are down and although definite production estimates for the current crop are not yet available, preliminary data indicate that production may well be smaller than in 1967-68. Total availabilities, therefore, are almost certain to be down this season. Demand on the other hand has been relatively strong, as the high prices of medium long staple cotton have made some grades of ELS cotton attractive. Consequently, prices on world markets for ELS cotton have been high (over 10% higher than a year ago).

4. As far as the future is concerned it should be noted that, over the long term, the outlook for ELS cotton is likely to be influenced by the overall outlook for cotton in general. The outlook for cotton of all staples continues to be somewhat depressing due to competition from man-made fibers. In addition, there are certain specific uncertainties regarding the outlook for ELS cottons, such as increasing competition from man-made fibers in specific ELS uses; uncertainty regarding future trend of Soviet Bloc countries' imports which accounted for 35-40% of world imports of ELS in recent years; and uncertainty regarding USA cotton policy which could result in inducing consumption of domestically produced ELS and reducing import demand for ELS cottons. Increased output of ELS cottons from the project area could also, in the long run, contribute to depressing world prices if supplemented by larger quantities from other producers of such cotton. The Egyptian Government intends to cope with such market developments by:

(i) using large quantities locally for the manufacture of textiles; 1/ and

(ii) implementing a policy of planned expansion for its cotton spinning and weaving industry, coupled with effective control of production through the direct supervision and control of water supplies.

5. The supply demand position of ELS cotton in 1975 could result in price declines of about 30-35% from the current high levels or 20-25% from the average of the last few years. It is difficult to project at this time the level of prices beyond 1975. However, it appears reasonable to assume that the trend will remain fairly level, or decrease moderately thereafter. Prices equivalent to US¢ 33 per lb for the average mix of Egyptian ELS cotton (lint) and US¢ 27 per lb for the average mix of the Egyptian medium long staple (lint) cottons (which correspond to the lower range of ELS cottons under international classification) have consequently been used for calculating the potential benefits of cotton production from the project area. These prices are very roughly equivalent to US¢ 37 for ELS cottons and US¢ 30 per lb (c.i.f. Liverpool) for Egyptian ELS cottons. These prices take into account the market factors summarized above including the Egyptian Government's policies relating to production, supply, control and export. They are also in line with average long-term commodity projections made, for 1975, by the Trade Policies and Export Projects Division of the IBRD.

1/ Domestic consumption of cotton in the UAR has in fact increased from 113,000 m tons in 1959-60 to nearly 190,000 m tons in 1967-68.

6. More favorable prospects exists in the UAR for foodgrain production. Cereal requirements have substantially outpaced local production during the last decade. Wheat and flour imports, in terms of wheat equivalent, approached 2.5 million m tons annually by 1966. In addition, there has been, over the period 1964-1967, average annual imports of 173,000 m tons of maize. Factors such as population growth, urbanization, low subsidized food prices and the failure of local production to keep pace with effective demands, have all contributed to the growing deficit of cereals. With expected increases in per capita incomes, the market for foodgrains is likely to grow even more, resulting in the growing cereal deficit in the country.

7. In spite of the growing cereal deficit, the UAR has found it advantageous to promote rice exports 1/. Rice is also of less importance in the Egyptian diet. About one-third (700,000 m tons) of the UAR's production of rice is normally exported. The increased output of 164,000 m tons of paddy (equal to 115,360 m tons of rice) from the project area would be destined for export. Market prospects for it appear good, especially in the Arab and African countries. In valuing the rice output, a price equivalent to US$ 115 (farmgate equivalent to US$ 120 FOB Alexandria) per m ton of milled rice has been used. This, with allowance for qualitative and other differences, is in line with long run average projections, of world market prices for milled rice in 1975, of US$ 140 per m ton (5% Broken FOB Bangkok).

8. Wheat - the preferred bread grain of the Egyptians - constitutes the staple diet of the growing urban population. On the other hand, corn is the principal staple food in rural areas. The level of wheat output projected for 1975, assuming present area and yield trends prevail, is expected to meet about one-half of the projected total requirements of wheat for the UAR, while maintaining per capita availability at the 1959-1961 level of 105 kg. Therefore, wheat is likely to be a deficit crop during the life of the project. Although the UAR imports maize, it is likely that, with the expanded use of higher yielding hybrid seed, self-sufficiency 2/ or even surpluses, could be obtained by 1975. Such surplus, if any, could be used for feeding livestock. Larger quantities would probably be used for human consumption in the light of the large deficit forecast for wheat. The market prospects for the increased output of wheat and maize made by the

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1/ Especially since wheat imports have been available at relatively favorable terms.

2/ Based on the per capita availability of 6.2 kg reported for the 1959-1961 period.

project is unlikely to present any marketing problems. For valuation of output of wheat and maize, the last five-year average import prices have been used, adjusted for transportation and other charges to consuming centers. The prices used are US$ 65.71 and US$ 69.00 per m ton for maize and wheat, respectively. There are approximately in line with long run average commodity projections for these products.

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NILE DELTA DRAINAGE PROJECT

ECONOMIC RATE OF RETURN

Years		Net Production Value				Attributable		Present Worth Discounted at	
Project	Financial	With Project	Without Project	Incremental NPV	O & M Costs	Incremental Benefits	Capital Costs	Benefits @ 18%	Costs @ 18%
		(In US$ million)							
0	1969/70	78.22	78.22	-	-	-	6.29	-	6.29
1	1970/71	78.70	78.22	0.48	0.10	0.38	14.81	0.32	12.54
2	1971/72	79.50	78.22	1.28	0.18	1.10	28.13	0.79	20.20
3	1972/73	82.24	78.22	4.02	0.37	3.65	31.47	2.22	19.17
4	1973/74	86.63	78.22	8.41	0.59	7.82	26.64	4.04	13.75
5	1974/75	92.80	78.22	14.58	1.03	13.55	24.17	5.92	10.56
6	1975/76	100.46	78.22	22.24	1.45	20.79	10.69	7.69	3.95
7	1976/77	106.96	78.22	28.74	1.54	27.20	-	8.54	
8	1977/78	110.51	78.22	32.29	1.62	30.67	-	8.16	
9	1978/79	111.71	78.22	33.49	1.62	31.87	-		
10	1979/80	111.71	78.22		1.62		-		
11	1980/81	111.71	78.22		1.62		-		
12	1981/82	111.71	78.22		1.62		-	46.56	
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
35	2005/06	111.71	78.22	33.49	1.62	31.87	-		
	TOTAL:						142.20	84.24	86.46

ANNEX 11
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NILE DELTA DRAINAGE PROJECT

PRESENT AND PROJECTED AGRICULTURAL PRODUCTION OF MAJOR CROPS

Crop	Cropped area '000 feddans	Production '000 m. tons	GPV '000 US$	NPV '000 US$
		PRESENT PRODUCTION		
Cotton (lint)	316	101	71,409	32,029
Rice (paddy)	328	820	62,238	35,097
Maize	339	522	34,300	8,050
Wheat	193	217	14,973	3,048
Total	1,176	1,660	182,920	78,224
		PROJECTED (FULL DEVELOPMENT)		
Cotton (lint)	316	120	79,344	43,502
Rice (paddy)	328	984	74,686	46,443
Maize	339	661	43,434	16,539
Wheat	193	260	17,932	5,227
Total	1,176	2,025	215,396	111,711

(1) The above cropping intensity is about 125%.
The cropping intensity in the project area is about 180%; the difference is made up by winter crops of permanent and temporary clover, vegetables, etc.

(2) The following farm gate prices were used:

MLS Cotton	$595.20 per metric ton lint		(equivalent to 27¢ per lb)
ELS Cotton	$727.50 " " " "		(equivalent to 33¢ per lb)
Rice	$ 75.90 " " " paddy		(equivalent to $115 per m ton rice f.o.b. Alexandria)
Maize	$ 65.71 " " "		
Wheat	$ 69.00 " " "		

(3) Discrepancies due to rounding.

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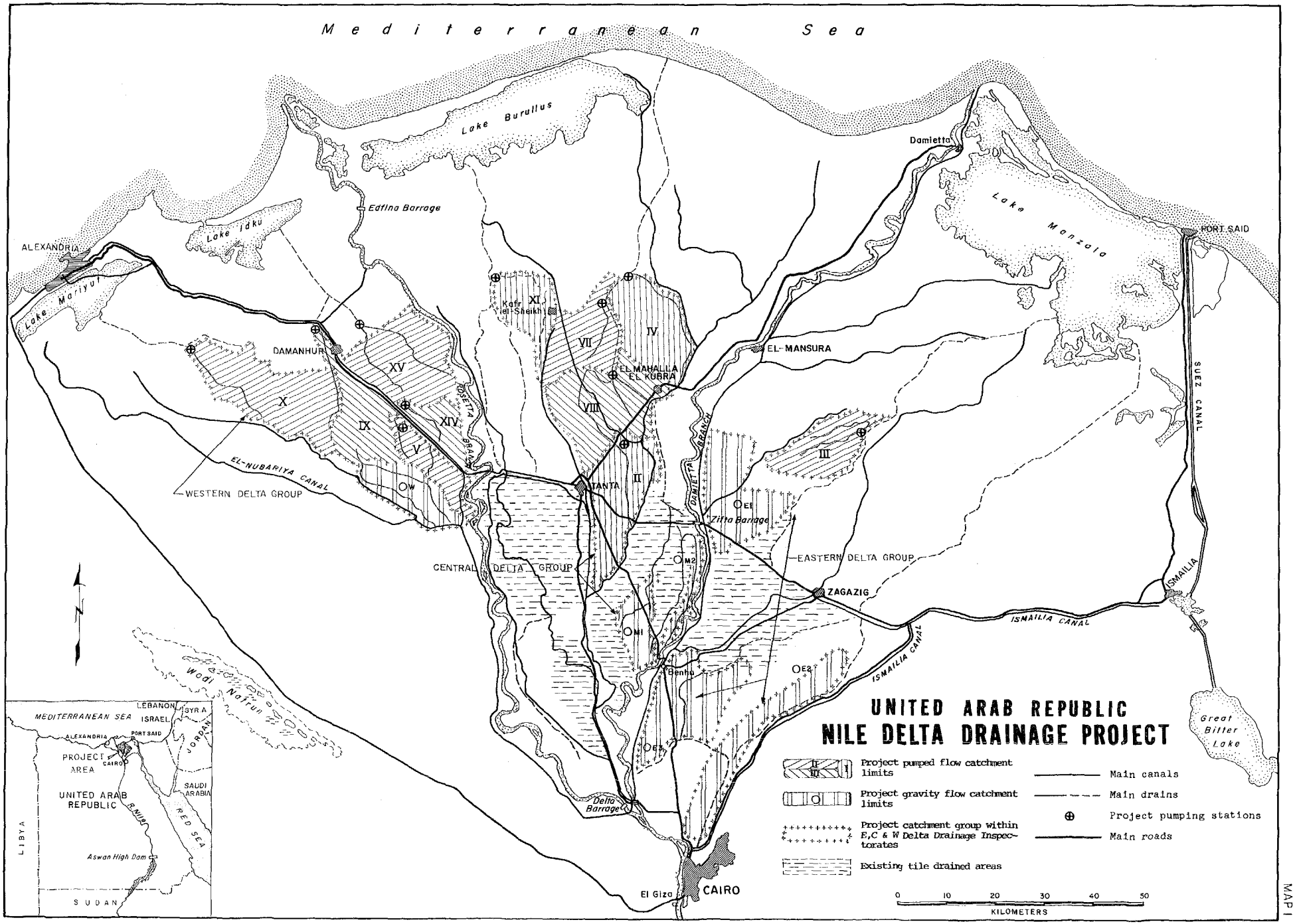

APRIL 1969

MAP I

IBRD - 2495R1

RESTRICTED

Report No. EMA-29a

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

CURRENT ECONOMIC POSITION AND PROSPECTS OF THE UNITED ARAB REPUBLIC

June 9, 1971

Europe, Middle East and
North Africa Department

CURRENCY EQUIVALENTS

1 Egyptian Pound (LE)	=	2.30 US Dollars
1 US Dollar	=	LE 0.435
1 LE = 100 Piasters	=	1,000 Milliemes
1 Tallarie	=	20 Piasters

WEIGHTS AND MEASURES

1 hectare	=	2.379 feddans
1 feddan	=	1.038 acres
1 acre	=	0.963 feddan
1 sq. kilometer	=	238 feddans
1 ardeb (metric)	=	198 liters
	=	150 kilograms (kg) of wheat, lupine, fenugreek
	=	155 kg of beans, sesame, lentils, chick peas, clover
	=	140 kg of maize, millet, groundnuts
	=	120 kg cottonseed, barley
1 kantar	=	157.5 kg of seed cotton
	=	20.2 kg onions
	=	45 kg sugarcane
1 dariba (metric)	=	935 to 945 kg of rice (paddy)

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This report is based on the findings of a mission which visited the UAR in May-June 1970. The mission was composed of Messrs. A. Karaosmanoglu (Chief), M.S. Ahluwalia, R. Chopra, N.J. Coghlan, F. Lawson, B. Varon and Miss J. Vial.

BASIC DATA

Area: Total: 1,002,000 Km^2
Populated: 35,850 Km^2

Population: (1969) 32.5 million
Rate of growth: (1965/69) 2.5% per year
Density: 907 per Km^2 of populated area

Gross National Product at Factor Cost

	1969	Rate of Growth 1964/65-1968/69
GNP, total (US $ million)	5249	2.9% per year (constant prices)
GNP, p/c (US $)	163	1.0% per year (constant prices)

Industrial Origin of GDP (% distribution)	1964/65	1968/69
Agriculture	29.4	29.5
Industry, mining, electricy	22.6	21.2
Construction	4.7	4.7
Transport & communication	8.9	5.0
Commerce and finance	8.5	9.2
Service and housing	25.1	28.7

Expenditure on GDP (% share)	1964/65	1968/69
Private consumption	65.7	66.9
Public consumption	19.7	23.9
Gross domestic investment	17.1	12.4
Net imports	2.5	3.2
Gross domestic saving	14.6	9.2

Government Accounts (LE million)	1964/65	1968/69
Current expenditure	575.7	650.2
Current revenue	430.3	534.3
Balance	-145.4	-115.9
Investment	294.2	312.3

Money, Credit and Prices (LE million)	October 31, 1970	Rate of Growth 1965/69 (end of year)
Total money supply	784.2	3.4% per year
Time and savings deposits	279.4	4.6% per year
Implicit GDP prices deflator	-	2.6% per year (FY)

Balance of Payments (US $ million)	1964/65	1969/70
Exports (f.o.b.)	563.0	800.4
Imports of goods (c.i.f.)	906.2	1088.1
Net services	143.0	- 81.2
Balance	-200.2	-368.9

Commodity Concentration of Exports (% of total exports of goods)	1964/65	1968/69
Raw cotton	55.9	39.7
Rice	8.1	17.2
Cotton yarn and textiles	13.3	19.2

External Debt and Reserves (US $ million)	December 31, 1965	December 31, 1969
Public Debt outstanding, incl. undisbursed	1386	1671
Foreign exchange reserves	193	145

Debt Service	1966	1969
Debt service (US $ million)	147	202
Debt service ratio (% of total exports)	14.8	20.8

Bank/IDA Position (US $ million) January 31, 1971	
Total loans: Bank	56.5
IDA	26.0
Repayments	34.5
Total loans outstanding	48.0

IMF Position (US $ million) December 31, 1970	
Quota	188.0
Drawings outstanding	83.0
SDR's	25.2
Use of SDR's	25.0

SUMMARY AND CONCLUSIONS

i. In the five years 1966-70 the UAR's gross domestic product increased at an average annual rate of about 2 percent, in contrast to a rate of 6.5 percent in the first half of the 1960's. A slowdown in economic activity which started in 1966 was mainly due to poor agricultural crops, reduced investment and underutilization of industrial capacity as a result of shortages of imported raw materials and spare parts. The Middle East war of June 1967 aggravated an already weak economic situation. Significant foreign exchange earnings from the Suez Canal and tourism were lost, while defense expenditure rose substantially.

ii. Immediately after the war, the authorities reinforced stabilization measures adopted earlier. Import restrictions were tightened considerably and foreign exchange allocation procedures revised. Efforts were made to contain the growth of non-defense current expenditures. Some direct and indirect taxes were increased and a more active policy towards the collection of tax arrears pursued. Pricing policies were reviewed and the prices of certain commodities were raised. For the greater part these measures were effective. The government's budget deficit declined in 1968[1/] and the growth of the money supply was reduced. The balance of payments deficit contracted, reflecting a reduction in the trade deficit and a large inflow of transfers, largely from three Arab countries (Kuwait, Libya and Saudi Arabia). All told, between 1966 and 1968 the increase in gross domestic product was only 1.2 percent per annum.

iii. The emphasis of policy in 1969 was rather more expansionary. While defense remained a priority, greater weight than previously was given to development. Increases in public investment together with moderate credit expansion and selective price reductions stimulated a period of activity that continued in 1970, with real GDP rising by about 6 percent in both years. The money supply grew by 7.7 percent in 1969 and by 10 percent in 1970.

iv. On the external side, a considerable improvement in commodity exports and a large inflow of transfers brought about a further improvement in the balance of payments position. The main contributors to the growth of export earnings were an expansion of oil production, favorable cotton prices, increases in non-traditional exports such as fruits and vegetables and some revival of tourism. Improved foreign exchange budgeting made possible a continued reduction in imports without much affecting the availability of spare parts and raw materials. In 1970, however, there were signs of a worsening in the external position. Imports rose by rather more than exports and utilization of short-term external bank credits increased.

v. Developments in agriculture, the economy's major sector (accounting for about 30 percent of GDP, over 60 percent of exports and employing over half the labor force) were generally satisfactory. Favorable weather

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1/ Unless otherwise indicated, years are fiscal years ending June 30.

conditions and more effective pest control contributed to raised output of the principal field crops and particularly cotton. On the other hand, adverse developments such as the disappointing performance in livestock, a sharp fall in rice prices, and slow progress in land reclamation and in bringing newly reclaimed areas under cultivation point to a need for action based on a resource allocation policy with longer-term objectives and more closely oriented towards international market conditions than at present.

vi. Industrialization has played a leading role in development strategy and has absorbed a significant portion of the resources allotted to investment. Nationalization in the early 1960's brought most major industries into public ownership, with the result that private industry now accounts for not more than about a fifth of total production. The share of industrial production in GDP has risen from 20 percent in 1960 to about 23 percent in 1970. The focus of policy was initially on import substitution. A wide range of industries has been established, particularly during the 1961-66 Plan period, with special emphasis being given to the chemical, metallurgical and engineering industries and to oil production. Since the mid-1960's the sector's export potential has been underlined, particularly in relation to Arab and African markets. Emphasis on the public sector has recently been modified and a role provided for the private sector as subcontractors to the larger public enterprises, especially in the engineering industries and as manufacturers of clothing, leather and wood products for export.

vii. During 1969 and 1970 a broadly based expansion of activity in industry was accompanied by a substantial reduction of the previously high level of excess capacity and a decline of stocks to more normal levels. Continued growth will have to rely largely on productivity increases and this may be even adversely affected by the reduced availability of funds for investments and the consequent difficulty of adequately maintaining existing capacity. These difficulties are shared by the transport sector, where investments have been thinly spread and their optimal allocation impeded by lack of a comprehensive survey of long-term needs.

viii. The UAR faces a serious population problem. The yearly increase of population is over 2.5 percent. The dependency ratio is high, cultivable land scarce and urban unemployment substantial. Official awareness of the problem has not been matched by implementation of an effective population planning policy. The lack of forceful population policy so far is compounded by a piecemeal approach to development planning. Difficulties in mobilizing resources for investment, attributable largely to the deterioration in the overall government budget mainly because of high defense expenditures and a sluggish growth of resources, have led to the shelving of successive development plans and a year-by-year approach to development problems. (Notwithstanding, preparation of alternative strategies for development in the medium-term has continued.)

ix. In the 1971 budget, defense expenditures were further increased to £E 550 million or about 19.4 percent of GDP in 1970. The priority of defense requirements and the relatively slow growth in domestic resources

continue to prevent increases in investment. Budgeted investment expenditure has actually declined. If continued, this trend may adversely affect the economy's growth potential both by limiting the growth of new capacity and, through possible shortfalls in replacement or complementary investment, the use of existing capacity.

x. A substantial improvement in the savings performance of the economy might not suffice to achieve an adequate rate of investment. Assuming a continuance of Arab assistance under the Khartoum Agreement, of £E 110 million, a considerable increase in the availability of external assistance would be required. If the last five years are taken as a reference point, the ability of the UAR to borrow abroad may not be very large.

xi. The UAR has an unfavorable debt structure. The external public debt as of December 31, 1969 amounted to £E 726 million (US$1,670 million) of which £E 603 was disbursed. Seventy-five percent of the total debt (95 percent of the debt to the West and 55 percent of the debt to Eastern Europe and China) falls due by June 1975, unless these debts can be satisfactorily rescheduled.

xii. Prospects for economic growth in the immediate future are uncertain. If the last five years' trends can be taken as an indication of what may happen in the future, even the maintenance of a modest growth rate may be difficult. But if regional political tensions are relaxed and a reallocation of public expenditure takes place the prospects are likely to be rather more favorable.

I. ECONOMIC GROWTH AND STRUCTURAL CHANGES IN THE 1960's

1. The evolution of the UAR economy during the second half of the sixties differed markedly from that of the earlier part of the decade. A major balance of payments crisis in 1966 and subsequently the Middle East war in June 1967 necessitated stabilization measures and led to a reallocation of available resources which reduced the rate of economic growth. Although the information for the period 1965-70 1/ is preliminary and subject to revision, it nevertheless gives a fairly clear idea about the general trends of the economy during this period.

Gross Domestic Product

2. In the last five years, gross domestic product has grown in real terms at slightly more than 2 percent per year compared with a growth rate of about 6.5 percent during the early sixties. But total resources defined as GDP plus net imports, have exceeded, on the average, the domestic product during the last five years by almost 4 percent. These expanded resources are the result of Arab assistance, which in recent years has offset the loss of revenues from the Suez Canal.

3. The growth of output varied from year to year. Decline in 1967 and 1968, the result largely of the 1966 crisis and the closure of the Suez Canal, gave way to recovery in 1969 and 1970 when the economy expanded by 5.8 and 6 percent respectively.

4. During the 1960's the structural change of GDP has not been important. In current prices the average share of agriculture in GDP during the first five years was 28 percent and in 1966-70 it increased slightly to 29 percent. The share of industry remained constant at 22 percent, and that of services was 26 and 27 percent respectively. All these changes in shares during the second half of the sixties are merely the result of the sharp decline, from which it has not recovered, of the share of transport and communications after the June 1967 war.

Total Resources and Expenditures

5. During the 1960's net imports which represented on the average 4.5 percent of GDP during the first half of the decade declined to 3.4 percent in the second half. In 1968 Arab assistance under the Khartoum Agreement amounted to about 80 percent of net imports, and in 1969 and 1970 this assistance has exceeded the net imports by a considerable margin.

6. The structure of expenditure on GDP (in current prices) changed somewhat from the years of the Five-Year Plan (1961-65) to the last five years. Total consumption as a proportion of GDP increased, mainly reflecting the rise in government expenditures, particularly on defense, while the share of investment declined.

1/ Unless otherwise indicated, years are fiscal years ending June 30.

7. The relative decline in investment was accompanied by changes in its composition. The commodity sectors (agriculture, industry and mining, electricity and construction) have raised their shares from 57 percent in the Plan period to about 67 percent in the second half of the sixties, mainly as a consequence of increased investment in electricity. The share of the latter went up to 15.8 percent of total investment in 1966-69 from a 6.6 percent share during the years of the Plan. In both periods, industry and mining held the highest share of investment, more than one-fourth of the total. For transportation and communication, the respective shares for the first and second periods are 19 and 14.7 percent. From the first to the second period, housing has raised its average share in the total by 2 percent — from 10.9 percent to 13.2 percent.

8. The shares of GDP of both exports and imports have declined considerably in the Second Five-Year period as a consequence of the June 1967 war. Although exports of merchandise grew faster than GDP in the second period, the share of exports of goods and services fell from about 18.5 percent of GDP during the five years of the Plan to about 15 percent in the last five years because of the loss of revenue from the closing of the Suez Canal and some decline in tourism. The share of imports of goods and services fell from roughly 23 percent in the first period to about 18.5 percent in the second period. A part of the decline in the share of imports may be due to the exclusion in 1968 and 1969 from both imports and consumption in the national accounts of a certain amount of emergency imports which do not go through customs.

9. Finally, national saving as percentage of GNP has gone down from 12.4 percent during the Five-Year Plan to 9.9 percent in the last five years. The decline in the rate of saving, which is reflected in the aggregate saving as well, can be attributed to the closing of the Canal and the steady increase in consumption -- mainly public.

II. POPULATION AND MANPOWER

Population

10. The population of the UAR is estimated to be growing at about 2.54 percent annually1/. In 1970 the population is estimated at 33.4 million. The population problem in the UAR reflects both short-term imbalances and long-term structural difficulties. The short-term problem

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1/ There is a discrepancy in estimates of population growth rates between different institutions. Central Agency for Public Mobilization and Statistics estimate = 2.54 percent; Ministry of Planning, Manpower Department's estimate = 2.8 percent; Cairo Demographic Center = 2.5 to 2.6 percent. In this report the growth rate is assumed to be 2.54 percent.

consists essentially of an unfavorable age distribution that leads to a high dependency burden, high and rising expenditures on social services, and a high rate of internal migration causing considerable urban problems. The long-term structural difficulties arise due to the pressure of a fast growing population on available resources, leading to the necessity for structural reorganization of the economy to provide increasing employment and production.

11. The 1960 and 1966 censuses showed that about 45 percent of the population is younger than 15 years, and 3.5 percent is older than 64. Hence only 51.5 percent of the population is in the labor force age range (15-64), and the UAR economy suffers from a heavy dependency burden. Public expenditure on services (i.e. education, health, housing and public utilities, and social services) has increased from about 24.4 million in 1952 to 144 million in 1968 or about six times. Per capita expenditure on services in the same period rose from £E 1.15 to £E 4.62.

12. The population in larger cities and towns is growing much faster than the rate of growth of total population due to internal migration. The population living in towns as a proportion of total population changed from 33 percent in 1947 to 37 percent in 1960 and to 40 percent in 1966. This was partly due to conversion of some villages into urban units, but largely due to actual migration. For example, the proportion of the total population living in the Cairo Governorate has risen from 10.9 percent in 1947 to 14 percent in 1966.

13. The long-term population problem can be viewed as an increasing density of population. Population density has increased over the past 20 years by 58 percent per square mile of total area and 55 percent per square mile of inhabited area. The difference between the two figures implies an extension of the inhabited area in the UAR. With the high population growth rate, the population densities of total area and inhabited area will increase. This poses long-term choices of development strategy between "horizontal expansion" of agriculture through land reclamation and irrigation, "vertical expansion" through increased yields per feddan, and increased emphasis on industrialization.

Family Planning

14. Given the present population problem in the UAR, one of the essential elements of a long-term population policy should be an effective family planning program. The family planning efforts started in the UAR with a "Supreme Council" for family planning set up in 1965. The philosophy behind the program and the administrative structure in the process of being set up are sound, but there has been only limited implementation and the impact of these limited measures on birth rates has not been analysed. The program is based on the use of pre-existing health centers. In February 1966, the Government started free distribution of pills to the clinics, but the users pay a nominal sum per monthly cycle. The proceeds are distributed to the clinic workers to provide incentives. It is estimated that about 300,000 pill cycles

are being distributed free per month, and about 120,000 loops per year are inserted. There are now about 2,700 health centers providing family planning services.

15. Until the end of 1970, there is no long-term plan for the family planning program, and therefore identification and formulation of projects in this field have been difficult. Although in the last few years some grants from UN agencies and bilateral sources (about LE 0.7 million) have been received, further grants are being held up due to the absence of long-term plans and specific projects.

Manpower and Employment

16. Manpower and employment policy seems to lack long-term perspective, being geared largely to short-term corrections of imbalances. At present, the Government feels that there is a surplus of academically-oriented graduates, and a shortage of technicians and skilled workers. Since 1968, the UAR has therefore attempted to limit acceptances to higher institutes and universities to 35,000 per year; of which 60 percent at least should be for scientific subjects and 10 percent at least for teacher's training. The Ministry of Planning consider they have been successful in this policy and therefore after 1972, the number of graduates of higher institutes would be less than 30,000 per year. Since detailed manpower requirement studies for the period after 1970 have not yet been completed in the UAR, it is difficult to see whether the specific limitation of 35,000 is justified. However, since the Government has felt the need to take special action for employing all graduates in the past, there was presumably a surplus of university graduates. The effort to limit university entrants appears therefore justifiable. The limitation would also reduce expenditure on higher education and release resources for technical training. In addition, the Government has now relaxed the control on emigration of Egyptians abroad. This relaxation would absorb some of the surplus university graduates. However, the emigration should be selectively controlled, otherwise some skills in already short supply may be lost.

17. On the other hand, present technical training facilities have a very low capacity compared to the needs of the country. The Cairo Training School for Architects offers a three-year course with a placement of 330 students only. The Trade Training School at Imbaba (eleven months course) and a similar Technical Training School in Alexandria have a placement for 100 students each. In-service and apprenticeship training is provided on a very limited scale by a few companies. Productivity could be considerably raised by expansion of such in-service and apprenticeship programs.

18. The Ministry of Planning is at present conducting a comprehensive and detailed survey of manpower requirements and supply up to 1980, where economic activity is subdivided into over 100 categories. The Ministry of Treasury, based on their experience of redistribution of manpower in 1969 between a number of state-run concerns and government departments (e.g. the High Dam, aircraft factories, agrarian reform sector), has been given the responsibility of sectoral reallocation of manpower, which will be based on a sector-wide census of surplus manpower.

19. Accurate figures for unemployment in the UAR are not available. The Institute of Planning, based on limited sample surveys, estimated that unemployment was about 600,000 in 1969. Earlier estimates of unemployment e.g. about one million for 1968 are likely to be overestimated. The reason is that estimates of unemployment based on registered unemployment figures are likely to be inaccurate, because enterprises in the range of 1-10 employed are not properly covered by employment censuses, and secondly it is difficult to judge the employment implications of the war. An analysis of the registered unemployed statistics shows that there are two categories involved — those seeking work and those not seeking work. Possibly as much as 20 percent of those registered as unemployed not seeking work are privately working; and about 5 percent of registered unemployed seeking work do some "work in waiting."

Underemployment

20. Rural underemployment, which often reaches large proportions in developing countries, appears to be a lesser problem in the U.A.R. than is commonly assumed. The International Labor Organization (ILO) and the Institute of National Planning conducted a joint large-scale rural employment survey between March 1964 and February 1965,1/ which showed that in 1965 there was little surplus labor in agriculture. The underemployment, at least in the survey regions in 1965, emerges as largely seasonal and available for use in agriculture itself.

21. The following conclusions emerge from the survey. The annual number of hours worked on average by men are 2280 to 2480 per year. When all rural activities are taken into account, the men appear to be almost fully employed. Women and children are recorded as working much less than men. However, there is a downward bias in work time recorded for women and children; household work, small jobs and temporary work were not recorded. Secondly, although the farm activity is seasonal, considering the high number of hours worked by men, it would seem that off-farm activity provides employment for men in the slack seasons, e.g. canal work which is counterseasonal. Thirdly, it might be of interest to note the regional variation in employment. Although for women, children and men taken together, Upper Egypt seems to have a lower level of employment than Lower Egypt, men do not work markedly less in Upper Egypt.

22. The results of the study show that there was no substantial underemployment in the UAR in agriculture in 1965. However, one cannot assume that there is as little underemployment in 1970 as in 1965, because the rural population and labor force have grown considerably in the last five years. On the other hand, the cropped area increased from 10.26 million feddans in 1965 to 10.7 million feddans in 1970. This implies that with cropped area per employed person remaining unchanged, about an additional 160,000 people could be employed. Secondly, the agrarian reform law reduced

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1/ "Rural Employment Problems in the UAR," ILO, Geneva, 1969.

ceilings on individual land holdings from 200 to 100 feddans in 1961, and further to 50 feddans in July 1969. Most of the area affected by the 1969 law (about 20,000 feddans) has already been passed on to the Government and redistributed, creating holdings of 3-5 acres. The redistribution of land creating small holdings probably increased employment possibilities in agriculture. Thirdly, the extensive programs for drainage in the UAR and the expansion of perennial irrigation with the associated canal works would also have increased employment possibilities in the rural areas. It is difficult to assess the precise amount of additional employment generated by these changes between 1965 and 1970. Underemployment in agriculture has probably increased in this period, but it is unlikely that 25 percent of the agricultural labor force is surplus, as is commonly assumed.

23. The extent of disguised unemployment in service industries is even more difficult to assess. No studies are available in this field. With the high rate of population growth and internal migration to the cities, it is plausible that considerable underemployment in the service industries exists. The Government has often been pointed out as the main sector for disguised unemployment. The bureaucracy has grown greatly, due to increasing government control of economic activity and the policy of guaranteed employment for higher institute graduates. On the other hand, there has been a large increase in the armed forces.

III. AGRICULTURE

The Role of Agriculture

24. Though its share has been declining, agriculture still accounts for nearly 30 percent of GDP in the UAR. In addition, it provides 60-65 percent of export earnings and more than half of employment. If the value of ancillary services, such as transportation and marketing, and the value of exports of processed cotton are taken into account, the importance of agriculture in the UAR economy is enhanced further.

25. Agricultural performance fell somewhat short of target during the Five-Year Plan (1961-65). Value added in agriculture rose by 3.3 percent per annum against the planned rate of 5.1 percent; employment in agriculture grew at 3.3 percent compared to the planned rate of 3.2 percent and investment in agriculture, irrigation and drainage formed 17 percent of total national investment as against a target of 19 percent. Since the mid-1960's, agricultural planning has been on an annual basis. In 1967 agricultural production in constant prices fell below that of 1966 by about 1.4 percent, and in 1968 the rate of growth was only 2.9 percent compared to a target of 5.2 percent.

26. The major instruments in planning agricultural growth during the last decade have been land reclamation and improvement, land reform, annually established acreage allotments and crop rotation control, price policy, and improving the availability and distribution of agricultural credit and

physical inputs. Numerous physical or administrative difficulties have been encountered in each of these areas. In spite of increased fertilizer availability, until 1967 the progress in yields was disappointing. Nevertheless, agriculture in the UAR remains fairly progressive. It can contribute significantly to growth with improved planning, investment, and implementation. Positive factors include the diversity of output, good average yields in some commodities, and the development over the years of a reasonably effective system of control and supervision.

The Overall Picture

27. Recent trends and developments in agriculture have been satisfactory and stand in sharp contrast to the disappointing situation of 1968[1/]. The gross value of agricultural output rose by 5.6 percent in current prices in 1969, compared to 0.5 percent in 1968; and agricultural income increased by 7.0 percent during the same period, after a decline of 2.9 percent the year before. In real terms also in 1969, output increased by 4.4 percent and income by 5.3 percent. The greater relative growth of income as compared to output was due to a deceleration in the growth of expenditures on inputs from 11.6 percent in 1968 to 1.7 percent in 1969[2/]. Remarkably, this growth was achieved without any significant expansion in cropped area or in expenditures on farm inputs. Contributing to growth were changes in the planting pattern in favor of high value crops, from wheat and maize to cotton, and significant yield increases, particularly in cotton and maize. Cotton was clearly the major contributor to growth. It accounted for 85 percent of the increment in the value of all field crops and 70 percent of that in total agricultural production.

28. Total cropped area remained unchanged in 1969 at about 10.7 million feddans. Recent trends in the area and yields of the four major crops are shown in Annex Table 7.4. The cotton area rose by 10.8 percent in 1969, returning to the 1967 level after having declined for three consecutive years. The increase in area represents to a large extent a shift from wheat and maize. Cotton (seed) yields reached a record level of 912 kgs per feddan, or 11 percent more than last year and 16 percent above the average for the preceding five years. Yields benefited from "ideal" cotton growing weather conditions as well as improved leaf worm control and precautionary spraying against bollworm. Output of seed cotton was up by 22 percent, at a near record level of 1,480 thousand tons. Moreover, the lint extraction rate

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1/ Unless otherwise specified, all figures in this chapter refer to the "agricultural year" (November-October), which differs from the fiscal year (July-June) on which national accounting is based, or the marketing year (September-August) used by some agencies.

2/ The meager growth in the value of inputs in 1969 may be attributed to little growth, if any, in the use of fertilizers, and a possible decline in the use of pesticides, etc., which may have offset an increase in the value of seeds. No major changes in input prices are reported.

showed an improvement from 36.0 percent to 36.6 percent. Accordingly, lint output rose proportionately more than seed cotton output.

29. Rice yields remained unchanged, and the area under rice declined; consequently there was a marginal decline in rice output. A sharp fall in the wheat area led to a decline of 16.5 percent in output. Maize production increased by only 3 percent. Most striking, among minor crops, was a fourth consecutive decline in lentil output, a third consecutive decline in onion output, and an 8 percent increase in sugarcane output continuing the upward trend experienced since 1965. Finally, fruit production advanced significantly — oranges by 27 percent, other citrus by 23 percent. However, production of vegetables appears to have declined (see Table 7.1).

Supply and Distribution of the Major Crops

30. UAR cotton stocks at the beginning of the 1970 marketing season (September-August) were normal, perhaps on the low side. Local consumption during the year is estimated by the Egyptian Cotton General Organization to have increased by 12 percent. Exports in the first eight months of the season were 16 percent up in volume and 17.3 percent up in value, indicating an improvement in unit value. The marketing of cotton has been helped by favorable world market conditions (world beginning-stocks were normal for the second consecutive year and world production was down by 3 percent) and by effective marketing by the Cotton Organization and export companies.

31. Information on recent or current stocks of rice, wheat and maize is not available. Rice exports are estimated to have risen by 27 percent in volume and by 20 percent in value in fiscal 1969. Rice export prices fell by about 35 percent since early 1969 (i.e. from £E 55 to £E 36 per ton). Though this trend has already hurt export earnings in fiscal 1970, its major impact is likely to be manifested in fiscal 1971. Finally, the decline in wheat output in agricultural year 1969 has led to an increase in imports, in volume, of nearly 20 percent in fiscal 1970. Moreover, average wheat import prices are reported to be up by 4-5 percent this year.

The Short-Term Crop Outlook

32. It is difficult to forecast the 1970 crop at the present time, since area estimates for many crops are not yet available. The cotton area is estimated at about the same level as that of last season (1.6 million feddans). Grower prices remain more or less unchanged. Assuming that yields fall back to their average of the three years preceding the peak year of 1968/69, cotton production would contract to 9.2 million kantars, or by about 15 percent this year.

33. Wheat output, however, may reach a near record level. Area is estimated to rise by 5 percent, yields by 15 percent, and output by 20 percent. The major factor contributing to current optimistic expectations appears to be the coverage of two-thirds of the current area by high-yielding, rust resistant improved seeds, namely Giza 155. In addition, weather conditions have been favorable to wheat and other winter grains so far.

34. The Ministry anticipates little change in the area planted to rice. The rice export target for 1970 is 800,000 tons (roughly 100,000 tons more than in 1969), and contrary to official optimism, may prove difficult to reach, as there are likely to be both supply and demand constraints. Fruit output is likely to continue to rise in 1970. Overall, the Ministry of Planning is expecting no real growth in total agricultural output in the current year. If, however, the favorable trend in weather continues during the rest of the season and if the expectations concerning wheat materialize, some growth over the 1969 season may be registered.

Land Redistribution, Reclamation and Utilization

35. In accordance with a new law passed in July 1969, maximum land-ownership has been reduced for the third time since 1952, this time from 100 feddans to 50 feddans per individual (or 100 feddans per family). Most of the area affected by the new law (an estimated 20 thousand feddans) has already been passed on to the government and redistributed creating holdings of 3-5 acres. The amount of land affected was not very significant when compared to the total area under cultivation (about 6 million feddans).

36. Progress in land reclamation and in bringing newly reclaimed areas under cultivation has been rather slow in the last couple of years. No new major initiatives in reclamation appear to have been taken in 1969. According to the authorities concerned, attention has been directed rather to completion of projects already started and to land conservation or improvement. In June 1970 it was announced that the Ministry of Land Reclamation and affiliated organizations had been allotted investment funds of about £E 17.4 million for fiscal 1971, of which £E 12.5 million were allocated to the Reclaimed Land Exploitation Organization. The plan for the coming year provides for the reclamation of 21 thousand feddans, and for the cultivation of 50 thousand feddans, in addition to development of infrastructure.

37. A continuing problem in agriculture concerns water utilization, particularly in areas shifted from basin to perennial irrigation. Onions, an important cash and export crop, are a case in point. The excessive use of water has caused low yields, inferior quality, and therefore lower export prices. It has produced smaller bulbs than before, containing too much water, thus leading to quality loss in transportation and storage. The Ministry of Agriculture has attempted to deal with this problem by urging the farmers to limit their waterings to three per season instead of 6-7. Though quality has improved this year, yields are still reported to be significantly below their traditional level. A similar problem has developed in lentils over the last few years. As a result, area or yields and output contracted simultaneously and consecutively for four years. Area is expected to recover this year in response to an upward adjustment in prices; yields might improve but are unlikely to rise to their 1965 level.

Agricultural Credit

38. Agricultural credit operations are reported to be improving gradually and steadily. Significant progress seems to have been made in both

promoting the farmers' confidence in the system and in the administration of the system. In addition, a new law was passed in December 1969 9which is intended to bring some important changes to the credit system. An important feature of the law seems to be the introduction of a mechanism which will enable the Agriculture Cooperatives and Credit Organization to deal with each local cooperative "as a unit." Each local cooperative would have its own bookkeeping system.

39. The volume of credit, essentially short-term, issued to farmers by the Agricultural Cooperatives and Credit Organizations rose from EE 68 million in 1968 to EE 72 million in 1969, but was 13-14 percent less than the average of the preceding two years. As EE 3 million of the EE 72 million were for pesticides, normally due for collection the following year, the amount "collectable" in 1969 was EE 69 million. Receipts exceeded this amount by EE 7 million; administrative improvement in the system and the large cotton crop permitted some collection on arrears.

Pricing and Marketing

40. Prices of major agricultural as well as nonagricultural commodities -- from production inputs to consumer goods -- are controlled or administered by the government. This is achieved through a combination of measures involving wide but varying government control over supply and distribution at multiple levels: direct price-fixing, rationing, special taxes and subsidies, preemptive government purchase, annually established acreage allotments and crop rotation control, import control and centralization of exports. Of many commodities the government is the sole producer, buyer and importer as well as the sole marketing agent and exporter.

41. In agriculture and agricultural products government intervention in pricing and marketing takes the following form. On the input side, the government is the sole producer, importer and distributor of commercial fertilizers and of pesticides. Seeds for several important crops (such as cotton, rice, wheat, and onions) are distributed by local cooperatives. The latter also provide credit, acting for the Agricultural Cooperatives and Credit Organizations, in cash or kind. Prices of the first three inputs -- seeds, fertilizers, and pesticides -- are fixed and normally maintained unchanged from year to year. Credit, which until 2-3 years ago was given free of charge, is now offered at a price1/. Water is provided to the farmer at no charge. On the marketing side, all of the cotton crop and varying proportions of other so-called "requisition crops" such as rice, wheat, sugarcane, onions, groundnuts, beans, and lentils are sold at prescribed prices to the village cooperatives. The marketing of other important commodities such as maize, fruits, vegetables, and animal products is by and large free. At the retail level, selected basic commodities,

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1/ The charge is 4-1/2 percent per annum, plus a maximum of 1-1/2 percent for "service", and 1 percent for late payment.

namely, sugar, tea and oil,1/ are subject to partial rationing, i.e., fixed quantities per individual are sold at a fixed price, but additional quantities can be purchased at a higher price (in some cases also fixed). These interventions lead to a dual price system (both at the farm level and at the retail level) in some products. The Ministry of Supply, however, can influence the average level of market prices through commodity transactions. Its General Organization for Supply, for instance maintains inventories of major consumer staples and controls the local procurement, import, and availabilities of important commodities such as wheat and flour, sugar, and edible oils2/.

42. Objectives Versus Policy. The objectives of government action or intervention in pricing and marketing include stabilizing prices, influencing the composition and quality of output, transferring income to the public sector, improving the balance of trade, and to meet social goals, such as improving the distribution of income and maintaining the prices of basic commodities within the purchasing range of low-income masses. Most of these, obviously, are too general to have direct operational significance; some are not fully consistent with others. Though several changes in this area have taken place in the last 12-18 months, they seem to represent either action in line with broad goals (e.g., keeping the prices of basic, staple commodities low, centralizing the marketing of major products, etc.) or adjustments in production incentives designed to correct short-term imbalances in the composition of output3/. These and their implications can therefore be discussed only individually.

43. Prices of major inputs remained unchanged last year as they did for many years before4/. This has significant implications for two reasons. First, as a result of the steep downward trend experienced in world fertilizer

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1/ Also kerosene, among nonagricultural commodities.

2/ Government intervention is not uniform. Generally, public control is greatest in export crops (such as cotton), basic items in the budget of the poor, commodities exchanged in large quantities between rural areas and urban areas, and manufactured goods with a high import content.

3/ Two recent steps of a different character have been: (a) reduction in the prices of some consumer goods, such as certain textiles and durable goods (appliances), where large inventories had been accumulated, and (b) increased efforts to reduce the net losses of some of the public marketing organizations, as discussed later.

4/ In fact, seed prices are at about the same level as ten years ago, and fertilizer prices have not changed since 1966. The government subsidizes the sale of seeds, making them available substantially below cost. Fertilizers, however, roughly 40 percent of which are imported, are sold at prices above the import price, the difference being used to subsidize the local fertilizer mills.

prices since the mid-sixties, local prices in the UAR appear to have become more and more out of line with prices elsewhere, including perhaps other developing countries. Recent experience implies that stabilization of prices by itself may not be sufficient as an "inputs policy," i.e., to assure proper growth and balance in utilization.

44. The most important change in official producer prices last year was an increase in cotton prices. They were raised at the beginning of the season by zero to 12.4 percent, according to varieties: not at all or marginally in the case of those grown primarily for local consumption, and proportionately more in the case of superior, export varieties. The weighted average increases in announced prices (using 1968 production weights) was 3.6 percent, and the average actual price received by farmers rose by 3.2 percent, i.e., less, due to changes in the variety-composition of output between the two years. While cotton area did go up in 1969 by nearly 11 percent the precise role of price in inducing this expansion is not clear-cut. The bulk of the expansion occurred in areas growing varieties whose prices were not changed at all; in some areas, the response of acreage to new price incentives was small and negative. The sharp increase in the national area and the divergence of response to price among varieties and regions may be related possibly to stricter but varying enforcement of the minimum acreage allotments.

45. In food crops, two important changes at the producer level have been: (a) an increase in the official purchase price of wheat, to bring it closer to the free market price, and (b) unifying the purchase price of rice (and lentils). The government normally purchases up to 200,000 tons of wheat annually (out of a crop of about 1.3 million), and about 200,000 tons of rice for the cities, plus about 700,000 tons for export. Until recently requisitioned quantities of rice were bought at £E 42-44. As a result of imperfections in marketing and supervision, the government was offered smaller and smaller quantities at £E 24 and was buying larger quantities at £E 42-44 — a situation which became increasingly costly and intolerable in view of the sharp decline in export prices. Consequently, the dual price system has been abandoned in favor of a single price system; the new price is £E 30. In the case of wheat, though adjusted upward, the official purchase price has been kept somewhat below the free price. This is in line with government policy of buying as little wheat as possible (not more than 100,000 tons) in the future. The above changes are also expected to simplify purchasing and marketing.

46. There were two other important changes in food prices in recent months at the consumer level. Rice prices (at government outlets) were cut from about 8 piasters to about 6 piasters per kilogram (and further to 5.5 piasters effective October 1, 1970), reversing an earlier rise which was found to be too steep for low-income groups. Meat prices, however, rose by about 17 percent in 1969, reflecting a severe scarcity associated with low-cattle imports from the Sudan due to transport problems. The rate of weekly imports has been accelerated in the last few months, and the supply situation may ease gradually.

47. Despite these recent changes, pricing and marketing policy in food crops remains inadequate. The system is neither free nor fully regulated. It allows flexibility, which is valued by the government, but up to a point. It tends to react to market conditions with a lag, being too heavily oriented to consumer price objectives. Administered prices at individual marketing stages are worked out backward, i.e., from consumer-price objectives toward farm prices, rather than forward.

48. Finally, the General Organization for Supply, the agency charged with assuring supplies and stabilizing prices has been counting on reducing its net losses sharply in 1970 (from £E 7.5 million in 1969 to £E 1.1 million). Budget estimates assume a small net profit in 1971. This is to follow from a policy of reducing both revenues and losses, but the latter faster. The major "revenue items" have traditionally been sugar (free market, not rationed sugar), tea and coffee, and the major "loss items" wheat and flour, maize and oils. The major contributing factors on the revenue side appear to be shrinking income from sugar, which more than offset expanding income from tea and coffee; and on the loss side, declining losses in wheat and other food staples, particularly oil. Moreover, flour changed from a loss item to a revenue item in 1968 as a result of a major increase in its wholesale price (from £E 46.2 per ton to £E 51.9).

Conclusions

49. Taking a long-term view, the inter-relation between pricing and resource allocation in agriculture in the past, and its implications are important. Agriculture has performed favorably in 1969, and management at high levels is in competent hands. However, although this sector has been affected relatively less than other sectors by the war situation, it cannot function efficiently for long with inadequate sectoral or national planning, especially with trends such as the sharp decline in rice prices, increasing difficulties of roundgrain rice to compete with long-grain rice, approaching self-sufficiency in maize, disappointing performance in livestock, plus the increasing need for vertical expansion in view of the slow progress in land reclamation.

50. On the input side, pricing policy needs re-examination, with emphasis on both absolute and relative levels of input prices (relative to each other and to prices elsewhere). The adverse effect of fixed prices in concealing scarcity/abundance relationships might in fact be as great, if not greater, on the input side as on the output side. There may be a case for reducing fertilizer prices and for controlling water utilization, at least in areas where excessive use is undesirable but common practice. Although the vertical approach (raising yields), compared to the horizontal approach (expanding acreage), is the most desirable and apparently less costly one, it carries with it a great deal of uncertainty. It is hazardous to project trends in yields or to "plan" technological breakthroughs. In view of the scarcity of arable land and the rapid rate of population growth, it is important to push land reclamation faster than at present.

51. On the output side, the commodities which normally attract attention in considering resource allocation in agriculture are cotton, rice, wheat and maize. In cotton and rice (principal export crops), policies have been generally responsive to local and world market trends, though with considerable lag. The recent sharp decline in rice prices makes it desirable to reduce this lag by devising a proper production and export strategy, at least for the short run. It may be added, however, that the UAR is an efficient producer of rice and that it is difficult and perhaps too early to tell whether a major re-allocation of land away from rice might be dictated by market conditions. Additional considerations for the UAR include the future level of demand in centrally planned countries and her ability to penetrate new markets or to shift to the production of long-grain rice. With regard to cotton it is becoming increasingly important to devise a comprehensive policy for the entire textile sector -- one which takes into account local demand for all fibers, including synthetics, and export potential or prospects of both raw cotton and cotton goods. (The cotton sector is examined in greater detail in Annex A). In wheat and maize, it is difficult and perhaps unrealistic to suggest unilateral alternative production policies in view of the social and political context in which the production of these two crops is normally considered. The major area which requires urgent investigation with regard to long-term resource allocation policy is livestock. Raising the latter takes a large proportion of the limited arable land of the country. Moreover, unlike cotton and rice, the comparative cost or economic justification of livestock production is not well established. In view of the resources tied and the disappointing recent performance, the policies in this field should be re-examined.

IV. INDUSTRY

52. The share of industry in GDP has risen from less than 10 percent in 1952 to about 20 percent in 1960 and approximately 23 percent in 1969. Industrialization has been a major element in the UAR's development strategy since 1957 when the first industrial plan was launched. Before 1957 manufacturing was mainly limited to processing local agricultural products. Since then considerable diversification has taken place and by 1968 the traditional industries (textiles and food processing) accounted for 57 percent of total industrial output as compared with 65 percent in 1960. The focus of policy initially was on import substitution. Since mid-1960's, however, emphasis has been placed on the sector's export potential, particularly to African and Arab markets as well as Eastern European countries.

53. The UAR's major growth industries in the first half of the sixties were the chemicals, engineering and food processing industries. During this period their output (in value terms) rose at an average annual rate of 14 percent compared with an average of 12 percent for industry as a whole. Stabilization measures in 1966 and subsequently the diversion of resources to defense adversely affected industry in the years 1966 to 1968. The rate

of expansion was less rapid than in the earlier period and the contribution of individual industries differed in important respects. The textiles and food processing industries maintained relatively high growth rates in contrast to the chemicals and engineering industries.

54. Largely as a result of measures which included liberalization of credit and reductions in the prices of some textile products and consumer durables the volume of industrial output rose by 8 percent in 1969. The revival was broadly based and is expected to continue in the present year. Excess capacity, which from 1965 to 1968 had averaged about 30 percent for industry as a whole, has been substantially reduced; shortages of components, which had been a major constraint on expansion of production, are no longer at significant levels.

55. Employment in industry increased considerably less than the growth of output and by 1969 accounted for 11 percent of the employed labor force as compared with 9.6 percent in 1961. The increase occurred mainly in the first half of the decade. Industrial employment increased at an average annual rate of 7.2 percent between 1960 and 1965 as against an average annual increase of 2 percent subsequently. The increase in average wage per worker, which amounted to 47 percent between 1961 and 1967, reflects social policies rather than market pressures. Shortages of lower level supervisors and intermediate level technical staff have emerged and have been aggravated by rigidities in recruitment and grading policies.

56. The changing structure of industry has been reflected in the composition of exports. As a proportion of total merchandise exports, exports of manufactured goods rose from 29 percent in 1961 to 40 percent in 1969. While exports of yarn and other textile products accounted for just over half the UAR's industrial exports in 1969 as against a third in 1961 there was a significant rise in exports of metal and engineering products, chemicals, petroleum and, more recently, leather goods. However, as much of the expansion in the engineering and, to a lesser extent, in the chemicals industry has been of an assembly nature with little local product development, the scope for sustained expansion of exports in these sectors is uncertain.

57. Industrialization has absorbed a significant portion of the resources allotted to investment — 27 percent in the period covered by the First Plan and slightly more in subsequent years, when appropriations were reduced overall and placed on an annual basis. The emphasis of the First Plan on expanding production was subsequently replaced — because of the growing pressure on resources since 1966 -- by stress on the completion of existing projects. There was a narrowing of the divergence between planned and actual investment, estimated at between 20 and 25 percent in the First Plan, to approximately 10 percent more recently. Emphasis on development of the basic industries, especially the iron and steel and petroleum industries has now been renewed. Previous emphasis on the development of the public sector has been modified, and a role provided for the private sector as subcontractors to the larger public enterprises, particularly in the engineering industries and as manufacturers of clothing, leather and wood products for export.

58. Investments in 1971-76 will be channelled mainly into the iron and steel, petroleum and textile industries. Total investment planned for these industries amounts to £E 779 million (compared with £E 590 million during the six years 1964-69) of which about 47 percent will be absorbed by the Helwan steel complex and 38 percent by the petroleum industry.

59. The appropriation for industrial investment in 1971 is £E 108 million, some £E 14 million less than in the previous year. The reduction reflects the growing pressure on resources and the priority of defense requirements. These constraints are likely to continue to limit the availability of resources for investment in the immediate future and may consequently, through possible shortfalls in complementary and replacement investment, force again a reduction in the level of capacity utilization. While to some extent increases in productivity may alleviate the effects of these developments on the level of industrial activity, sustained expansion may become increasingly difficult.

60. The Government exercises wide control over industry. In addition to the normal fiscal incentives, influence is exercised through state ownership of major industrial enterprises, foreign exchange allocations and control in varying degrees of prices and distribution of many final and intermediate goods. Imports of raw materials, parts and new plant take place within the framework of a national foreign exchange budget. Exports of many products are subsidized either directly through subventions or indirectly through price differentiation between home and export markets.

61. Responsibility for formulating and implementing the industrialization program is shared by five ministries -- Planning, Economy and Foreign Trade, Industry, Health and War. Operations of public sector enterprises -- which account for 80 percent of industrial output — are controlled through a centralized budget system which leaves them little autonomy. Projects are prepared at enterprise level and submitted through the General Organization (broadly the equivalent of a state holding company) concerned to the responsible ministry. The ministry in turn assesses the project in relation to the planned development of the sector, the Government's social policies and the availability of foreign exchange. The process of approval is lengthy, demarcation of lines of responsibility is not evident and, possibly because of this, there appears to be a lack of integration in industrial planning. The weaknesses of the system have been recognized and the scope for possible improvements in interministerial coordination and the extension of greater autonomy to enterprises are being considered.

The Petroleum Industry

62. The petroleum industry has assumed an increasing significance in the UAR economy during the past decade. From an annual output of 3.5 million tons in 1960, production of crude oil has expanded to an estimated 13 million tons in 1969 despite the loss of the Sinai oil fields which, before 1967, with 4.9 million tons accounted for almost 80 percent of total production. On the basis of present proven reserves, output is expected to reach about 34 million tons by 1975. Sinai would add about 6 million tons.

63. Apart from Sinai, the principal oil producing areas are the El Morgan field in the Gulf of Suez and the neighboring onshore Umm el Yusr field, El Alamain on the coast west of Alexandria, and Umbaraka in the Western Desert. The output of the El Morgan field is currently 300,000 b/d and that of the Umm el Yusr field 40,000 b/d. In the Western Desert the El Alamain field at present produces 30,000 b/d; the Umbaraka field is expected to reach an output of 60,000 b/d by end of 1970. Exploration is being carried out currently in the Siwa Oasis and Abu Gharadiq.

64. The proportion of oil processed in the UAR is relatively low. Plans for a rapid expansion of refining capacity -- about 9 million tons before the June 1967 war -- received a setback when major installations at Suez suffered substantial war damage. The total amount of petroleum processed in the UAR in 1968 amounted to 5 million tons as compared with 8 million tons a year previously. Repair and relocation of facilities is expected to make possible processing of nearly 11 million tons in 1972: by 1975 refining capacity is expected to be 14 million tons.

65. The value of oil exports in 1969 amounted to £E 13 million, roughly 80 percent of the 1967 level. By 1975 export receipts -- excluding the Sinai fields -- are expected to amount to £E 59 million. Potential exports from Sinai in 1975 are estimated at £E 6 million. Correspondingly a decline in imports from £E 23 million in 1969 to about £E 6.7 million in 1975 is expected; imports of crude oil are expected to cease in 1971.

66. Natural gas resources are also being developed. Fields located at Abu Madi in the Nile Delta and offshore at Abu Qir are estimated to have considerable reserves. The exact potential of these fields has not yet been established and long-term export sales contracts have not been concluded. At present it is intended to use Abu Madi gas for fertilizer production. Abu Qir gas will be used by industries in Alexandria.

67. The UAR's approach to developing its oil industry has been pragmatic and has placed primary emphasis on commercial considerations. In the main, exploration for oil and gas has been undertaken in cooperation with foreign enterprises, usually through partnership agreements with the Egyptian General Petroleum Company (EGPC). Most concession agreements provide for equal sharing of production between partners; usually the foreign partner is responsible for preliminary investment of predetermined amount for which, in the event of a commercial discovery, it is recompensed by EGPC. Each partner is responsible for marketing its share of output. Royalties payable vary between 12-15 percent of the selling price to third parties. EGPC has at present five foreign operating partners, of which three are American based, one Italian and one Japanese. In addition to the operations which it undertakes in partnership the EGPC is prospecting on its own account in the Siwa Oasis -- with Soviet technical assistance -- as well as in certain other areas of the Western Desert and in the Nile Delta.

68. The investment program for the industry envisages an expenditure of £E 294 million in the period 1970-75. Of this amount half will be invested in research and production facilities and a third each in transport

and distribution. Some £E 34 million -- 12 percent of aggregate planned investment for the sector -- has been allocated for expansion of refining capacity. In addition the construction of a 210-mile, 42-inch pipeline -- capacity 80,000 b/d — between Suez and Alexandria is proposed. The contract for this project was awarded to a French-led consortium in October 1969; difficulties in arranging finance -- the project involves an expenditure of about £E 76 million -- have delayed commencement of construction.

Iron and Steel

69. Other high priority investments include the expansion of the iron and steel mill at Helwan. The plant has been operating uneconomically, largely because of its small size and high transportation costs for ore and fuel. The expansion, now under construction, is scheduled for completion in 1976 and involves the addition of two new blast furnaces to the existing plant, raising total pig iron capacity to 1.5 million tons per year. Three oxygen converters will raise steel plate output from 300,000 tons to 1.2 million tons. It is expected that part of the facilities, including a blast furnace, will be operational in late 1972. The program also envisages the development of the Baharia iron mine and construction of a railway connection between the mine and Helwan. Related road and river port facilities will be provided. The expansion program involves an expenditure of £E 365 million of which £E 74 million will be financed by the USSR. It will provide sufficient steel for domestic consumption and is expected to furnish about 500,000 tons annually for export. Export markets will include the USSR, to which 250,000 tons will be sold annually, as well as neighboring Arab and African countries.

Textiles

70. The textile industry, one of the longer established of the UAR's industries, accounts for approximately one-third of industrial production and is a major source of foreign exchange earnings. Rather more than two-thirds of total textile production is composed of cotton yarn and textiles -- other textile goods produced include synthetic and cotton yarns and textiles and jute. Productivity in the industry though low relatively to Japanese and American standards does not compare unfavorably with that of other African and Middle Eastern countries. Modernization of equipment and a switch to use of Indian yarn rather than higher cost local yarn in lower quality materials is expected to improve this position.

71. The investment program for the industry envisages an expenditure of £E 120 million over the next five years, of which roughly half will be invested in the cotton spinning and weaving industries to raise the capacity of that sector by 30 percent. The possibilities of expanding the clothing and knitted goods industries — at present are largely in the private sector — are under examination; the program provides for an investment of US$28 million in this sector.1/

1/ See also Annex A.

V. TRANSPORT

General

72. The UAR has a relatively well developed transport system within its inhabited areas. Over 22,000 km of roads (9,000 km paved) and 3,500 route-km of railways link all major towns. Some 2,000 km of main navigable waterways interconnect Lower and Upper Egypt (Maps 1 and 2).

73. With the closure of the Suez Canal and the consequent loss of approximately £ 95 million in revenues annually, transport has had a decreasing share in the country's gross domestic product, from 9.7 percent in 1967 to an estimated 5.3 percent in 1970. Public investment in transport and communications in the past five years (about E 40-50 million a year) averaged 12 percent of the government's total capital expenditure, about half of what was originally envisaged in the Second Plan.

74. The shortfalls in investments have accentuated the inefficiency of the sector as a whole and of certain modes in particular. Railways have been deferring for several years their expansion and renewal program. Many of the lines are operating close to full capacity at low levels of efficiency because of the poor condition of over 2,200 km of track as well as obsolete and insufficient rolling stock. The road transport industry is also in poor condition. Maintenance is generally inadequate because of a chronic shortage of spare parts, trained personnel and workshop facilities. The fleet is composed of a wide variety of trucks and buses and has a high percentage of obsolete vehicles, which further complicates maintenance.

75. Freight traffic has grown at an average of 4.9 percent a year between 1965 and 1969. At the same time, substantial changes have occurred in the past years in the modal distribution of freight traffic. Railways have had a decreasing share in the market, whereas highways share has increased. The war (closure of several lines), completion of the construction of the High Dam, and the fact that several railway links are operated near capacity are some of the reasons underlying the decreasing share of railway traffic. Furthermore, the government has lately placed particular emphasis on reorganizing the road and transport industry through increased investments.

76. Transport is extensively controlled by the government through the direct ownership of the railways, ports, pipelines, civil aviation and a substantial share in road transport and inland waterways. Furthermore, it has a tight regulatory and supervisory grip over private truckers. In general, the public transport organizations within their structural limitations are adequately managed. Average revenue figures available for each mode show that by international standards they are rather low. Railway tariffs have remained unchanged in the last 40 years apart from 50 percent to 100 percent freight rate surcharge and a 20 percent passenger fare increase in 1967. During the same period the country's wholesale price index increased over 400 percent. Truck and bus rates, especially the latter,

do not cover operating costs. If some organizations such as the railways and the publicly owned road freight haulers show a small financial surplus, this probably is achieved at the cost of inadequate and insufficient maintenance, overloading and a low quality of service.

77. Development of a rational price structure is central to the whole question of transport coordination. In addition there is a need for better investment planning. Apart from an overall planning exercise done in 1964, no other comprehensive survey of the sector has been prepared. Such a survey of the country's long-term transport needs is required so as to indicate the optimal allocation of traffic between modes and consequently investment priorities. The government recognizes the need for having such an overall survey. The Higher Committee of Transport of the Ministry of Transport, through its specialized commodity subcommittees, is concerned largely with the day-to-day coordination problems of allocating traffic according to the short-term available capacity of the various modes. Investment decisions are made on a yearly basis according to budget allocations. Investments have been insufficient and thinly spread over various projects. Consequently, there are several modal duplications and, most important, in several instances economic efficiency is less than desirable.

78. It is difficult to predict the development of transport needs in the UAR in the next few years. To a large extent the demand for transport is intimately related to the country's overall economic prospects, which are difficult to forecast. If the level of military expenditures were to be curtailed considerably in the future and part of the balance invested into the wide range of industrial, agricultural and mining projects the government envisages developing, it could be assumed that sizeable increases in the demand for transport would occur. With the prevailing uncertainties and limited information available only a moderate growth can be assumed. Notwithstanding, there is considerable scope on economic grounds, for investments in the UAR's transport sector. Large renewal and expansion backlogs exist in practically all sub-sectors.

Railways

79. With a network of over 3,500 route-km (951 km double-track and 25 km electrified) the state-owned Egyptian Railways (ER) is still the backbone of long distance bulk transport in the UAR. In recent years the railway's share of total ton-km hauled in the country declined from 57 percent in 1965 to 36 percent in 1969 (in absolute terms from 3,400 million to 2,643 million ton-km).

80. Although railway traffic has decreased as a whole, certain links in the system have maintained their traffic, if not increased it. For some time several railway links have been operating close to or at full capacity, particularly the Upper Egypt line. Currently, efforts are being devoted to increase line capacity through central traffic control and other communications and signalling systems. Railway passenger traffic, unlike freight, has continued to grow in the last few years, increasing from 172 million passenger journeys in 1965 to over 206 million in 1969. In terms of passenger kilometers traffic has virtually stagnated.

81. Future prospects for railway traffic are promising, especially if the railway can increase its efficiency and expand its capacity where necessary. The present efforts to increase mineral production and industrial output in general should have a favorable impact on traffic. Preliminary traffic figures for 1970 indicate increases of 24 and 11 percent for freight and passenger traffic respectively over the 1969 figures. In the long run, however, a considerable amount of traffic could be diverted to the inland waterways system depending upon the funds available for its development.

82. No detailed cost study on the ER is presently available, nor does it seem that ER has developed a satisfactory cost accounting system. Hence, any judgment on the adequacy of the present rate and fare schedules can only be made in broad terms. Apart from surcharges of 50 percent to 120 percent levied in 1957 over the 1930 basic rates and a 20 percent increase in passenger fares in August 1967, tariffs have remained unchanged in the last 40 years. Per se, this indicates that a revision of the tariff structure and levels is warranted in view of the changes in the structure of traffic that have taken place and the overall increases in costs (429 percent increase in the wholesale price index between 1939 and 1969). This is somewhat substantiated by the deterioration of the ER's earnings, particularly in 1969. Average revenues per ton-km, from a low of 4.64 milliemes (US cents 1.06) in 1964 reached a high of 5.77 (US cents 1.33) in 1967 and subsequently, dropped to 5.42 milliemes (US cents 1.25) in 1969. Consequently, the railways' net earnings dropped considerably (2.5 percent rate of return on net fixed assets in 1969 versus 5.5 percent in 1968 and 8.3 percent in 1967). Furthermore, these net earnings were achieved in the past partly at the cost of deferred maintenance and insufficient capital expenditure.

83. The railway's investment performance in the last 20 years has been less than adequate, leading to a large backlog in track relaying that considerably handicaps its efficiency and quality of service. Presently over 2,200 km of tracks and 75 percent of the sidings are in need of renewal, lack of which leads to a need for constant maintenance, low speeds and train delays as well as excessive wear and damage to the rolling stock. Inadequate marshalling yards, which have not been renewed in the last 50 years, and obsolete communication systems considerably reduce train speeds and line capacity. Insufficient passenger and railcar units on the suburban lines out of Cairo, especially during peak hours, lead to occupancies reaching sometimes 300 percent.

84. The ER's management has been trying in the last few years to start a major investment program. Originally scheduled to be implemented during the 1970-75 period, for various reasons (mainly financial constraints) the program has slipped to 1971-76. The latest figures show a total investment of £E 137 million distributed over the five years. The major targets of the program are to relay track, modernize marshalling yards, workshops, and running sheds; install on certain lines automatic block and CTC systems; and renew and increase the motive power and rolling stock. The proposed investments will reduce operating expenses and increase the ER's traffic capacity, its level of service and safety.

Roads

85. The UAR has a reasonably adequate highway network consisting of 21,500 km, of which over 9,000 km are paved. No substantial new developments have occurred in the highway network in the last five years. All aspects of highway construction and maintenance are under the General Organization for Roads and Bridges. Apart from supervising construction, which is carried out through five state-owned contracting companies, the Organization executes all routine maintenance work and controls and supervises the construction of all third-class roads.

86. In the past, highway construction priorities and design standards were set mainly on political and administrative grounds without due regard to traffic volumes and the economics of the investments. Roads were constructed to connect administrative centers or as an access to mines, quarries and tourist areas. Generally, construction did not follow any intermediate step procedure, roads being upgraded directly from earth to concrete asphalt. With limited information available, it seems that the road network is still basically adequate in spite of an increase of over 78 percent in road traffic in the last five years. Possibly certain links require upgrading and better maintenance standards are needed.

87. Until the end of 1973, the authorities plan to continue to pave links between governorate and provincial capitals (550 km), pave the road between Suez and Khardaka (395 km), and strengthen 410 km and resurface 2,000 km of roads. Furthermore, the government plans to pave desert roads in the future so as to facilitate the access to oil wells. Other plans include paving the road connection between Aswan and Wadi Halfa on the Sudanese border. This warrants a careful study on economic grounds, considering the excellent possibilities of developing an efficient water transport system on Lake Nasser. Similarly proposed improvement of the road between Alexandria and Marsa Matruh should be compared to the alternative of improving coastal shipping and/or rail facilities.

The Road Transport Industry

88. Road freight transport is to a large extent controlled by the government through the General Organization for Freight Road Transport, directly through the ownership of four nationalized road freight transport companies, and indirectly through the supervisory control of around 26 private trucking cooperatives. Private operators are still numerous (over 50 percent of the fleet), but are restricted to a maximum ownership of five trucks and to short distance hauls. Between 1962 and 1966, there was a sizeable increase in the UAR's vehicle fleet; the number of trucks grew on an average over 7 percent a year. Between 1965-1970 the public companies increased their truck and trailer fleet by over 15 percent and 27 percent a year, respectively.

89. As a whole the road transport industry has grown considerably in the past few years, increasing on an average by 11.4 percent a year in tonnages hauled and 15.6 percent in ton-km during the 1965-1969 period. The reasons underlying these impressive increases are manifold but are difficult

to identify and quantify individually. The war conditions are one of the factors affecting the modal distribution of traffic, roads gaining at the expense of railways.

90. Present average revenues per ton-km of 7.2 to 8.0 milliemes (US cents 1.65 to 1.84) are too low to cover operating costs. The financial viability of the industry is most probably obtained through deferred and inadequate maintenance, widespread overloading and low quality of service. Rate increases are subject to the lengthy approval procedures of the Ministry of Transport.

91. Except for the four public companies which account for 6 percent of the fleet and have a relatively modern (90 percent of the fleet is less than six years old) but heterogenous fleet (nine different payloads and truck makes), the UAR's trucking fleet as a whole is in very poor physical condition. Over 50 percent of the cooperatives' trucks are more than 10 years old of which half are more than 15 years old. Understandably, a large proportion of these vehicles are inoperative, obsolete or uneconomically operated.

92. The inter-city bus service in the UAR is under the control of the General Organization for Passenger and Road Transport, which supervises and coordinates the operations of four nationalized bus companies. The demand for inter-city bus passenger transport declined in 1968, increased again in 1969 (to 248 million passengers a year), but did not reach the pre-war level of 266 million passengers.

93. The bus fleet increased from 1,723 buses in 1965 to 2,373 in 1970, of which 54 percent are six or more years old. Approximately 20 percent are deadlined vehicles, mainly due to a lack of spare parts. The average revenues per passenger-km of 3.4 milliemes (US cents 0.78) allowed the companies to show a small surplus in 1969, whereas in the previous four years they were running at a loss. This surplus is achieved at the cost of inadequate maintenance, overloading (up to 200 percent occupancy factor) low frequency of service, etc. For social reasons fare increases are generally denied by the government.

Cairo Urban Transport

94. Public transport in Cairo is controlled by the Cairo Transport Authority. It runs the urban bus services, the tram and trolley service, as well as a rapid tram service between Cairo and Heliopolis and a system of motor boats on the Nile. The Authority carries over one billion passengers a year with a fleet of approximately 2,400 buses (25 percent out of operation), 322 tram units including trailers (some further 300 trams are out of operation), 128 operative trolleys (over 30 deadlined) and 8 riverboats. Fares are also subject to government approval. For buses the average revenue of 13 milliemes (US cents 2.00) per passenger is far from covering their average costs of 17 milliemes (US cents 3.91). The level of service is poor, overloading ranging between 100 percent and 200 percent during peak-hour demand.

95. Cairo is faced with the usual problems of rapid urban population growth. The situation in Greater Cairo has been somewhat aggravated by the fact that no comprehensive urban development plan has been prepared. The Greater Cairo Planning Commission, established in 1965, has for some time been trying to develop such a plan. The Commission is also in charge of certain special urban projects.

96. Since 1954, six reports have been prepared by experts from several countries on the proposed Cairo subway. All the reports recommend the construction of a subway system. Based on these findings, the Commission embarked on its own study in 1968. The study did not get to a stage of quantifying costs and benefits, and consequently its findings are of limited value. It is roughly estimated that construction costs may reach about £E3 million per km of line including rolling stock. The Ministry of Transport has signed a contract with the French consulting firm SOFRETU to prepare a master plan for underground transport and the final designs of 20 km of lines.

Inland Waterways

97. The UAR has a relatively extensive inland navigation network (nearly 2,000 km of main routes). It consists of the river Nile and of navigable irrigation canals deriving from it in the Delta. The width and depth of the canals are not sufficient and the obsolete locks are negotiated at the cost of undue delays. The 200 km trip between Cairo and Alexandria takes 10 to 12 days to be completed by a motorized barge.

98. Inland water transportation is under the supervision and coordination of the General Organization for Inland Water Transport, a government organization established in 1970 to replace the Inland Transport Organization. Apart from being responsible for planning and executing inland water projects, it issues regulations for inland navigation, sets transport fares and rates, fees for using bridges and locks, etc. It is also in charge of two nationalized state-owned water transport companies. Data on tonnages hauled by inland waterways vary considerably according to the source. According to the General Organization for Inland Water Transport, the public companies presently handle approximately 1.6 million tons of bulk commodities. The average hauling distance is around 720 km. In addition, some 3,800 million tons are transported by the private fleet, mainly sailing boats, presumably for short distances. Operating costs and average revenue information is very sketchy and inconclusive. Broadly, average revenues per ton-km depending on the route, vary between 1.60 and 4.00 milliemes, the latter for the Delta routes. From the limited financial information on the companies, it seems that they are financially barely breaking even, without any provision for depreciation and interest.

99. Although between 1965 and 1969 virtual ton-km transported by river increased by over 80 percent, considerable further potential exists. A comprehensive survey on the future prospects of inland waterways, its comparative advantages vis-a-vis, e.g. the railways and the infrastructural improvements needed, is urgently needed.

100. The Noubaria Canal project, substantial work on which has already been done by the government, consists in completing the 20 km canal link to Alexandria and reconstructing bridges and locks, so that the canal becomes suitable for 900 ton barges. The travel time from Cairo to Alexandria will be reduced from 10-12 days to around three days. Apart from carrying some two million tons of coal from the port of Alexandria to the new Helwan steel mill just south of Cairo, it will carry cement and phosphates as return cargo, to be exported through the Alexandria harbor. Very rough estimates indicate that present transport costs would be halved.

Ports and Maritime Transport

101. Alexandria is by far the most important port in the UAR, having handled about 9.3 million tons in 1969. Up-to-date information on the other two main ports, Port Said and Suez, is not available. Apart from these principal maritime outlets, Egypt has several secondary ports, namely Marsa Matruh on the Mediterranean and Safaga and Horghada on the Red Sea. These secondary ports are poorly equipped and handle only some 600,000 tons a year. Before the war, Suez was the main outlet for petroleum in the country. According to the available statistics, traffic at this port has since decreased considerably, from 5.8 million tons in 1965 to just over 2.0 million tons in 1968. Port Said, largely a bunker port for the Suez Canal traffic, has also suffered considerably due to the closure of the Canal, with freight decreasing from 1.4 million tons in 1965 to 295 thousand tons in 1968.

102. The Alexandria Port Authority is an autonomous organization under the Ministry of Transport, with its own sources of revenues. In 1970 it earned a net profit of around £E109,000, approximately a return of 5.2 percent on net fixed assets. The Authority envisages the further development and renewal of its facilities so as to be able to cope efficiently with substantial increases in trade forecast for the 1970 decade: total cargo movements are expected to increase 1.5 times including liquid bulk, which is expected to treble to over 7.0 million tons by 1980. With moderate investments, the authorities have managed to increase considerably the port's efficiency in the past few years. Waiting time has been reduced from 3.97 ship/days in 1966 to 1.54 ship/days in 1968 and 1.34 ship/days in the first half of 1969, through increased berth productivity (430 tons/day of general cargo in 1969) and other measures. Proposed investments for the 1971-1975 period total more than £E 25.0 million. The main item in the investment program is the proposed construction of a bulk handling pier with the necessary loading and unloading equipment. To a large extent, the project is complementary to the Noubaria Canal, and the government recognising this is proceeding to take steps to implement the port improvement proposal.

103. Egypt's merchant fleet is composed of 32 vessels, totalling 176.6 thousand dead-weight tons. The General Organization for Maritime Transport plans to increase the fleet by 31 ships between 1970 and 1975. Coastal shipping is practically nonexistent. Even when the Suez Canal was open, very little domestic traffic operated through it.

Civil Aviation

104. The Civil Aviation Organization owns, supervises, maintains and operates all airports in the country. It is partly under the jurisdiction of the Ministry of Transport and partly under the Ministry of Military Production. The state-owned United Arab Airlines operated 21 aircraft in 1969.

105. Egypt has seven major airports of which Cairo is by far the most important, handling in 1969 some 31.3 thousand aircraft arrivals and departures and 1.2 million passengers. Some 37 scheduled international carriers operate over 200 flights a week through Cairo.

106. Capital expenditures undertaken by the Civil Aviation Organization totalled just over £E 4.2 million during the 1966-1970 period (aircraft excluded), of which around half were for improvements of the Cairo Airport. The Organization generally has a substantial operational deficit. For the next five-year period (1971-1975) the Organization envisages substantial capital outlays for airport remodelling and improvement, totalling £E 22 million, half of which are for the Cairo Airport. Designs for expansion and renewal of the Cairo Airport are being drawn up in cooperation with the Paris Airport Authority.

VI. FISCAL POLICY AND RESOURCE MOBILIZATION

107. The importance of fiscal policy in the UAR arises from the predominant position of the government in the economy. The budget is the main instrument determining the allocation of available resources between investment and consumption. Public current expenditure is very large and the budget exercises direct control over the financial flows originating in the public sector. Furthermore, the bulk of financial savings of the household sector, mobilized through financial intermediaries and contractual savings schemes, are also channeled through the budget. Public investment (by the government and the nationalized sector) accounts for about 90 percent of gross domestic investment and government consumption amounts to about 30 percent of total consumption. Even the level of private consumption is subject to some degree of direct budgetary control through the wages and employment policies followed in the public sector. Thus the aggregate savings-investment decision for the economy is taken largely within the framework of the budget and an assessment of fiscal policy, at least from the point of view of the growth objective, must depend upon the levels of overall savings and investment achieved.

Recent Developments

108. From this point of view the fiscal performance over the last few years has been disappointing. Despite a relatively slow expansion of GDP after 1967 (about 4.6 percent per annum in current prices) there were strong pressures for the continued growth of consumption. This was mainly due to the increase in defense requirements, leading to a growth rate of 16 percent

per annum in government consumption between 1967 and 1970. The growth of private consumption over the period, although lower than in previous years, averaged about 5 percent per annum, exceeding the rate of growth of GDP. As a result both the rates of savings and domestic investment declined substantially.

Table 1: SAVINGS AND INVESTMENT, 1966/67 TO 1969/70
(Current Prices)

	1966/67 % of GNP	Average Annual Growth %	1969/70 % of GNP
Private Consumption	65.8	5.0	67.3
Government Consumption	19.7	16.0	27.2
Gross Domestic Savings	14.5	-20.0	6.2
Gross Domestic Investment	14.5	- 3.0	11.6

109. High current expenditures have long been recognized as posing a major fiscal problem for the government. Current expenditure grew at an annual rate of 18 percent between 1960 and 1966, partly due to the rapid growth in defense expenditures, but also because of the desire to expand social and economic services. Some attempts were made to bring the size of the current deficit under control in 1967 and there was a significant improvement in the financial situation owing to a substantial amount of expenditure control and a successful drive to collect tax arrears. The current account was potentially in surplus to the tune of £E 6 million but the payment of arrears of current expenditure amounting to £E 65 million led to an actual deficit of £E 59 million.

110. Any trend towards reducing the current deficit was reversed after the war in 1967. Current expenditure increased moderately in 1968 but its growth accelerated in 1969 and 1970 so that budget estimates of 1970 suggest an average growth rate over the three year period of about 9 percent per annum. The main factor explaining the growth of total expenditures is the increase in defense requirements. Total expenditure on defense increased by 45 percent in 1968 and then slowed down in 1969 but increased sharply again in 1970 (budget estimates) to a level more than 100 percent above that of 1967.1/ This figure would be even higher if the emergency appropriation of £E 100 million authorized in June 1970 for defense and security were included. There was some success in controlling non-defense expenditures. Expen-

1/ These figures differ from official figures since military expenditures financed through Arab assistance (Khartoum Agreement and nonrecurrent Arab aid) are not shown as part of the central government's administrative budget. They constitute expenditures from the Emergency Fund, into which this assistance is channeled, and for which no budget figures have been made available.

diture on social and economic services grew at the rate of 6.5 percent per annum while other expenditures actually declined.1/

111. By constrast, the growth of revenues was sluggish over the period, largely owing to the slowdown in economic activity. Customs revenues declined in 1968 and 1969 owing to the tightening of import restrictions and were expected to recover to the pre-war level in 1970. There were no significant additional tax measures introduced over the period except for the doubling of stamp duties and the imposition of a security tax as a 50 percent surcharge on the defense tax. Some indirect taxes on high value manufactured consumer goods were actually reduced to clear accumulated stocks in 1969. The trends in current revenues and expenditures over the period are summarized in Table 2 and show a steady worsening in the overall current deficit, which increased from £E 59 million in 1967 to £E 190 million in 1970.

Table 2: OVERALL CURRENT DEFICIT
(£E millions)

	1966/67	1967/68	1968/69	1969/70 Budget (Estimates)
Central Government				
Current Expenditure	664.2 /1	616.0	650.2	772.8
of which: Defense and Security	(208.7)	(285.0) /2	(324.1) /3	(422.7)/4
Social and Economic Services	(229.8)	(220.2)	(258.6)	(277.9)
Other	(160.7)	(110.8)	(67.5)	(72.2)
Current Revenues	596.6	532.0	534.3	556.3
Deficit	67.6	84.0	115.9	216.5
Local Authorities Surplus	8.6	20.8	12.2	26.1
Consolidated Current Deficit	59.0	63.2	103.3	190.4

/1 Includes £E 65 million payment of arrears.
/2 Includes £E 60 million officially classed as emergency appropriations.
/3 Includes £E 100 million from Emergency Fund.
/4 Includes £E 179 million from Emergency Fund but excludes £E 100 million emergency appropriation announced in June 1970.

1/ This decline, however, is largely illusory, resulting from the exclusion, after 1967, of principal repayments of public foreign debt from the current services budget. This amounted to £E 64 million in 1967. When allowance is made for this change of classification, this category remains constant over the period, reflecting some success in expenditure control.

112. Details of the 1971 budget were not available at the time of the mission visit but preliminary information on the draft budget suggests that these trends will continue. Total current expenditure is expected to increase by 19.0 percent over the previous year. This is almost entirely accounted for by increased defense requirements. Expenditure on defense and security is expected to increase by 30.0 percent over the previous year as compared to an increase of 7.0 percent for other expenditures.

Resource Mobilization

113. The expanding current deficit presented the government with a severe problem of mobilizing resources for investment. Although there was a substantial increase in savings of other public entities (social insurance, public companies, etc.) and in government borrowing from the household sector and the banking system, this was more than offset by the increase in the current deficit of the government. Table 3 summarizes the pattern and the levels of available resources and shows two important trends.

i) The rapid growth of the current deficit and debt service has forced the government to accept very low levels of public investment. After a big decline in 1967, public investment recovered in 1969 and this recovery was expected to continue into 1970. However, actual public investment in 1970 was only EE 300 million.

ii) Even this low level of investment was only made possible by a considerably increased reliance upon external assistance and foreign loans. After the war a substantial amount of Arab assistance was made available on an annual basis to compensate for the loss of revenues from the Suez Canal and the oil refineries. This in itself may be viewed, with some justification, as a once for all shift in the pattern of available resources. However, in the last three years there has been a continuous increase in the economy's reliance upon external resources. The share of external assistance and foreign loans in total capital expenditure increased from 11 percent in 1968[1/] to 31 percent in 1969 and 37 percent in 1970.

114. These budgetary developments merely reflect a significant adverse movement in the rates of saving and investment after 1967. Not only did the rate of investment fall substantially but the savings rate fell even faster so that the gap between the two, which had disappeared in 1967, began to

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1/ This figure is probably an underestimate since part of the unusually large Miscellaneous item for this year represents external assistance provided before the Emergency Fund arrangements were established. However, even if all of this item is included -- an extreme assumption -- the contribution of foreign resources is still only 29 percent in 1968.

Table 3: FINANCING CAPITAL EXPENDITURE /1

(£E millions)

	1967/68 Actual	1968/69 Actual	1969/70 Budget Estimates
Uses			
1. Public Investment	267.1	312.3	350.1
2. Current Deficit	63.2	103.3	190.4
3. Foreign Debt Service	38.8	64.0	101.7
TOTAL	369.1	479.6	642.2
Sources			
1. Domestic Resources	231.0	259.8	301.6
of which:			
Public Sector Savings /2	71.6	88.6	114.6
Social Insurance and Pensions	144.9	151.0	172.0
Savings Certificates	13.6	15.3	15.0
Postal Savings	0.9	4.9	-
2. Net Bank Borrowing	42.5	43.7	65.6
3. Miscellaneous /3	55.4	25.7	35.8
4. External Resources	40.2	150.2	239.2
of which:			
Emergency Fund /4	-	127.0	179.0
Foreign Loans	40.2	23.2	60.2
TOTAL	369.1	479.6	642.2

/1 This table has been constructed on the basis of data provided by the Ministry of Treasury to the IBRD and IMF missions. It does not agree with figures published in the previous report which showed substantially lower public sector savings in 1968, and which have been revised by UAR authorities.

/2 These are calculated as gross surpluses plus depreciation minus gross operating deficits.

/3 This figure has been obtained as a residual in this table. It includes earnings on operations of the Central Bank and "capital revenues" of the Central Government.

/4 Estimated external assistance from the Khartoum Agreement and Arab aid. These figures include a small but undetermined amount of local resources.

widen again. This has serious implications for long-term development policy in the UAR. In the last five years the government has accepted a prolonged stagnation in investment with low growth rates of GDP. The target for 1971 is about 4.5 percent and given the low level of public investment planned for that year, output cannot grow much faster in 1972. These rates of growth are low when compared with the rate of population growth (about 2.5 percent) and the growth rates achieved during the 1961-65 Plan (6.5 percent per annum). Any attempt to increase the rate of growth of GDP will require a substantial increase in the rate of investment. Under present conditions, however, even if the savings performance of the economy can be greatly improved such an increase is only feasible if there is a substantial increase in the availability of external resources.

Estimates of Resources Gap

115. A tentative estimate of the external resource requirement can be obtained from simple consistency exercises deriving a resource gap for a given growth target on different assumptions about domestic savings. Even the relatively modest target of accelerating the growth of the economy to achieve a 5 percent growth in GDP in 1976 with an average annual growth rate of 4 percent between 1970 and 1975 requires a substantial increase in external resource availability. It is assumed that gross domestic investment will have to rise from its current level of 11.6 percent of GDP to about 15 percent, i.e., EE 500 million in 1975 in order to ensure a growth rate of 5 percent from 1976 onwards.1/ Private and government consumption are projected separately on high and low growth assumptions for each, giving four alternative projections of the aggregate savings rate over the period. The gross borrowing implications of these savings rates are summarized in Table 4. It is assumed that the UAR will continue to receive Arab assistance amounting to about EE 110 million annually, while new borrowing will be available on relatively softer terms than in the past, ensuring that the bulk of the principal payments on these loans will fall due outside the projection period.

1/ The investment projections are not based on an explicitly defined capital output ratio but allowing for a minimum rate of 3 percent of GDP for capital stock replacement, the marginal capital output ratio implicit in this exercise is 2.4:1 with an output lag of one year.

Table 4: RESOURCE GAP PROJECTIONS /1

	Projected Annual Growth of Consumption		Gross External Borrowing Required /2 (£E millions)					
	Govt.	Private	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
I	6.0%	3.0%	173 (6.0)	203 (5.9)	240 (6.0)	269 (6.5)	295 (7.2)	279 (8.1)
II	6.0%	2.5%	165 (6.3)	185 (6.1)	208 (7.0)	227 (7.7)	240 (8.7)	208 (9.9)
III	4.0%	3.0%	159 (6.5)	170 (7.0)	189 (7.6)	194 (8.6)	198 (9.8)	198 (11.3)
IV	4.0%	2.5%	148 (6.9)	154 (7.5)	159 (8.5)	155 (9.8)	147 (11.3)	87 (13.0)

/1 Figures in parentheses are aggregate savings rates (percentage of GDP).

/2 The volume of suppliers credit (7 percent interest, 2 years grace, 8 years maturity) has been limited to £E 55 million per annum. The bulk of the new borrowing is assumed to come on the following terms (2.5 percent interest, 5 years grace, 15 years maturity) so that the principal payments on these fall due largely outside the projection period.

116. The high projection for private consumption (3.0 percent per annum) corresponds to the actual growth in the past five years while the low projection (2.5 percent per annum) corresponds to the growth rate of population. The projection rates for government consumption have been arbitrarily chosen to illustrate the extent of expenditure control necessary. They are both lower than the rate of growth in the past five years, which average 9 percent per annum in real terms (using GDP deflator). All four projections imply an improvement in the aggregate savings rate over the period. Alternative I combines the two high projections for consumption, implying a marginal savings rate of 15 percent over the period as a whole, but the level of gross borrowing required to close the resource gap is impossibly high. Even with Alternative IV, combining the two low projections to yield a marginal savings rate of 37 percent, achievement of the growth target requires external borrowing (disbursement) at an average annual rate of about £E 140 million compared to the budget estimate of £E 60 million in 1970.1/ It should be recognized that with this projection the borrowing

1/ These projections are based on 1970 figures. If the draft budget estimates for 1971 are realized, government consumption will rise by 17.0 percent in 1971 alone. Allowing for anticipated price inflation of about 3.0 percent government consumption will rise by 14.0 percent in real terms. This means for Alternative IV to remain feasible government consumption must be limited to growth rates of 2.2 percent per annum in the next five years.

requirement falls sharply to only EE 87 million in 1976. This together with Arab aid of EE 110 million finances debt service (including interest) of about EE 124 million and a net trade deficit of only EE 73 million.

117. These results highlight the nature of the resources constraint upon development policies in the UAR. Even a relatively mild acceleration in the rate of growth requires a substantially expanded volume of gross external borrowing despite marginal rates of saving up to 37 percent. The volume of external borrowing remains considerable even if the growth target is reduced to 3.7 percent per annum. Assuming that the investment rate required to maintain this rate is 12 percent of GDP and consumption is projected as in Alternative IV, the volume of gross borrowing required amounts to about LE 100 million per year over the next six years. The implicit marginal savings rate in this projection amounts to 27 percent, suggesting that a substantially improved savings performance is necessary even if the growth target is relatively unambitious.1/ Unless such an improvement can be achieved there is a serious danger of the economy slowing down to a level of zero growth in per capita income.

The Role of Fiscal Policy

118. Precise recommendations for fiscal measures can only be made in the context of a choice of some consistent targets of GDP growth, domestic savings and external resource availability. In general terms there is a clear need to limit the growth of government and private consumption. The budgetary implications of aggregate projections can be examined by constructing projected resource balances for these projections in the terminal year. Table 5 summarizes a tentative resource balance in 1976 for two alternative growth projections. In each case the aggregate consumption levels are projected as in Alternative IV (4.0 percent per annum for government consumption and 2.5 percent per annum for private consumption) representing the most favourable of the different savings assumptions. The resource balances presented are based on particular assumptions about the use of different fiscal instruments to achieve overall financial consistency. In particular the role of public sector enterprises in generating large surpluses has been emphasized.

1/ In the projections since consumption is projected independently of income the marginal savings rate is a residual rather than a parameter. This procedure is justified on the grounds that the growth of government consumption is entirely determined by budgetary policy and even private consumption is subject to considerable direct influence.

Table 5: PROJECTED RESOURCES BALANCE 1975/76
(EE millions 1968/69 prices)

	A GDP grows at an average of 4 percent between 1970/71 and 1974/75, reaching 5 percent in 1975/76	B GDP grows at 3.7 percent over the period	1969/70 (estimates)
Uses			
1. Public Investment /1	495	382	350
2. Current Deficit	170	200	190
3. Foreign Debt Service	124	110	102
Total	789	692	642
Sources			
1. Domestic Resources	452	412	301
of which:			
Public Sector Surpluses	(192)	(162)	(114)
Household Savings	(260)	(250)	(187)
2. Central Bank Borrowing	80	70	66
3. Miscellaneous	60	55	36
4. Arab Assistance	110	110	179
5. Gross External Borrowing	87	45	60
Total	789	692	642

/1 It is assumed that public investment will provide 90 percent of gross domestic investment.

119. Projection A shows the likely resource balance for the higher of the GDP growth assumptions. The current deficit is obtained by projecting government current expenditure at 4.0 percent per annum and assuming an income elasticity of tax revenues of about 1.3. Given the growth rate of income, value added in public sector enterprises is likely to grow at about 6.0 percent which makes a 9.0 percent growth in public sector surpluses quite feasible. Financial savings of households are projected to grow at about 6.0 percent per annum, reflecting the projected low growth of private consumption. Projection B corresponds to the low growth rate assumption. The current deficit is higher since government current expenditures grow at the same rate as in A while tax revenues grow more slowly owing to the lower growth of GDP.

120. The tax effort implied in these resource balance projections requires an increase in income elasticity of tax revenues from about 1.0 in the past few years to 1.3 over the next six. There is little point

in further increases in direct taxation. Personal income tax is already quite high given the small base, and increased taxation of business profits amounts to little more than an internal budgetary transfer from business surpluses to current revenue. Attention must be concentrated upon indirect taxation aimed at consumption. These taxes account for 70 percent of total tax revenues but they are dominated by customs duties (about half of which come from tobacco) and certain specific indirect taxes on high value consumption goods. Although several possible measures have been considered in recent years--particularly a turnover tax, excise duties and increased land taxation--there is a strong resistance to increasing taxation.

121. Compared to other developing countries the UAR already has a high ratio of tax revenues to GNP--about 21 percent--and this is often presented as a reason why the scope for further taxation is limited. In fact some increase in taxation is inevitable if the savings ratio is to be raised as projected in Alternative IV. Attention should be concentrated upon increasing the rates and coverage of indirect taxes. There is a natural reluctance to tax items of mass consumption but some increase of taxation on these commodities is necessary. High value consumption goods are already subject to high rates of taxation and these can be raised as an initial step. However, since the growth of these items is likely to be limited there is no escape from extending taxation to cover mass consumption items. This is especially so since the growth of customs revenues is likely to be sluggish owing to balance of payments constraints upon the import level. This will, of course, imply an increase in the cost of living and may lead to pressures to increase the wage bill. These pressures should be resisted if the desired limit on the growth of private consumption is to be achieved.

122. Larger surpluses generated in public sector enterprises should be recognized as an important potential source of savings, given the extent of direct control over this sector. This is especially so if the growth rate is to be accelerated since most of the increase in income will be generated within the nationalized sector. The wages and price policies to be followed in the public sector should be geared to the objective of achieving a rate of growth of public sector surpluses that is substantially faster than the growth of output within the sector. This may involve some conflict with the government's employment policy which has permitted some featherbedding in the public sector. Reducing the employed labor force to correct this may prove impossible and is in any case unnecessary providing every effort is made to limit the growth of employment so that the labor force, and therefore the wage bill, grows at a lower rate than output. This will clearly be more difficult the lower the target growth rate chosen.

123. The scope for reducing current expenditure in the administrative budget has received much attention although little has been done in this direction. It should be recognized on the basis of past experience that there is little likelihood of any substantial reduction of current expenditures on defense. Nevertheless, the need to restrain government current

expenditures, even for relatively low growth projections, is clear from the projections described above. To the extent to which defense expenditures increase faster than expected, even greater control on other items will be necessary. It may be argued that reducing the wage bill in order to increase public savings at the expense of private consumption is less equitable than achieving the same result through taxation. However, taxation is not a substitute for expenditure control. The problem is not a conventional one of resource mobilization since the budget already has direct control over a substantial flow of resources, but rather one of reallocating resources away from consumption. Unless budgeting instruments can be geared to this objective increased tax revenues are likely to be absorbed by higher current expenditures.

124. The record of personal savings mobilized through contractual savings organizations appears to be quite good. The various social insurance and pension funds are being extended to cover almost the entire non-agricultural labor force. They can be extended into the agricultural sector to tap private agricultural savings but this is not an immediate prospect. Several incentive schemes for prize bonds and interest free savings certificates have been introduced in recent years, but their contribution to the aggregate situation is necessarily limited. The resource balance for 1976 shows financial savings of households on the assumption that this item will grow slightly faster than personal income. Increase commodity taxation should increase the incentive to save, especially if combined with a policy of maintaining the real rate of interest at an incentive level. Given the extreme shortage of investment funds over the future, there is some case for permitting a substantial increase in the general level of interest rates.

The Supply of Money

125. The difficulties of resource mobilization described above have led to a continuous recourse to bank financing although on a smaller scale than before the war in 1967. Monetary restraint continued into 1968, when there was an actual decline in the money supply owing to a large fall in foreign assets of the banking system with only a moderate increase in credit expansion. An expansionary trend reappeared in 1969 when money supply grew by 7.7 percent and 10 percent in 1970. Our projections of resource availability have assumed a lower rate of growth of money supply in the future, given the slower growth rate of the economy at fuller capacity. An annual average growth rate of about 6.5 percent per annum will enable sufficient monetary expansion for non-inflationary growth of GDP on the high growth assumption. This is consistent with government borrowing from the Central Bank of about LE 80 million in 1976 as projected in Table 5. The figure falls to LE 70 million if the lower growth target is chosen.

VII. BALANCE OF PAYMENTS

126. As a result of the war in the Middle East, the balance of payments situation deteriorated considerably. Earnings from the Suez Canal were lost and due to the loss of the Sinai oil fields and the war damage to the refineries, oil exports dropped and imports of petroleum products increased. Earnings from tourism dropped sharply. Consequently, the current account deficit increased from £E 79 million in 1967 to £E 155 million in 1968.1/ However, in 1969 the deficit has been reduced to £E 102 million. This has been achieved through a slightly reduced import level and a considerable improvement in commodity exports and to a lesser extent in tourist earnings. The slightly reduced import level resulted from an effective implementation of stabilization measures: import restrictions were tightened, foreign exchange allocation procedures were revised, and investment expenditures reduced. The main contributors to the growth of export earnings were an expansion of petroleum production, favorable cotton prices, increases in exports of some nontraditional items such as fruits and vegetables, and some revival of tourism.

127. Preliminary balance of payments figures for 1970 indicate current account deficit of £E 160 million as against one of £E 102 million in 1969. Government policy during 1969 was reflationary: public investment increased, moderate credit expansion and selective price reductions stimulated a slight expansion of economic activity. In spite of the improved foreign exchange budgeting, the government estimates of imports for the year are £E 473 million as compared to £E 384 million in 1969. The corresponding commodity exports are estimated to have increased from £E 307 million to £E 348 million. Though cotton prices were still buoyant and the value of cotton exports is estimated at £E 140 million in 1970 (compared to £E 119 million in 1969), export prices of rice declined by about 35 percent leading to a sharp fall in the value of rice exports. Other agricultural commodities exports are estimated to have increased considerably, especially fruits.

Exports

128. Cotton has traditionally been the most important foreign exchange earner for the UAR. However, due to decreasing production until 1968, the volume of exports has been declining. Even in 1969 the volume of cotton

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1/ There are discrepancies in various existing data sources on balance of payments: customs data, balance of payments prepared by the Central Bank, Foreign Exchange Budget, National Accounts, and Foreign Trade Organization data. The discrepancies arise due to differences in definitions (actual transactions, contracts, or financial transactions), inefficient customs practices (e.g. nonregistered imports), etc. Unfortunately, there is no key to convert one source to another. All figures on balance of payments presented in the report are derived from Central Bank data.

exports declined by 7.5 percent over the previous year. However, export prices rose substantially in 1969 and the value of cotton exports increased. In the first eight months of 1970 exports were 16 percent up in volume and 17.3 percent up in value, indicating continued improvement in unit value. Prices of cotton have benefitted from favorable world market conditions and improved marketing arrangements. However, the price increases for Egyptian cotton (20 percent between 1964 and 1969) should not be interpreted as a lasting trend. Increasing exports of cotton are likely to require a downward adjustment in prices, possibly up to 15 percent between 1969 and 1976 (for details see Annex on cotton).

129. Rice is the second major agricultural export of the country. In 1969 rice prices continued to be high and the value of rice exports reached £E 52.5 million. However, in 1970 the export price dropped sharply by 35 percent because world production went up and importers of rice, such as Pakistan and Japan, had a good crop. Figures for 1970 rice exports are not available yet, but it is expected that due to the price decline the value of rice exports will drop to about £ 40 million. The volume of rice exports rose to about 670,000 tons in 1969 and it is unlikely that they would exceed 700-750 thousand tons in 1976. The price is likely to level off at present low levels or possibly decline by another 5 percent by 1976.

130. Exports of fresh onions have declined recently due to seed and insect problems affecting supply. Production in 1969 declined for the third year in succession. Another major problem in onion production is excessive use of water which has caused low yields, inferior quality and therefore lower export prices. However, quality has improved in 1970 and steady recovery can be envisaged. By 1973 the export earnings are expected to reach the 1965 level.

131. Other agricultural exports, mainly fruits and vegetables, have been increasing rapidly. In 1969 the exports of citrus jumped to 60,000 tons compared to about 10,000 tons in 1966. The 1970 target of 80,000 tons is likely to be exceeded. New "packing houses" have been installed and the quality of fruits has improved. Fruit exports are likely to increase in the future although trade barriers and competition in the European market may be constraints. Vegetable exports are estimated to have increased from £E 120,000 in 1969 to £E 500,000 in 1970. The prospects of vegetables may be good, but they face marketing difficulties due to their perishable nature and reliance on traditional customers. It is expected that this heterogeneous group of exports will increase by about 8 percent per annum in the next few years.

132. Cotton yarn and textiles are a major item in the exports of manufactures and semi-manufactures. Their exports averaged about £E 44 million between 1966 and 1968 and have been about £E 60 million in 1969 and 1970. An increasingly large proportion of cotton has been exported as manufactures, particularly yarn. As a result, about 15-20 percent of the the cotton crop is now processed for export compared with less than 5 percent 10-15 years ago, and nearly a fourth of the exportable surplus of cotton is exported as cotton yarn and textiles. Moreover, there have been

improvements in the quality of yarns and cloth finishing. These trends should improve the export possibilities of cotton in general. Further increases in the exports of yarn and textiles would not compete with raw cotton exports, because the finished goods are inferior in quality to yarn and cloth produced with extra long staple cotton elsewhere, leading to differentiated markets between raw cotton and cotton manufactures. Also, since UAR exports of yarn and textiles are a much smaller proportion of world exports than its exports of raw cotton, world prices for its cotton exports (raw and finished) would be affected less by increased finished exports rather than increased raw cotton exports. Finally, though market barriers in importing countries exist, most bilateral agreements allow an automatic growth of 5 percent per annum in quotas of cotton products. The geographical distribution of cotton yarn and textiles exports has also changed. Centrally planned countries in 1969 imported 63 percent of total yarn exports and 30 percent of total textile exports (compared to 49 percent and 2 percent respectively in 1965).

133. The value of oil exports in 1969 was about £E 13 million. The UAR expects to become self-sufficient in oil in the current year, and the value of exports of oil and petroleum products are expected to reach about £E 65 million in 1976. Phosphate exports were £E 4 million in 1969 and are expected to reach about £E 6 million in 1976. Nontraditional manufacturers also offer good prospects and include such items as furniture, leather goods and refrigerators.

134. Other developments in manufactures and semi-manufactures were that sugar changed from a net import to a net export item; cement exports, largely to Arab countries, are increasing; and detergent exports are picking up. However, the growth of industrial exports is at the cost of government subsidies, which in 1969 amounted to about 12 percent of total exports of manufactures and semi-manufactures by the public sector, about half of which was for spinning and weaving. Other problems are that basic raw materials have to be largely imported and the emphasis on industrialization is for import substitution rather than export promotion.

Imports

135. There is strict control of imports in the UAR since foreign trade was nationalized in 1961. After the June 1967 war, some organizational changes were made for the efficient use of scarce foreign exchange resources. As a result of these changes all imports are carried out by publicly owned companies under the supervision of the Commodity Boards, which were established in 1966 to fulfill the objectives of the foreign exchange budget and to ensure that imports are achieved at the best conditions and prices. In the initial period the control mechanism suffered from defects. In 1966, in spite of a record level of imports (£E 423 million), there were shortages of raw materials and spare parts. Rigid controls caused a sharp decline in imports (25 percent between 1966 and 1968). The worst hit category was investment goods. Shortages of intermediate goods and allocation problems led to substantial excess capacity in industry between 1965 and 1968, averaging about 30 percent for industry as a whole. During 1969

some exchange controls were relaxed and the foreign exchange allocation procedure was revised. Excess capacity in industry was largely used up, and yet the total import level was marginally reduced in 1969 to £E 384 million from £E 389 million in 1968. Further decreases in imports are unlikely. For July-December 1969 the government estimates imports to be £E 214 million as compared to £E 180 million during July-December 1968.

Invisibles

136. Until 1968 the UAR always had a positive balance on invisibles due largely to Suez Canal receipts and tourism. After the June 1967 war the invisibles balance showed a net deficit of £E 21 million in 1968 because the Suez receipts were lost and tourism suffered. Even in 1969 the receipts from tourism had not recovered to the pre-war level. Neighboring Arab countries are the principal tourist generating centers: the number of tourists from North America is only 9.5 percent of the total and from European countries about 25 percent of the total. In view of what the UAR can offer in terms of climate and cultural heritage, the main constraint on tourist potential is likely to be limited facilities. Comparatively high travel costs from major European and North American centers and limited range of accommodation and other tourist facilities have restricted the types of tourist trade in which the UAR can compete. The development program under consideration may partly overcome these limitations. An investment program of £E 71 million is expected to increase Arab and European tourists by about 20-25 percent annually and North American tourists by 15-20 percent. To make a greater impact on European and North American markets, a greater diversification in types of tourist trade with perhaps more emphasis on group tourism would be desirable.

137. It is even more difficult to predict the future earnings from the Canal. Much depends on when the Canal is reopened. Oil traffic through the Canal is likely to decline due to a shift to larger tankers, but some of the decline may be recouped through revenues from the proposed Suez-Alexandria pipeline.

Direction of Trade

138. The regional pattern of trade has changed markedly since 1960. Eastern Europe has replaced Western Europe as the main trading partner. Eastern Europe absorbed about 50 percent of UAR exports in 1966 and 1967 and, after a decline in 1968, again in 1969 (average share in the First Plan period was 43.5 percent). The share of imports from Eastern Europe rose from 25 percent in 1960 to 41 percent in 1968 and declined in 1969 to 35 percent. Exports to Western Europe as a proportion of total exports have declined slightly in the 1960's while imports from there have fluctuated around roughly the same proportion. The main losers have been the Americas--their share of exports declining from 17.8 percent in 1960 to 6.8 percent in 1969, and imports declining from 5.5 percent to 2.7 percent.

The Capital Account

139. In recent years there has been a decreasing capital inflow and an increasing capital outflow, largely in the form of debt amortization. As a result the capital account, excluding Arab assistance, changed from a net inflow of £E 69 million in 1967 to a net outflow of £E 14.5 million in 1969. The amounts of foreign loans have decreased from £E 100 million in 1967 to £E 77 million in 1969, and amortization and other liabilities have increased from £E 55 million in 1967 to £E 97 million in 1969.

140. Repayment practices have improved and the UAR has completed rescheduling operations with all of her Western creditors, except the USA with whom negotiations are continuing. Although these arrangements have made limited medium-term borrowing possible, there are some disadvantages. First, most new credit facilities are suppliers' credits which will result in a quick accumulation of medium-term debt. Secondly, the extension of new credit facilities has been approximately equal to the repayments of principal, and hence no net credit facilities became available. The flow of capital from Eastern countries has not been sufficient to offset this. Consequently, the UAR recently has had to increase its reliance on short-term credits from commercial banks.

141. Under the Khartoum Agreement the UAR receives about £E 110 million from the Arab countries, as compensation for losses due to the war. There have been some nonrecurrent payments over and above this amount, but the exact amount for different years is not known. However, in 1969 Arab assistance amounted to £E 125 million. Among other financing items is a purchase of $17.5 million equivalent from the IMF in July 1970. The purchase was with a view to preventing renewed inflationary pressures and to strengthen the balance of payments. The UAR quota in the Fund is $150 million and its net purchases total $68 million equivalent. Furthermore, on January 1, 1970 the UAR was allocated $25.2 million of SDR's. In the same month, $25 million of SDR's were converted. Finally, the negative balances on clearing and other accounts increased from £E 114 million in December 1968 to £E 126 million in December 1969.

Agreements with Other Countries

142. The recently concluded tripartite agreements between the UAR, Iraq and Syria and the UAR, Sudan and Libya are intended to bring about economic integration on lines complementary to those of the Arab Common Market. Both agreements are open to accession by other Arab states. Essentially similar they provide for partial trade liberalization and seek to promote integration through coordination of development and foreign trade policies as well as through the establishment of jointly owned enterprises. An implementation program has not been drawn up yet and consequently it is difficult to assess their potential.

143. The possibility of developing closer relations with the European Economic Community, an important but closely regulated market for the UAR's expanding horticultural industry as well as for more traditional agricultural and industrial products, is being explored. Negotiations for prefer-

ential, though non-associate, status were initiated in November 1969. It is thought likely that the Community will be prepared to grant substantial concessions on a wide range of industrial products in return for fairly small reductions in UAR tariffs. An offer of concession on horticultural products is also considered likely. Difficulty may be experienced, however, in obtaining significant concessions on textile exports. In addition to seeking tariff concessions the UAR has expressed interest in receiving financial assistance from the Community through the European Investment Bank.

144. The UAR became a full member of GATT in February 1970. As such, it is entitled to benefit from trade liberalization measures effected as a result of the Kennedy Round negotiations. Concessions granted under agreements with other Arab countries are unlikely to be affected by accession to the General Agreement.

Exports Outlook for the Future

145. To present the outlook for exports until 1976 a projection has been made. This has necessarily been made on the basis of assumptions about individual export items. As said earlier, there are four series pertaining to the balance of payments data, which are difficult to reconcile. The balance of payments data prepared by the Central Bank are used as a base for these projections. The projections shown below are only illustrative of likely developments within the limitations of the assumptions made.

Total Foreign Exchange Earnings Between 1971 and 1976
(£E millions)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
Commodity Exports	332.6	346.2	360.8	386.2	403.3	422.1
Travel and Others	81.2	89.4	98.0	109.1	120.6	132.0
Total Earnings	413.8	435.6	458.8	495.3	523.9	554.1

Total exports of goods and services are projected to reach £E 554 million in 1976, i.e. growing at 5.5 percent per annum from 1970 to 1976.

146. The following assumptions have been used in the projections:

(i) Cotton. It is assumed that production in 1975 would be about 550-575 thousand tons, yielding an exportable surplus of about 350-375 thousand tons. The exportable surplus is based on expected increase in domestic consumption. A 13 percent price decrease over 1969 is assumed for 1976.

(ii) Rice. Rice prices fell by 35 percent in 1970. They are projected to level off at present low levels. The availability of exportable surplus is estimated in relation to the increase in land under cultivation and to the expected rise in domestic consumption (about 750,000 tons is the expected export volume).

(iii) Onions. The availability of exportable surplus is estimated in relation to an expected recovery of production. The 1965 level is expected to be reached in 1973, and after that a 5.5 percent yearly increase is assumed. Prices are assumed to decline by 10 percent in 1976 from the present.

(iv) Oil and petroleum products. Projections have been provided by the General Organization for Petroleum. They are expected to grow yearly at 18 percent between 1970 and 1976.

(v) Cotton yarn and textiles. Yarn exports are assumed to grow at 6.5 percent and textiles at about 10 percent yearly between 1970 and 1976. The optimistic forecasts are based on expectations of a good demand climate for UAR cotton yarn and textiles. For both yarn and textiles prices assumed to remain unchanged, except for price changes due to quality changes.

(vi) Other finished and semi-finished goods. For this heterogeneous group, although export growth has been 20-25 percent in the last few years, a growth rate of 8 percent is assumed. The rate has been lowered because first, the starting base was low and hence high growth rates cannot be projected as the base grows larger, and secondly, reduced investments in industry are likely to affect exports.

(vii) Other agricultural commodities. These, especially fruits and vegetables, have risen sharply in exports in the last two years. Therefore exports of this category are assumed to grow by 7.8 percent annually between 1970 and 1976.

(viii) Travel and others. It is assumed that tourism will increase at the same level as world tourism (12 percent yearly) and that other invisibles will grow at 5.9 percent yearly.

VIII. PROSPECTS

Short-Run Prospects

147. Prospects for economic growth in the immediate future are uncertain. The impact of rapidly increasing military expenditures on savings and investments is adversely affecting the future growth potential of the country. The Government projects for 1970-71 a GDP increase of 4.5 percent. Since there are relatively few projects to be completed in the coming year

and since agricultural output was exceptionally high in 1970, much of the increase has to come from a better use of existing industrial capacity. The substantial excess capacity which existed in the mid-sixties has largely been put in use during the last two years. Though use of remaining excess capacity may be a possibility, expansion in the short term is likely to depend largely on productivity improvements.

148. Curbing investments to maintain overall economic balance may be acceptable for a relatively short period, but it not only means sacrificing new additions to productive capacity in the future, but also leads to other difficulties. First is the inability to properly maintain the existing capacity. This is resulting in a significant depreciation of capital stock. A further problem concerns the organizational ability to invest. After several years of low investment, it will be difficult to raise investment levels quickly and efficiently even if the funds become available. With decreased allocations in the 1971 budget, even if the government could realize all investment expenditures, these problems will be aggravated.

149. Immediate balance of payments prospects in the current year and very likely in the following year, indicate increased reliance on assistance from abroad. Price developments for rice and wheat tend to increase the current account deficit. Debt service for the coming two years is high and there is little committed but undisbursed debt. The need, therefore, will be to try to increase the availability of long-term capital.

Medium-Term Prospects

150. Longer term projections are rather difficult to make under present circumstances. Any such exercise will have to depend on arbitrary assumptions about future political developments. Moreover, the UAR is now at the end of a decade where significant events and changes have taken place, making it difficult to employ the economic coefficients of the past for purposes of projecting. Therefore, rather than trying to make predictive projections, some consistency exercises could be undertaken to find out the future implications of certain policies or policy implications of certain targets that may be adopted.

151. A major future task for the UAR will be to improve the savings performance. Mobilization of resources in the UAR has reached high levels even though some possibilities for future mobilization through taxation or pricing may exist. But reallocation of the funds mobilized by the public sector from consumption to savings is desirable. During the past 5 years government consumption expenditures (largely defense) have increased approximately by 9 percent per annum or by about three times the increase in available resources.

152. If the last five years' trend can be taken as an indication of what may happen in the future, even modest increases in the growth rate reaching a 5 percent growth in 1976, pose serious problems. In Chapter VI the implication of such a growth rate for savings and borrowing have been discussed according to alternative policies. In considering the

feasibility of alternatives shown in Table 4, Chapter VI, much depends on the following factors:

(a) The likely levels of Arab assistance and foreign loans in the future. The terms on which these resources are made available will affect the debt bearing capacity.

(b) The likely levels of increase in public expenditures and private consumption. For any given growth of income this implicitly determines domestic savings and given (a) the feasible level of investment.

(c) Whether the feasible savings effort and feasible increases of exports will leave a level of imports which is consistent with the rate of growth desired.

153. Under the Khartoum Agreement, the UAR receives LE 110 million assistance (grants) from Saudi Arabia, Kuwait and Libya. This was given as a compensation for the loss of the Suez Canal revenues and other losses resulting from the war. However, in addition there are "nonrecurrent" receipts: actual transfer figures in the 1969 balance of payments are LE 125 million and in 1970 they were just under LE 140 million. For purposes of simplicity in the exercise it has been assumed that the level will be LE 110 million and amounts beyond that will appear in soft-term assistance. If the past five years are to be taken as a reference point, the ability of the UAR to borrow externally may not be very great. In 1970 the increase in short-term borrowing from foreign commercial banks and increased balances in bilateral trade, accompanying the increase in imports, are a clear indication of this situation. Its debt structure is such that much of the presently outstanding debt is due for repayment in the near future. This increases the pressure on the balance of payments but also provides scope for additional long-term borrowing provided that grace periods longer than five years and suitable interest rates could be obtained.

154. An export projection exercise based on likely exportable surplus and price developments for important commodities and past trends for others indicates that foreign exchange earnings could grow at 5.5 percent per annum from 1970 to 1976, with total exports of goods and services reaching LE 554 million in 1976. Imports are treated as residual (i.e. exports of goods and services plus resource gap equals import of goods and non-factor services).

155. Among the savings alternatives discussed for reaching a 5 percent growth rate, the resource gap for the coming six years (1971/1976) ranges from LE 1,333 million to LE 748 million. Gross borrowing,1/ after allowing for LE 110 million Arab assistance per annum varies between LE 1,459

1/ Gross borrowing - resource gap minus Arab assistance plus debt service.

million and EE 850 million. The borrowing required with the high gap may not be feasible. For the low gap an average gross borrowing of about EE 140 million per annum is higher than in the past, but is probably feasible. In this case the debt service ratio1/ (if Arab assistance is not included in foreign exchange earnings) declines from 32 percent in 1971 to 22 percent in 1976. If Arab assistance is treated as compensation for Suez earnings and included in revenues, then the debt service ratio declines from 25 percent to 19 percent. The problem in this alternative is that it involves a major savings effort (a marginal savings rate of 37 percent over the period), and imports increase at 2 percent per annum, which would not be compatible with the rate of growth objective. Import possibilities may increase if export performance were to be substantially better than projected in Chapter VII. This may become possible if petroleum exports and tourist earnings increase faster than projected.

156. A lower growth target (for instance 3.7 per annum for the whole period) does not imply an easy solution either. Even if government consumption expenditure increases by only 4.0 percent and private consumption 2.5 percent, as in low gap case of the previous exercise, the gross borrowing required in addition to Arab assistance will be an average of EE 100 million per annum and debt service will only decline from 32 percent in 1971 to 20 percent in 1976. But the implied increase in imports in this exercise is only 1.8 percent, which makes it as difficult an alternative as the previous one.

157. If the tension in the area eases and a reallocation of public expenditure takes place, then the prospects become much more favorable. Even in such a case however increased external assistance with softer terms will be needed during a difficult transition period from a war to a peace economy.

1/ No allowance is made here for repayments resulting from military assistance.

THE UAR COTTON ECONOMY: PERFORMANCE AND PROSPECTS

Salient Features

1. The UAR is one of the oldest cotton growing countries in the world. With an average annual production of nearly 475 thousand tons and average annual exports of roughly 300 thousand tons, the UAR ranks as the world's seventh largest producer and fifth largest exporter of raw cotton. 1/ The importance of cotton to the UAR economy can be highlighted by noting that this commodity normally occupies nearly 30 percent of the total cultivated area or 15 percent of the cropped area. 2/ As the country's largest cash and export crop, it contributes 15-20 percent to the value of aggregate agricultural output and about 60 percent to total foreign exchange earnings--roughly 45 percent through exports of raw cotton, and the balance through exports of cotton yarn and textiles. 3/ Cotton, in addition, constitutes the basic raw material of the UAR's large textile industry and serves to meet the clothing needs of the country's rapidly growing population.

2. The UAR has traditionally specialized in the production of selected varieties of cotton, most of them indigenous to Egypt, characterized by their superior staple length. Such specialization has been even greater in exports, compared to production. The variety-composition of output, local consumption and exports in 1969, 4/ a representative year, was as follows:

1/ Based on averages for the period 1964/1968. The production figure for this period was exceeded by about 15 percent in the agricultural year 1969, when the UAR harvested a record crop. Unless otherwise specified, all figures in this annex refer to lint (ginned) cotton, as distinguished from seed cotton.

2/ Cotton is planted in February/March and harvested in September/October; as it occupies the land for a long period of time, it is not followed by another crop during the rest of the agricultural season.

3/ The UAR has the second highest export-concentration on cotton in the world, after the Chad.

4/ Unless otherwise specified, all figures in this annex refer to the agricultural year (November-October).

Staple Length Classification	Production 1,000 m.t.	%	Consumption 1,000 m.t.	%	Exports 1,000 m.t.	%	Percent Exported
Extra long (over 1-3/8")	167	(38.3)	23	(12.8)	131	(55.0)	78.4
Long medium (over 1-1/4")	118	(27.1)	18	(10.1)	89	(37.4)	75.4
Medium (over 1-1/8")	142	(32.6)	136	(76.0)	10	(4.2)	7.0
Others	9	(2.0)	2	(1.1)	8	(3.4)	88.9
Total	436	(100.0)	179	(100.0)	238	(100.0)	54.6

3. The degree of UAR specialization in the direction of long staples, compared to other cotton producing countries, is actually greater than indicated by the above figure. This arises from the fact that the staple length classification used in the UAR (and above) differs from the international classification. For instance, the varieties designated as "medium staple" in the UAR are classified as "long staple" internationally. As staple length in cotton is normally positively associated with fiber fineness and strength, UAR varieties (particularly extra long staples) are suitable for spinning "fine yarns" which are in turn used to manufacture fabrics and knit goods superior in luster, strength and general appearance. Naturally, such cottons traditionally command a higher price than shorter staple varieties. What places the UAR in a special position in the world cotton market is the fact that the varieties it grows account for a rather small proportion of the world cotton crop. Extra long staple cotton (of all origins) represents no more than 5 percent of world cotton output or 10 percent of world cotton exports. Moreover, extra long staple cotton is produced and exported by a handful of countries only, the UAR accounting for roughly 40 percent of global output and nearly 50 percent of global exports. 1/ This poses special opportunities and risks to the UAR, and it imposes special obligations on all exporting countries in formulating their production and marketing policies.

4. The vital role played by cotton in the UAR economy is widely recognized at all government levels. This is manifested in the high degree of government control exercised over production and all stages of marketing. Minimum planting allotments are set every season nationally and at the individual farmer level. The Egyptian Cotton General Organization, in cooperation with other agencies, determines the varieties to be grown by individual districts each season. The latter are set on the basis of anticipated local and export requirements, the conditions of the soil in individual areas, etc. Seeds can be procured only from the local cooperatives. The cooperatives and extension workers exercise considerable

1/ The major producers of extra long staple cotton are the UAR, the Sudan, the Soviet Union, Peru, and the United States, in that order. The bulk of the Soviet Union and U.S. crops is consumed domestically.

control and supervision over all farm operations, and in particular over the use of fertilizers and pesticides. The entire crop is bought at prescribed prices by the village cooperatives for the Cotton Organization. In the last few years, farmers have been offered, in addition, fixed premiums for producing superior grades of the varieties sanctioned. The seed cotton harvested is ginned, graded and baled in facilities controlled by the Organization and sold to local mills or abroad through large marketing subsidiaries. All of the cotton spinning sector and roughly 80 percent of both the weaving and the finishing sectors are government owned or controlled. Local mills purchase their raw cotton at fixed, subsidized prices, which have not been changed for many years. The government attempts to keep the prices of textiles and clothing within the purchasing range of the low-income masses. In export sales, however, the Cotton Organization makes a large profit and contributes to the treasury annually. 1/ Administratively, this is achieved by maintaining minimum export prices which are revised from time to time in response to, or in anticipation of, changes in market conditions. The government-controlled export companies act competitively in seeking maximum sales at the highest price possible but cannot sell below the minimum prices set by the Cotton Organization. Finally, exports of cotton textiles are assisted by a direct subsidy of about 10 percent, administered through a "textile consolidation fund" part of whose resources are contributed by the industry (i.e., all textile mills) and part of which are obtained through government appropriations.

5. Overall, the system outlined above works rather well. In general the nationalization of marketing and processing has led to few frictions or imbalances. Management at most levels is competent. The cotton economy is backed by agronomic research and quality testing. Exports are carried out efficiently and with impressive market intelligence. However, serious work relating to setting and maximizing long-term objectives is limited, i.e.,

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1/ In 1970 the alignment of prices has been as follows:

	£E per Kantar
Average price paid to farmers:	
For all varieties	17.5
For varieties consumed by local mills	16.9
Average price charged to local mills	15.8
Export price of varieties consumed by local mills	18.7
Average export price for all varieties by the Cotton Organization	20.5

Current losses by the Cotton Organization on sales to local mills are estimated in the neighborhood of £E 2 million, and transfer of net income to the treasury at about £E 7 million.

by and large cotton policy is oriented toward short-term goals dictated by a multiplicity of interests. Secondly, control over the volume of production has been somewhat ineffective. 1/

Performance: The Long-Term Trend

6. Cotton production in the UAR in the last five years (1965/1969) has been on the average not more than 15 percent above the pre-war level (1936/1940). Land constraints and increasing food needs, stimulated by rapid population growth, have limited the expansion of cotton output over this period. Because of a sixfold increase in internal consumption, exports of raw cotton declined by about 22 percent. 2/ The last 30 years witnessed, in addition, marked swings in UAR output and exports associated with World War II, the Korean War, regional conflicts, etc. Since 1955 production, consumption and exports moved as follows: 3/

	Average 1955/59	Average 1960/64	Average 1965/68	1969
Production ('000 tons)	393	443	462	541
Area ('000 feddans)	1,789	1,751	1,712	1,622
Yields (Kgs/feddan)	220	257	271	334
Consumption ('000 tons)	100	139	183	n.a.
Exports ('000 tons)	298	305	287	n.a.

7. As noted in Chapter IV, 1969 was an unusually good year for production: yields were 23 percent above their 1965/68 average due to extremely favorable weather (at "normal yields" output would have been 16-17 percent lower). Until the mid-sixties production increased but at a declining rate; contraction in area was more than offset by improvements in yields; consumption increased rapidly and exports declined, particularly in the 1965/68 period.

8. Since 1955, there were three major sub-trends which have influenced the orientation of the Egyptian cotton economy and are relevant in assessing its future.

1/ On many occasions plantings have fallen considerably short of official minimum area allotments.

2/ Between the two five-year periods world consumption and exports rose by 60 percent and 30 percent respectively; consequently, the share of the UAR in production and exports contracted significantly.

3/ Marketing years beginning in years shown. The product of area and yield may not equal the output figures due to rounding. Consumption and exports do not add up to production due to changes in stocks.

9. First, an increasingly large proportion of the raw cotton consumed by local mills has been exported as manufactures, particularly yarn. Growing domestic demand for textiles and favorable export potential led to an expansion in equipment, especially spindles, in the mid and late fifties and to a steady increase in exports since then, as shown below:

	1,000 metric tons			
	1955/59	1960/64	1965/66	1968/69
Yarn				
Production	73.1	102.0	139.0	162.0
Exports	10.5	19.4	40.0	48.0
Consumption 1/	62.6	82.6	99.0	113.0
% exported	14.4	19.0	28.8	29.6
Cloth				
Production	46.2	64.0	80.0	95.0
Exports	2.6	11.9	12.2	23.0
Consumption 1/	43.6	53.2	67.8	72.0
% exported	5.6	18.6	15.3	24.2
Yarn and cloth exports	13.1	31.3	52.2	71.0

1/ Production minus exports. Stock figures, which are necessary for arriving at a better estimate of "apparent consumption," are not available.

As a result of these trends, 15-20 percent of the cotton crop is processed for export now compared to a ratio of less than 5 percent 10-15 years ago. Nearly a fourth of the exportable surplus of the commodity is sold abroad as cotton yarn and textiles.

10. Secondly, the geographic distribution of cotton exports has changed significantly since the mid-fifties, the most important development being a sharp increase in the proportion exported to centrally planned countries, as indicated below:

	Share of Centrally Planned Countries		
	1955/56	1964/65	1968/69
	(..... percent .....)		
Exports of:			
Raw cotton	22.5	59.1	44.4
Cotton yarn	n.a.	49.0	62.7
Cotton textiles	n.a.	2.0	30.0
All three	n.a.	58.7	45.0

The share of total exports of cotton yarn and textiles going to centrally planned countries has increased considerably, while the share of raw cotton declined since 1965. 1/ The centrally planned countries absorb nearly one-third of world exports of extra long staple cotton and occupy a key place in the world market.

11. Finally, the grades and quality of the raw cotton and cotton manufactures exported by the UAR have been improving gradually but steadily. In raw cotton this has been achieved through the cultivation of improved varieties, better picking, handling and ginning, etc. In the manufacture of yarn there has been better processing and quality control, and a steady shift away from coarse yarns. Cloth production and finishing have improved, but not sufficiently to meet standards in the markets of developed countries.

12. Price trends need to be outlined with reference to global developments. World consumption and exports of raw cotton have expanded at annual rates of 2.3 and 1.8 percent respectively in the last 12-13 years. Over the same period prices of most cottons (i.e., of medium and medium-long staples, which account for most of world trade) have declined by 10-20 percent, depending on the base, variety and origin. World consumption and exports of extra long staple cotton (the principal type exported by the UAR) increased rapidly (faster than all types combined) in the post-war period up to 1963--the biggest gainers in relative terms were the Sudan and Peru--but have fluctuated around a stationary trend since then.

13. Increased availabilities of extra long staple cotton, particularly between 1957 and 1963, were absorbed in the world market at steadily declining prices, both in absolute terms and in relation to prices for shorter staple cottons. Prices recovered somewhat in the following four years (1964/1967) and rose again in 1968 and 1969 by a total of about 20 percent. 2/ This recovery reflected the levelling off of supply growth, a sharp decline in world extra long staple cotton output in 1968 and a tight general market situation in 1969, associated with a short crop in the United States and depletion of world surplus stocks of most cottons. Furthermore, the UAR exploited its quality advantages effectively; other producers acted as residual suppliers and carried large stocks through most of this period. In short, recent favorable price trends do not seem to mirror a structural shift in demand in favor of Egyptian type cotton.

1/ Centrally planned countries normally take less than 10 percent of exports from the rest of the world.

2/ The c.i.f. Liverpool price of Menoufi, Fully Good (a representative grade of UAR cotton) fell from 72.1 cents per pound in 1957 to 40.8 cents in 1963; it averaged roughly 50 cents in the next four years and rose to 55.8 cents in 1968 and 62.6 cents in 1969; the current price (June 1970) is 63.4 cents.

In fact, its equilibrium price under normal market conditions is very likely to be lower than actual recent levels. Nevertheless, Egyptian cotton is now in a somewhat better position than it was in the late fifties; its overall quality has improved and there is less of it available (per unit of all cotton produced globally) than before.

Prospects

14. It is difficult to project the future trend of the UAR cotton economy for several reasons. These include the interchangeability of planting cotton and other crops such as wheat and rice, the apparent absence of a long-term resource allocation strategy or an integrated cotton policy, insufficient knowledge of the economic and other determinants of imports by centrally planned countries, the impact of tastes and technological change on the competitiveness of Egyptian cotton vis-a-vis other cottons and man-made fibers. Besides, because of its large share in the world cotton market, the UAR is in a position to influence its export volume and hence the average price of its exports. Predicting the future requires greater knowledge of the determinants of production policy than available. The discussion that follows focuses, therefore, on the disposal implications of the most likely future trend of output. This is preceded by a series of general assumptions plus some observations on the general demand climate and other considerations relevant to the UAR.

Assumptions

15. First, it is assumed that as cotton is the country's largest export commodity, future cotton policy will be geared to maximizing foreign exchange earnings over the long run. This has not been uniformly the case in past years. Often this objective has been shadowed by the desire to keep government income from this sector high, either by keeping grower prices low (which discouraged production) or by maintaining export prices high (which, though benefiting the economy in the short run, stimulated production elsewhere or may have hurt demand in some uses in selected markets).

16. Second, it can be assumed that the UAR will refrain from increasing its dependence on cotton, which is already high. In the past this could be achieved easily due to the emergence of rice as a profitable export alternative. In view of the new adverse trend and uncertainties in rice prices, it may be more difficult to weigh the benefits and risks of greater concentration in cotton (as opposed to rice).

17. Finally, it is hypothesized that the UAR will try to diversify its export markets and increase its exports to hard currency areas. The extent to which this may be practical will depend, in addition to demand trends in hard currency areas, on the basket of goods available for trading with bilateral agreement countries and on the volume of two-way trade.

Demand Climate

18. In the next 5 to 6 years the overall demand climate of cotton in general and of Egyptian type cotton is likely to be at best similar to that of the past, but not better. World cotton consumption has grown at a rate of 2.1 to 2.3 percent per annum in the last 10 to 15 years but by less than one percent (0.8) per annum since 1967. The major factor contributing to this sluggish growth has been competition from man-made fibers, particularly acute in the last two years in developed countries. Annual growth in the next 5 to 6 years may average somewhere between these two rates (i.e., 0.8 - 2.2) but is unlikely to exceed the rate of world population growth of about 1.7 percent per annum. Demand would stagnate or decline somewhat in most developed countries and rise fairly rapidly in some developing countries. In many of the latter countries, despite rapid rates of population growth, demand for cotton is being held back either by slow progress in income growth or by competition from man-made fibers. World exports of raw cotton would rise slower than world consumption since the bulk of consumption growth is likely to occur in cotton producing countries and is likely to be met through local production. In other countries a larger proportion of import demand for cotton may be met through imports of cotton textiles. Developing countries may nevertheless increase their exports of raw cotton somewhat faster than world exports, depending on the production and trade policies of the two major cotton producing high-income countries, namely, the United States and the Soviet Union. Prices of most varieties are likely to weaken by about 10 percent or more by 1975 from recent levels as a result of further pressures from man-made fibers and competition among exporting countries. Cotton continues to be a profitable and large export crop in most developing countries.

19. Nor is demand for Egyption type cotton likely to improve significantly. Roughly 45 percent of world exports of extra long staple cotton go to developed countries where population growth is slow, fiber consumption already high, and competition from synthetics keenest. Centrally planned countries already import a much larger volume of extra long staple cotton per capita or per unit of all cotton consumed than the rest of the world. Imports by India, another major market for Egyptian cotton, may be limited by foreign exchange availabilities or domestically produced synthetic fibers or improved varieties of cotton. Other things being equal, the possible decline in the average level of cotton prices is likely to pull with it the prices of extra long staple cottons too.

20. Turning to the specific demand for UAR cotton, there are several reasons for concern associated with production elsewhere. Extra long staple cotton production in Peru, which declined significantly in the last few years as a result of a succession of floods and droughts has recovered partly in 1969 and may recover further in the next few years. There are reports of rehabilitation programs for drought stricken areas. Moreover Peru, which produces some varieties comparable to UAR types, has been reducing its dependence on the U.S. market and penetrating more

aggressively the European market. While extra long staple cotton output in the Sudan is not likely to rise much, there appears to be significant scope for improving the quality of the cotton grown, thus increasing the competition with UAR varieties. Finally, changes of U.S.A. policy for cotton in general and extra long staple in particular may be relevant.

21. The export outlook for cotton textiles, however, is comparatively better. Despite the network or quantitative restrictions on imports which came about in the last 8-10 years, the long-term arrangement under GATT has led to notable liberalization of trade in cotton textiles. Most bilateral agreements allow for an automatic growth of 5 percent per annum in the quotas. Trade in clothing (the most labor intensive of all textiles), including exports from developing countries, has been booming. Despite the emergence of protectionist sentiments in some markets and the reaching of near saturation levels in others, there is still considerable scope for countries with a small share, such as the UAR, to raise their exports provided that output is diversified and improved in quality.

Outlook

22. The current expectations of the government seem to be to produce a crop of 10 million kantars (500 thousand tons) from an area of 1.6 - 1.7 million feddans in the next few years. It is assumed here that the area around 1975 will be 1.8 million feddans--10 percent above the 1969 level but 9.4 percent below the peak of 1961. Assuming further that yields improve by 2 to 3 percent per annum (from the 1965/68 average) as a result of improved drainage, etc., production in 1975 would be around 550-575 thousand tons. If internal consumption of cotton textile goods increases by 3 percent per annum, i.e., slightly faster than population, the projected output figure would yield an exportable surplus of raw cotton of 350-375 thousand tons in 1975. Marketing this surplus might require a downward adjustment in prices of 15 percent or more from present prices.

23. It is thus in the long-term interest of the UAR to market a large portion of the incremental surplus in the form of manufactures for several reasons. First, it is desirable to export a higher amount of value added. Secondly, such exports would reduce the pressures on raw cotton exports. Thirdly, to the extent that such exports take the form of competitively priced, well finished and superior products they may help to show consumers abroad the advantages of Egyptian cotton. This may stimulate import demand for the raw material as well.

24. Increasing textile exports, however, poses two problems. First, it requires expansion in capacity, particularly in the spinning sector. Existing capacity is being utilized fully at present: spinning at a rate of 100 percent, weaving at 95 percent. Second, up to now most exports have been in the form of yarn, which is not far removed from the primary stage of cotton. Establishing itself as a major textile exporter as some of the Asian countries requires diversified output, more lines of production, and higher degree of finishing. Greater attention needs to

be paid to exporting clothing and to market studies. It seems nevertheless possible to raise exports of cotton manufactures (yarn, textiles and clothing) from 71 thousand tons in 1969 to 110 thousand tons (£E 90 million) in 1976.

25. The residual, exportable surplus of raw cotton would be 300-350 thousand tons in the mid-seventies, compared to 287 thousand in 1965/68. This should enable the UAR to keep the decline in its cotton prices in line with the anticipated trend for the majority of other cottons. Slowly rising exports plus continued improvements in the quality of its cotton could thus offset the effect of weaker prices and stabilize export earnings at about £E 130 million in the next few years. Additional earnings from the cotton sector would come exclusively through exports of textiles.

26. There are two additional relevant issues. One, textile exports receive a direct subsidy to compensate the industry for unnecessarily using high quality Egyptian cotton. The existence of the subsidy impedes continued and adequate scrutiny of productivity trends and competitiveness in the industry. Such investigation cannot be delayed if the industry is to be expanded significantly in the future. Finally, raw cotton production and exports fluctuate frequently from year to year with mixed effects on prices. The latter are not avoidable since the level of stocks in recent years has been extremely low. Sometimes not even local mills have at their disposal the variety composition of the cotton they require and are forced to use higher priced types. For these reasons it may be desirable for the UAR to build a more adequate level of stocks. No specific provision for such action has been made in the above projections.

STATISTICAL APPENDIX

Table Number

I. POPULATION AND EMPLOYMENT

II. NATIONAL ACCOUNTS

III. BALANCE OF PAYMENTS, EXTERNAL TRADE

IV. EXTERNAL DEBT

V. FISCAL STATISTICS

Table Number

Table 1.1: POPULATION IN THE UAR

Year	Population ('000)	Average Annual Rate of Growth %
1947	19,022	
1960	26,085	2.38
1966	30,075	2.54
1970	33,440 /1	

/1 Estimate

Source: Central Agency for Public Mobilization and Statistics

Table 1.2: POPULATION DENSITY IN THE U.A.R. IN CENSUS YEARS, 1882/1966

Census Years	Population	Density of Total Area		Inhabited Area		Density of Inhabited Area		
		Per Square Mile	Per Square Kilometer	Square Mile	Square Kilometer	Per Square Mile	Per Square Kilometer	Index of Density
1882	6,806,381	17.6	6.8	13,402	34,701	507.9	196.1	100.0
1897	9,714,525	25.2	9.7	13,407	34,716	724.6	279.8	142.7
1907	11,287,359	29.2	11.3	13,405	34,710	842.0	325.2	165.8
1917	12,750,918	33.0	12.7	13,284	34,397	1,431.6	370.7	189.0
1927	14,217,864	36.8	14.2	13,404	34,708	1,060.7	409.6	208.9
1937	15,932,694	41.3	16.0	13,202	34,185	1,206.8	466.1	237.7
1947	19,021,840	49.3	19.0	13,446	34,815	1,414.7	546.4	278.6
1960	26,085,326	67.5	26.1	13,741	35,580	1,898.4	733.2	373.9
1966	30,083,419	77.8	30.0	13,741	35,580	2,189.3	845.5	431.1

Source: Central Agency for Public Mobilization and Statistics.

Table 1.3: RATES OF BIRTH, DEATH AND NATURAL INCREASE PER THOUSAND IN THE U.A.R. IN SELECTED YEARS

Year	Birth	Death	Natural Increase
1956	40.7	16.4	24.3
1960	43.1	16.9	26.2
1964	42.0	15.7	26.3
1967	39.2	14.2	25.0

Age Specific Fertility Rates

Age Group	No. of Women ('000)	No. of Live Births Average (1959-61)	Fertility Rates
15-19	1,044	35,386	34.0
20-24	878	191,937	218.6
25-29	1,058	363,269	343.4
30-34	847	310,078	366.1
35-39	883	172,900	195.8
40-44	617	35,722	58.0
45 and over	579	10,526	18.2

Source: Central Agency for Public Mobilization and Statistics

Table 1.4: POPULATION IN URBAN AND RURAL AREAS IN THE UAR IN CENSUS YEARS 1907/1966

Years	Urban Population (%)	Rural Population (%)
1907	19	81
1917	21	79
1927	26	74
1937	28	72
1947	33	67
1960	37	63
1966	40	60

Source: Central Agency for Public Mobilization and Statistics.

Table 1.5: RATES OF INTERNAL MIGRATION IN THE U.A.R. IN THE PERIOD 1960/65

Governorates	Size of net migration (000)	Population in 1960	Average annual rate of net migration
Cairo	+274	3349	+1.6
Alexandria	+ 72	1516	+1.0
Port-Said	+ 8	245	+0.7
Ismailia	+ 12	284	+0.8
Suez	+ 20	204	+2.0
Damietta	- 11	388	-0.6
Dakahlia	- 2	2015	0.0
Sharkia	- 20	1820	-0.2
Kalyubia	- 6	988	-0.1
Kafr-El-Sheikh	- 27	973	-0.6
Gharbia	- 45	1715	-0.5
Munufia	- 74	1348	-1.1
Behera	- 13	1686	-0.2
Giza	+ 46	1336	+0.7
Beni-Suef	- 54	860	-1.3
Fayum	- 32	839	-0.8
Menia	- 72	1560	-0.9
Asyut	- 11	1330	-0.2
Suhag	- 28	1579	-0.4
Qena	- 60	1351	-0.9
Aswan	+ 19	385	+1.0
Frontier Gov's	+ 4	213	+0.4

(+) Refers to immigration to the governorate.

(-) Refers to emigration to other governorate.

Source: Central Agency for Public Moblization and Statistics

Table 1.6: AVERAGE ANNUAL WORKING HOURS ACCORDING TO SEX-AGE GROUPS, TYPES OF HOUSEHOLDS, AND TYPES OF WORK

Type of household	Sex-age group	Number of hours worked annually	Percent of Annual Work Time Spent On:				
			Field work	Animal husbandry	Processing farm products	Other agricultural work	Nonagricultural work
Farmers	Men	2,280	53	21	3	13	10
	Women	869	19	63	11	3	4
	Children	1,022	49	39	3	5	4
	Total	1,642	48	30	4	10	8
Farm-laborers	Men	2,324	58	13	3	11	15
	Women	904	31	35	4	8	22
	Children	1,374	55	23	2	7	13
	Total	1,716	53	18	3	10	16
Others (nonagricultural)	Men	2,482	8	4	3	3	82
	Women	697	14	29	6	2	49
	Children	1,087	25	26	2	1	46
	Total	1,738	11	10	3	2	74

Source: International Labor Organization

Table 1.7: AGRICULTURAL HOUSEHOLDS: HOURS WORKED ANNUALLY, TOTALLY AND OUTSIDE OWN FARM, BY SIZE OF FARM, AND FAMILY, AND AGE-SEX GROUPS

Strata		Men		Women		Children	
Size of Farm	Number of working family members	Hours worked per year	Percent of which outside own farm	Hours worked per year	Percent of which outside own farm	Hours worked per year	Percent of which outside own farm
½ to 2 feddan	3 and less	2,384	18	906	4	1,070	14
2 to 5 feddan	3 and less	2,420	4	1,112	5	1,096	9
≥5 feddan	3 and less	2,062	3	834	6	1,702	2
½ to 2 feddan	more than 3	2,190	33	1,010	9	1,122	34
2 to 5 feddan	more than 3	2,230	14	794	2	1,020	14
≥5 feddan	more than 3	2,358	5	734	1	848	11
landless/1	3 and less	2,444	69	838	35	1,374	80
landless	more than 3	2,208	73	948	30	1,374	65

/1 With less than ½ feddan or no land at all.

Source: International Labor Organization

Table 1.8: AVERAGE ANNUAL WORK TIME PER WORKING PERSON BY REGIONS AND SEX-AGE GROUPS (hours per year)

Governorate	Men	Women	Children
Delta			
Beheira	2,579	1,134	1,616
Gharbiya	2,042	884	889
Menufiya	2,531	1,391	1,462
Upper Egypt			
Assiout	2,141	562	698
Quenna	2,244	755	1,180
Fayoum	2,330	459	1,064

Source: **Central Agency for Public Mobilization and Statistics**
International Labor Organization

Table 1.9: EMPLOYMENT BY SECTORS

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
					(in thousands)				
Employment by Sectors:									
Agriculture	3,600.0	3,600.0	3,632.0	3,673.0	3,780.0	3,796.4	3,815.6	3,931.0	3,964.9
Industry	625.6	679.0	725.9	789.7	825.0	875.8	849.0	866.1	890.7
Electricity	13.1	15.1	17.4	17.9	18.0	18.4	19.0	19.8	20.3
Construction	166.0	263.0	315.7	334.2	345.2	291.5	318.8	215.8	302.4
Sub-Total	4,404.7	4,557.1	4,691.0	4,814.8	4,968.2	4,982.1	5,002.4	5,032.7	5,178.3
Transport & Communication	252.7	239.2	249.2	258.3	277.7	313.3	332.0	336.8	335.7
Housing Services	16.0	18.0	18.1	18.5	21.0	21.7	22.7	23.7	25.1
Public Utilities Services	24.3	27.1	28.7	29.5	30.3	31.4	32.2	33.2	32.4
Trade & Finance	663.0	680.9	702.2	719.0	729.7	762.7	784.4	798.6	794.3
Education & Scientific Services	200.0	204.0	211.5	226.0	256.0	258.8	285.1	308.7	)
Health	58.3	66.3	85.3	90.0	86.0	95.5	113.9	121.8	)
Social & Religious Services	28.6	29.0	27.5	31.6	33.1	35.4	40.0	41.3	)
Defense, Justice, Security	178.0	179.5	179.4	184.3	184.3	193.9	209.6	215.1	)1,544.4
Cultural & Recreational Services	17.8	19.0	25.8	23.8	26.5	30.3	37.8	37.2	)
Gov't. Organizational Services	90.0	93.0	103.5	145.5	180.5	202.9	221.0	229.4	)
Personal Services	578.5	543.5	546.0	543.7	540.1	556.6	550.3	565.7	)
Sub-Total (Services)	2,107.2	2,099.5	2,177.2	2,270.2	2,365.2	2,502.5	2,629.0	2,711.5	2,731.9
GRAND TOTAL	6,511.9	6,656.6	6,868.2	7,085.0	7,333.4	7,484.6	7,631.4	7,744.2	7,910.2

Source: Ministry of Planning

Table 1.10: FIRST YEAR ENROLLMENT /1

	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
Level of Education							
Primary		612001	640653	670250	625615	645813	687365
Preparatory General		142000	171502	210000	223100	228058	236715
Preparatory Technical		9572	9075	2297	2173	1941	1444
Total Preparatory		151572	183577	212297	225273	229999	238159
Secondary General		48552	61557	66827	68260	70781	71167
Secondary Technical		26319	30352	34122	45312	79871	75822
Total Secondary		74871	91909	100949	113572	150652	149989
Primary Teacher Training		15556	11895	11926	2053	2216	2358
Higher Institutes: Total /3	5110	6844	8219	9956	5801 /2	6805 /2	10223 /2,/4
Agriculture	1241	1497	1505	1838	628	1252	2786
Industry	926	1282	1576	2248	1448	1916	2425
Other /3	2943	4065	5138	5870	3725 /2	3637 /2	5012 /2,/4
Universities: Total	21500	27750	25850	26250	21370 /2	24453 /2	26748 /2
Agriculture	2320	3700			1990	2136	3133
Engineering	2870	3970			3370	3908	3360
Science	1600	2900			600	743 /2	1157
Other	17710	17180			15410 /2	17616 /2	19098

/1 Excluding Al-Azhar and Language Schools.
/2 Teacher Training was transferred to Universities as of 1966/67.
/3 Including Higher Technical Institutes not belonging to Ministry of Higher Education; including American University.
/4 Excluding Higher Technical Institutes not belonging to Ministry of Higher Education (about 650 first year enrollments).

Sources: A Guide for Educational Statistics, UAR, Ministry of Education, Department of Statistics, Vols. 1963/64 - 1967/68; Statistical Handbook, UAR, 1952-1967, Cairo, 1968; the Ministry of Higher Education and the Ministry of Planning.

Table 1.11: TOTAL ENROLLMENTS IN HIGHER INSTITUTES AND UNIVERSITIES

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70
Higher Institutes:										
Agricultural I	2,308	5,519	6,590	6,903	6,349	6,840	5,885	5,678	7,179	
Industrial Institutes	1,761	2,626	3,358	4,248	5,363	6,892	7,427	8,299	9,626	
Other[1]	11,451	12,190	12,550	13,992	19,081	21,622	18,222	18,469	17,570[5]	
Total[2]	15,520	20,335	22,498	25,143	30,793	35,354	31,534	32,446	34,375[5]	
Universities:										
Agricultural Faculties	6,543	7,618	8,752	10,748	12,233	13,206	12,318	11,162	11,789	19,089
Science Faculties	5,058	5,925	6,675	7,529	8,419	8,883	7,152	6,171	5,929	6,022
Engineering Faculties	11,306	13,140	14,500	17,022	19,647	20,434	20,810	21,229	19,885	20,568
Other[3]	64,073	64,680	68,000	75,122	89,006	80,642	87,862	86,087	85,250	94,154
Total Government Operated Faculties	86,980	91,363	97,927	110,421	129,305	123,165	128,142	124,649	122,853	139,833
Al-Azhar:										
Agricultural Faculties	-	-	-	-	180	499	870	1,490	1,581	2,321
Engineering Faculties	-	-	-	-	276	692	1,180	1,772	1,996	2,686
Other[4]	5,753	6,108	7,428	6,851	8,309	11,932	16,214	13,590	15,084	16,789
Grand Total	92,733	97,471	105,355	117,009	138,070	136,288	146,406	141,501		

1/ As of 1964/65 including American University.
2/ Including Secondary Teacher Training until 1965/66. Enrollment figures are 1960/61, 2633; 61/62, 2775; 63/64, 3167; 64/65, 3317; 65/66, 3347. Including Higher Technical Institutes not belonging to Ministry of Higher Education.
3/ Including Secondary Teacher Training as of 1966/67, 5140; 67/68, 5691; 68/69, 7908. Includes faculties of arts, law, commerce, economics, medicine, pharmacy, dentistry, veterinary science, girls education, nursing, education (at Ain Shams) and faculty at Dar-El Ulum.
4/ Including faculty of medicine as of 1964/65.
5/ Excluding Higher Technical Institutes not belonging to Ministry of Higher Education (i.e. approximately 2,500 students).

Source: Guide for Educational Statistics, UAR, Ministry of Education, Department of Statistics, vols. 1963/64 - 1967/68; Statistical Handbook, UAR, 1952-1967, Cairo, June 1968; the Ministry of Higher Education.

Table 1.12: DISTRIBUTION OF ENROLLMENTS IN HIGHER INSTITUTES AND UNIVERSITIES BY FIELD OF STUDY
(in percent)

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67 5/	1967/68 5/	1968/69 5/6/	1969/70
Higher Institutes:										
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	14.9	27.1	29.3	27.4	20.6	19.3	18.7 (16.0)	17.5 (14.9)	20.9 (17.0)	6.0
Industry 1/	11.3	12.9	14.9	16.9	17.4	19.5	23.5 (20.3)	25.6 (21.8)	28.0 (22.8)	31.0
Other 2/	73.8	60.0	55.8	55.7	62.0	61.2	57.8 (63.7)	56.9 (63.3)	51.1 (60.2)	63.0
Universities: 4/										
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	7.0	7.8	8.3	9.2	9.0	10.0	9.0 (9.3)	8.9 (9.3)	9.6 (10.2)	13.6
Engineering	12.2	13.4	13.7	14.5	14.4	15.5	15.0 (15.5)	16.3 (16.9)	16.2 (17.2)	14.7
Science	5.5	6.1	6.3	6.4	6.1	6.5	4.9 (5.1)	4.4 (4.5)	4.8 (5.1)	4.3
Other 3/	75.3	72.7	71.7	70.9	71.5	68.0	71.7 (70.1)	70.4 (69.3)	69.4 (67.5)	67.4

1/ See Table on Total Enrollments in Higher Institutes and Universities.
2/ Ibid.
3/ Ibid.
4/ Including Al-Azhar University.
5/ Figures in brackets are corrected for the effects of transfer of Secondary Teacher Training from Higher Institutes to Universities. For correction base see footnote 3/ of Table on Total Enrollments in Higher Institutes and Universities (Table 3.12).
6/ Excluding Al-Azhar University.

Source: Compilation on the basis of data from the Ministry of Education and the Central Agency for Public Mobilization and Statistics.

Table 1.13: PUBLIC EXPENDITURE ON SERVICES IN THE U.A.R. 1959/60 - 1964/65 (Base Year 1951/52)

Fiscal Years	Education		Social Services		Health		Housing and Public Utilities		Total	
	Thousand £E	Index Number	£E	Index Number	£E	Index Number	£E	Index Number	£E	Index Number
1951 - 52	2459	100	5869	100	10133	100	5938	100	24399	100
1959 - 60	3348	136	7090	121	13500	133	11563	195	35501	146
1962 - 63	19132	778	13385	228	28790	284	86078	1450	147385	604
1963 - 64	26212	1066	17356	296	31170	308	89338	1505	164076	672
1964 - 65	33302	1354	20025	341	44459	439	99010	1667	196796	807
1965 - 66	25907	1054	19192	327	43684	431	81694	1376	169667	695
1966 - 67	28019	1139	24063	410	43017	425	87273	1470	182372	747
1967 - 68	23656	962	21233	362	37756	373	62035	1045	144680	593

(B) Per Capita Expenditure

Fiscal Years	Population Estimates as of 1st Jan. (millions)	Education		Social Services		Health		Housing & Public Utilities		Total	
		£E	Index No.	£E	Index No.	£E	Index No.	£E	Index No.	£E	Index No.
1951 - 52	21.2	0.116	100	0.277	100	0.478	100	0.280	100	1.151	100
1959 - 60	25.5	0.131	113	0.278	100	0.529	111	0.453	162	1.391	121
1962 - 63	27.6	0.693	597	0.485	175	1.043	218	3.120	1114	5.341	464
1963 - 64	28.3	0.927	799	0.613	221	1.102	231	3.158	1128	5.800	504
1964 - 65	29.0	1.148	990	0.690	249	1.533	321	3.413	1219	6.784	589
1965 - 66	29.8	0.869	749	0.644	232	1.466	307	2.741	979	5.694	495
1966 - 67	30.5	0.919	792	0.789	284	1.410	295	2.861	1022	5.979	519
1967 - 68	31.3	0.756	652	0.678	245	1.206	252	1.982	708	4.622	402

Source: Central Agency for Public Mobilization & Statistics

Table 2.1: Industrial Origin of Gross Domestic Product

(million Egyptian Pounds - at current factor cost)

SECTOR	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70 1/
Agriculture	405.0	402.7	373.0	425.2	475.0	582.1	608.5	612.3	644.4	688.3	745.0
Industry & Mining	256.3	285.6	309.9	350.9	392.3	423.4	461.1	477.4	460.3	494.8	583.0
Electricity	9.8	12.2	16.3	18.4	19.3	23.2	24.3	25.2	35.1	29.4	31.0
Construction	47.1	44.2	73.6	83.5	96.0	92.6	94.9	94.3	81.7	110.3	108.0
Commodity Sectors	718.2	744.7	772.8	878.0	982.6	1,121.3	1,188.8	1,209.2	1,221.5	1,330.1	1,467.0
Transp. & Communication	92.9	102.2	116.9	132.7	156.2	176.0	196.6	204.8	115.6	116.3	125.0
Trade and Finance	129.2	145.1	151.6	154.0	160.5	168.0	181.5	195.9	205.0	215.9	225.0
Distribution Sectors	222.1	247.3	268.5	286.7	316.7	344.0	378.1	400.7	320.6	332.2	350.0
Housing	73.0	73.8	76.2	77.6	78.7	74.9	76.1	79.0	113.1	115.6	84.0
Public Utilities	6.4	6.8	7.0	7.4	7.6	8.2	9.2	9.4	9.9	10.8	11.0
Other Services	265.5	290.9	286.6	313.1	354.0	414.2	457.5	482.1	522.7	542.6	549.0
Services Sectors	344.9	371.5	369.8	398.1	440.3	497.3	542.8	570.5	645.7	669.0	644.0
Discrepancy	0.0	0.0	0.0	0.0	0.0	12.4	14.4	0.0	0.0	0.0	0.0
GDP at factor cost	1,285.2	1,363.5	1,411.1	1,562.8	1,739.6	1,975.0	2,124.1	2,180.4	2,187.8	2,331.0	2,461.0

1/ IBRD estimate.

Source: Central Agency for Public Mobilization and Statistics, Ministry of Planning.

Table 2.2: GROSS FIXED INVESTMENT BY INDUSTRIAL SECTOR

(million Egyptian Pounds - current prices)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
Agriculture	16.7	16.6	17.8	20.6	30.9	32.5	30.7	31.3	24.9	25.6
Irrigation & Drainage	8.6	14.8	19.7	29.2	36.4	37.9	32.6	34.4	25.1	32.5
High Dam	4.2	6.8	14.4	24.0	34.8	18.6	19.0	16.5	12.5	9.5
Industry & Mining	49.3	67.8	50.3	80.5	105.4	99.9	100.6	98.4	85.8	101.1
Electricity	6.2	5.6	6.3	11.9	35.6	53.2	61.1	69.3	52.9	31.9
Construction	-	-	-	3.5	4.5	5.2	6.8	3.9	1.0	2.6
Commodity Sectors	85.0	111.6	108.5	169.7	247.6	247.3	250.8	253.8	202.2	203.2
Transp. & Communication	35.8	68.9	66.5	48.6	40.9	45.9	49.4	42.6	38.3	69.5
Suez Canal		5.9	4.7	5.2	4.2	3.4	3.7	3.5	-	-
Trade & Finance	-	-	5.0	3.7	6.5	4.3	2.7	2.6	0.7	2.7
Distribution Sectors	35.8	74.8	76.2	57.5	51.6	53.6	55.8	48.7	39.0	72.2
Housing	31.1	19.1	37.8	37.6	37.4	30.5	47.5	42.3	41.7	46.9
Public Utilities	7.5	7.7	10.2	13.5	8.2	11.2	12.4	8.6	4.2	5.8
Other Services	12.0	12.4	18.4	21.3	27.6	21.7	17.3	12.4	10.9	15.4
Services Sectors	50.6	39.2	66.4	72.4	73.2	63.4	77.2	63.3	56.8	68.1
Exp.for purchase of land	- 5.6	- 7.4	-11.3	-11.7	- 8.7	- 5.9	- 6.4	- 7.0	- 5.8	-10.3
Total Fixed Investment/1	165.8	218.2	239.8	287.9	363.7	358.4	377.4	358.8	292.2	333.2
of which										
Public Sector						338.1	349.6	329.4	289.8	290.9
Private Sector						20.3	27.8	29.4	28.6	42.3

/1 1959/60 through 1963/64 include change in stocks.

Source: Central Agency for Public Mobilisation and Statistics and Ministry of Planning.

Table 2.3: Expenditure on Gross National Product

(million Egyptian Pounds - current prices)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70
Private consumption	971.6	993.3	1,101.5	1,170.8	1,249.3	1,462.9	1,583.3	1,632.7	1,708.3	1,802.2	1,904.0
General government consumption	228.1	255.9	247.1	318.2	401.8	437.4	481.9	488.4	567.3	629.0	734.0
Total Consumption	1,199.7	1,249.2	1,348.6	1,489.0	1,651.1	1,900.3	2,065.2	2,121.1	2,275.6	2,431.2	2,638.0
Gross fixed investment /1	165.8	218.2	239.8	287.9	363.7	358.4	377.4	358.8	292.2	331.0	360.0
Change in stocks	--	--	--	--	--	23.3	68.8	26.8	50.0	15.0	15.0
Total Gross Investment	165.8	218.2	239.8	287.9	363.7	381.7	446.2	385.6	342.2	346.0	375.0
Exports of goods & services	283.0	280.4	239.0	316.7	358.5	411.4	409.4	429.1	294.9	362.2	384.0
Less: Imports of g. & s.	280.9	299.0	325.3	420.5	491.7	467.5	531.5	452.8	402.1	445.5	356.0
Net Exports of g. & s.	2.1	- 18.6	- 86.3	- 103.8	- 133.2	- 56.1	- 122.1	- 23.7	- 107.2	- 83.3	- 122.0
Adjustment /2	5.6	7.4	11.3	11.7	8.7	- 12.4	13.6	- 2.3	0.4	- 7.9	--
GDP at market prices	1,373.2	1,456.2	1,513.4	1,684.8	1,890.3	2,213.5	2,402.9	2,480.7	2,511.0	2,686.0	2,891.0
Net factor income from abroad	3.4	1.8	- 0.5	- 5.6	- 6.4	- 21.7	- 14.7	- 21.8	- 14.7	- 22.0	- 38.0
GNP at market prices	1,376.6	1,458.0	1,512.9	1,679.2	1,883.9	2,191.8	2,388.2	2,458.9	2,496.3	2,664.0	2,853.0
Net indirect taxes	88.0	92.7	102.3	122.0	150.7	238.5	278.8	300.3	345.2	360.0	380.0
GNP at factor cost	1,288.6	1,365.3	1,410.6	1,557.2	1,733.2	1,953.3	2,109.4	2,158.6	2,151.1	2,304.0	2,473.0
Gross National Saving	176.9	208.8	164.3	190.2	232.8	291.5	323.0	337.8	220.7	232.8	215.0

/1 1959/60 through 1963/64 includes change in stocks.
/2 1959/60-1963/64 expenditure in the purchase of land which had been included in investment.

Source: Central Agency for Public Mobilization and Statistics, Ministry of Planning.

Table 3.1: BALANCE OF PAYMENTS 1962/63-1968/69

(£E million)

	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
Current Account							
Exports	199.7	243.1	244.8	251.0	263.9	253.4	307.3
Imports	367.0	429.3	394.0	423.2	414.4	386.8	384.4
Invisibles (net)	52.1	45.5	62.2	55.6	71.2	- 21.5	- 25.3
Balance	-115.2	-140.7	- 87.0	-116.6	- 79.3	-154.9	-102.4
Capital Account							
Total receipts	107.1	166.7	161.5	153.1	163.5	173.4	211.9
Debt amortization and other payments	- 27.2	- 63.5	- 86.5	- 51.7	- 64.6	- 68.8	-101.2
Balance	- 79.9	-103.2	- 75.0	101.4	98.9	104.6	110.7
Financial Balance	- 35.3	- 37.5	- 12.0	- 15.2	+ 19.6	- 50.3	+ 8.3

Source: Central Bank of Egypt

Table 3.2 U.A.R.: Balance of Payments Estimates[1]

(In millions of Egyptian pounds)

Fiscal years ended June 30	1966/67	1967/68	1968/69	1969/70
A. Merchandise				
Proceeds of exports	263.9	253.4	307.3	348.0
Payments for imports (c.i.f.)	-414.4	-386.8	-384.0	-473.1
Trade balance	-150.5	-133.4	-76.7	-125.1
B. Services				
Receipts				
Suez Canal dues	95.2	--	--	--
Other shipping	10.9	4.1	3.4	3.9
Interest, dividends and other revenue[2]	8.7	10.6	12.3	15.1
Nonmerchandise insurance	0.3	0.5	0.3	0.4
Travel and other receipts	59.8	43.3	51.2	54.6
Total receipts	174.9	58.5	67.2	74.0
Payments				
Shipping	-11.9	-5.8	-4.9	-7.4
Travel and remittances	-11.1	-6.5	-9.0	-8.4
Interest, dividends and other revenue	-19.0	-16.4	-26.2	-28.6
Government, n.i.e.	-35.7	-25.5	-25.6	-33.8
Nonmerchandise insurance	-0.6	-1.6	-1.0	-1.8
Film Rentals	-0.3	-0.3	-0.4	-0.2
Other commercial payments	-5.2	-7.0	-8.6	-11.3
Other disbursements	-19.9	-16.9	-17.2	-17.8
Total payments	-103.7	-80.0	-92.9	-109.3
Net services	71.2	-21.5	-25.7	-35.3
C. Unrequited transfers (mainly intergovernmental)	30.1	83.6	125.2	139.3
D. Total (A through C) Surplus or deficit (-)	-49.2	-71.3	22.8	-21.1

Table 3.3: BALANCES ON CLEARING AND OTHER ACCOUNTS (PAYMENT'S AGREEMENTS)

(£E million)

	31/12/67	31/12/68	31/12/69
Bilateral Accounts			
Albania	- 0.1	- 0.2	- 0.2
Algeria	+ 1.2	+ 1.7	+ 3.6
Bulgaria	- 0.8	- 1.5	- 0.2
Cameroon	+ 0.1	+ 0.1	
Ceylon	- 0.2	- 0.5	- 1.5
China	- 6.8	- 7.0	-10.0
Cuba	+ 0.6	+ 0.1	- 0.3
Czechoslovakia	- 4.7	- 1.5	- 2.6
Denmark		- 0.1	- 0.2
E. Germany	- 2.1	- 3.5	+ 0.4
Ghana	+ 0.2	+ 0.6	+ 0.3
Greece	- 2.1	- 3.4	- 4.5
Guinea	+ 1.8	+ 1.9	+ 1.9
Hungary	+ 0.2		- 0.2
India	- 6.7	- 0.8	- 3.5
Indonesia	+ 0.7	+ 1.0	+ 1.4
Iraq	- 0.2	+ 1.8	+ 1.7
N. Korea	+ 0.1	- 0.1	- 0.2
Lebanon	- 0.1	- 0.6	- 0.9
Libya	+ 0.7	+ 0.2	
Mali	+ 4.9	+ 5.2	+ 5.2
Morocco	- 0.4	- 0.3	+ 0.2
Poland	- 2.6	- 1.3	
Rumania	- 6.5	- 1.7	- 3.3
Saudi Arabia	- 1.3	- 1.0	- 0.6
Somalia	- 0.9	- 0.5	- 0.5
Spain	- 6.2	- 5.9	- 7.8
Sudan	- 4.5	- 3.4	- 2.4
Switzerland	- 0.4	- 0.2	- 0.1
Syria	- 4.0	- 5.0	- 5.5
Tunisia	- 0.1	- 0.1	
USSR	-30.7	-27.2	-31.7
Vietnam			
Yemen	-16.8	-16.4	-16.5
Yugoslavia	- 2.4	- 4.5	- 4.7
TOTAL	-90.1	-74.1	-82.7
Other Accounts			
France	- 1.8	- 2.3	- 1.8
Italy	-29.7	-38.2	-38.5
Saudi Arabia	- 0.2		
Syria	+ 2.3	+ 2.3	+ 2.3
Turkey	- 1.1	- 1.6	- 0.7
UK	- 0.7		
TOTAL	-31.2	-39.8	-38.7
GRAND TOTAL	-121.3	-113.9	-121.4

Source: The Central Bank of Egypt

Table 3.4: DIRECTION OF TRADE

(In percent)

	1955/56-1959/60 Annual Average	1959/60	1960/61-1964/65 Annual Average	1964/65	1965/66	1966/67	1967/68	1968/69
Imports from:								
Arab countries	7.9	9.1	7.6	8.6	6.6	7.0	6.1	4.3
Eastern Europe	24.7	25.4	21.0	19.6	24.9	30.1	41.4	34.8
Western Europe	41.2	36.5	33.4	33.4	33.3	27.2	32.3	41.1
The Americas	13.2	17.8	26.1	27.6	20.0	22.3	6.2	6.8
Far East	10.1	9.2	9.2	8.4	12.5	11.7	8.6	10.4
Other	2.9	1.9	2.6	2.4	2.7	1.7	6.4	2.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Exports to:								
Arab countries	11.3	11.3	10.1	7.1	8.9	9.0	12.3	9.3
Eastern Europe	41.0	42.3	43.9	47.8	51.2	49.9	42.3	52.3
Western Europe	22.8	20.9	22.9	22.2	18.8	18.9	21.8	19.0
The Americas	4.1	5.5	6.9	5.0	4.5	2.9	2.5	2.7
Far East	18.1	18.2	13.4	15.3	14.7	15.3	15.0	14.2
Other	2.6	1.7	2.8	2.5	2.8	4.0	7.1	2.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computations on the basis of data of the Public Agency for Mobilization and Statistics - Annual Bulletin of Foreign Trade - The Central Bank of Egypt and the General Organization for Trade.

Note: Percentages do not always add up because of rounding of the figures.

Table 3.5: COTTON EXPORTS BY VARIETY

Variety	September/August 1967/68	1968/69
	--- 1,000 bales (478 lbs each) ---	
Menoufi	391	337
Giza 45	80	74
Giza 68	199	197
Giza 47	5	
Dendera	48	9
Giza 67	370	342
Ashmouni	6	
Giza 66	54	48
Giza 69	23	62
Others	38	30
TOTAL	1214	1099

Source: General Organization for Cotton

Table 3.6: EXPORTS OF RAW COTTON BY COUNTRIES, 1966/67 - 1968/69

Country of Destination	August - July 1966/67	1967/68	1968/69
	(1000 bales of 478 lbs. each)		
Albania	1.0	0	.4
Algeria	4.6	5.3	0
Austria	13.8	16.4	12.9
Belgium	8.8	9.4	8.6
Bulgaria	22.7	15.8	23.8
Ceylon	.3	1.5	2.8
China (Mainland)	93.4	39.8	30.5
Czechoslovakia	117.6	84.1	61.0
Finland	.5	.6	.6
France	46.7	46.2	49.7
Germany, Dem. Rep.	38.8	22.0	11.3
Germany, Fed. Rep.	42.0	57.4	68.2
Greece	28.1	28.5	32.7
Hungary	28.9	19.5	10.5
India	142.8	149.6	73.4
Italy	84.8	74.8	68.0
Japan	100.1	102.0	122.5
Korea, North	4.5	0	3.0
Lebanon	-	-	1.1
Morocco	0	0	4.6
Netherlands	2.0	4.2	5.4
Philippines	.2	1.1	.6
Poland	47.2	32.2	26.8
Portugal	.3	.4	.6
Rumania	48.1	57.0	41.4
Singapore	0	0	.7
Spain	49.6	79.1	61.8
Sweden	2.3	1.8	3.9
Switzerland	28.4	23.3	21.7
Turkey	1.4	1.9	4.5
United Kingdom	25.8	28.6	21.0
United States	28.1	32.5	2.3
U.S.S.R.	348.7	194.1	281.2
Venezuela	1.5	0	2.2
Yugoslavia	66.0	46.5	31.7
Others	4.5	.1	.4
Total	1,433.5	1,175.7	1,091.8

Source: International Cotton Advisory Committee, Cotton - World Statistics, April 1970.

Table 3.7: GEOGRAPHICAL DISTRIBUTION OF COTTON YARN EXPORTS DURING THE PERIOD 1964-1968 (in tons)

Destination	1964	1965	1966	1967	1968
Arab League Countries	1,297	1,362	1,029	708	762
The Eastern Bloc	13,520	25,662	27,930	26,899	24,638
The Common Market	7,740	7,029	4,485	2,305	1,925
The Free Trade Association	3,435	4,465	3,514	2,625	2,545
The Dollar Zone	191	286	608	978	1,735
Others	1,407	2,352	3,171	4,461	7,671
TOTAL	27,590	41,156	40,737	37,976	39,276

Source: The Central Agency for Public Mobilization and Statistics.

Table 3,8: DISTRIBUTION OF TEXTILE EXPORTS

Destination	1964	1965	1966	1967	1968
Arab League States	4,155	3,916	6,343	5,491	6,344
Eastern Bloc Countries	2,699	3,555	3,700	5,478	6,050
E.E.C. Countries	691	674	1,523	1,266	1,711
E.F.T.A. Countries	1,610	1,576	404	754	1,157
Dollar Zone Countries	2,561	2,134	1,293	2,682	3,445
Others	1,579	2,641	1,348	1,264	1,467
Total	13,295	14,496	14,611	16,935	20,174

Source: The Central Agency for Public Mobilization and Statistics.

Table 3.9: PETROLEUM BALANCE OF PAYMENTS

(Value in LE 1000)

	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70 estimate	1970/71 estimate	1971/72 estimate	1972/73 estimate	1973/74 estimate	1974/75 estimate
1. Imports:											
A) Crude Oil	29,692	22,447	24,118	13,781	7,298	11,450	-	-	-	-	-
B) Petroleum Products	4,166	6,484	5,056	15,310	15,513	5,412	5,525	5,284	5,334	5,735	6,695
C) Total Imports	33,858	28,931	29,174	29,091	22,811	16,862	5,525	5,284	5,334	5,735	6,695
2. Exports:											
A) Crude Oil:											
- Contracted	-	-	603	1,906	3,634	1,197	5,429	3,360	3,840	-	-
- Free:											
Sinai	9,483	4,375	2,239	-	-	-	11,285	9,953	8,325	6,993	6,031
Other Fields	1,806	1,700	2,754	543	4,542	13,512	17,955	23,940	23,355	29,655	42,840
Total	11,289	6,075	5,596	2,449	8,176	14,709	34,669	37,253	35,520	36,648	48,871
B) Petroleum Products	10,907	9,677	10,743	4,748	4,926	9,055	12,012	11,374	13,764	14,757	15,634
C) Total Exports	22,196	15,752	16,339	7,197	13,102	23,764	46,681	48,627	49,284	51,405	64,505
3. Balance (2 - 1)	-11,662	-13,179	-12,835	-21,894	- 9,709	6,902	41,156	43,343	43,950	45,670	57,810

Source: The General Organization for Petroleum

Table 3.10: TOURIST NIGHTS 1962 - 1969
(In Thousands)

Year	Arabs	Europeans	Americans	Others	Total
1962	1,963.8	1,349.1	303.1	550.4	4,166.5
1963	1,869.2	1,311.3	434.4	608.5	4,223.4
1964	3,856.2	1,986.2	426.0	755.9	7,024.3
1965	7,067.7	2,327.7	394.9	610.5	10,400.8
1966	6,439.3	2,326.8	423.7	593.7	9,783.4
1967	3,959.6	1,597.0	395.6	417.5	6,369.6
1968	3,436.3	625.1	125.4	188.9	4,375.7
1969	3,341.0	686.5	147.6	220.5	4,395.6

Source: The Ministry of Tourism

Table 4.1: United Arab Republic - External Public Debt Outstanding as of December 31, 1969/1

Debt Repayable in Foreign Currency

(In thousands of U.S. dollars)

Source	Debt Outstanding December 31, 1969	
	Disbursed only	Including undisbursed
Total External Public Debt/2	1,389,359	1,671,158
Privately-held Debt	200,687	227,431
Loans from International Organizations - IBRD	27,500	27,500
Loans from Governments/3	1,159,915	1,414,971
Nationalization	1,257	1.257

/1 Debt with an original or extended maturity of over one year.

/2 Includes arrears of principal and excludes arrears of interest up to December 31, 1969 as shown below:

(In thousands of U.S. dollars)

	Principal	Interest
Total	$107,290	$22,075
Austria	219	60
Canada	2,838	477
Germany	8,944	1,637
Kuwait	4,200	2,520
United States	91,089	17,381

/3 Does not include the uncommitted portions of the following frame agreements:

(In thousands of U.S. dollars)

Total	$377,694
Bulgaria	12,000
China	68,483
Czechoslovakia	81,981
East Germany	44,244
Poland	5,081
U.S.S.R.	150,008
Yugoslavia	15,897

Note: For a number of debts amounts outstanding were estimated as actual amounts were not reported by U.A.R.

Table 5.1: CENTRAL GOVERNMENT CURRENT EXPENDITURE
(LE million)

	1966/67 Actual	1967/68 Actual	1968/69 Actual	1969/70 Budget Estimate
Organizational Services				
Defense	166.7	241.8/1	278.0/2	370.5/5
Security and Justice	42.0	43.2	46.1	52.2
Others	28.8	27.4	26.9	33.2
SUB-TOTAL	237.5	312.4	351.0	455.9
Social and Economic Services				
Agriculture	11.8	14.8	16.2	19.5
Irrigation and Defense	16.7	17.7	19.7	23.0
Education	99.8	103.4	107.8	125.7
Health	29.4	31.8	35.0	38.3
Transport and Communications	10.7	3.4	7.5	8.2
Culture and Entertainment	10.5	12.0	9.6	14.9
Others	50.9	37.1	62.8	48.3
SUB-TOTAL	229.8	220.2	258.6	277.9
Debt Service	64.0	17.2/3	6.1	6.4
Pensions and Other Remunerations	21.7	25.2	26.5	29.4
Cost of Living Subsidies	46.2	41.0	8.0/4	3.2
TOTAL	599.2	616.0	650.2	772.8

/1 Includes LE 60 million which official figures classify under "Others".
/2 Includes LE 100 million "emergency appropriations" financed through the Emergency Fund, which totalled LE 127 million. The remaining LE 27 million are shown as "Others".
/3 No longer includes repayment of principal as in the past.
/4 Only net results of the operations of the Ministry of Supply is now reported.
/5 Includes LE 179 million from the Emergency Fund. Part of this was probably used for non-military expenditures but no breakdown was available.

Source: Ministry of Treasury

Table 5.2: CENTRAL GOVERNMENT CURRENT REVENUES
(LE millions)

	1966/67 Actual	1967/68 Actual	1968/69 Actual	1969/70 Budget Estimates
Tax Revenues				
Taxes on Immovable Property	10.2	9.5	13.8	19.3
Personal Income Taxes	21.2	21.6	23.0	25.0
Business Profit Taxes	93.0	68.5	87.9	83.4
Estate Duties	2.0	2.2	2.2	2.2
Excise and Consumption Duties	45.0	51.4	49.1	53.7
Custom Duties	154.2	144.3	134.0	158.1
Stamp Duties	15.3	24.3	28.8	28.5
Other	12.1	16.1	17.3	15.0
SUB-TOTAL	353.0	337.9	356.1	385.2
Non-Tax Revenues				
Services Revenues	67.7	17.4	17.3	24.4
Miscellaneous and Extraordinary Receipts 1/	175.9	176.7	160.9 2/ (96.0)	146.7 (105.0)
TOTAL	596.6	532.0	534.3	556.3

1/ This item includes a specific levy on certain manufactured consumers goods (refrigerators and other high value electrical appliances) introduced in 1965. Figures in parentheses show contribution of this item. These figures were not available for 1966/67 and 1967/68.

2/ Profits of the Ministry of Supply are no longer included. They are netted out in the Cost of Living Subsidies item in Table showing current expenditures.

Source: Ministry of Treasury

Table 6.1: U.A.R.: SUMMARY OF FACTORS AFFECTING LIQUIDITY

(In millions of Egyptian pounds)

Changes during period	1966/67	1967/68	1968/69	1969/70
I. Money and quasi-money	17.8	- 8.3	72.4	100.4
Money	1.5	-19.5	38.0	73.7
Quasi-money	16.3	11.2	34.4	26.7
II. Foreign assets (net)	- 9.8	-51.0	1.7	7.1 /1
III. Domestic assets (net)	27.6	42.7	70.7	93.3
Claims on Government (net)	71.5	28.1	37.0	92.6
Claims on nongovernment sector	-21.9	29.6	30.1	21.2 /1
Other items (net)	-22.0	-15.0	3.6	- 20.5
Cha				
Changes in per cent:				
Money and quasi-money	2	-1	8	10
Claims on nongovernment sector	- 6	8	7	5

Source: Based on data provided by the Central Bank of Egypt.

/1 Includes the effects of the allocation of SDR 25.2 million, equivalent to LE 8.8 million. The SDR allocation improved the net external position and exaggerated the contractionary effect of "other items (net)".

Table 7.1: OUTPUT OF MAJOR AGRICULTURAL PRODUCTS (EXCLUDING LIVESTOCK)
1952 and 1960 - 1969

(in thousand metric tons)

Crop	1952	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Cotton											
Seed cotton	1,296	1,380	999	1,335	1,312	1,436	1,501	1,289	1,208	1,210	1,480
Cotton lint	446	478	336	457	442	504	521	455	437	436	541
Cereals											
Maize	1,506	1,691	1,617	2,004	1,867	1,934	2,141	2,376	2,163	2,297	2,366
Millet	522	603	631	659	729	740	806	859	881	906	813
Wheat	1,081	1,499	1,436	1,593	1,493	1,499	1,272	1,465	1,291	1,518	1,268
Rice (Paddy)	517	1,486	1,142	2,038	2,219	2,036	1,788	1,679	2,279	2,586	2,557
Barley	118	156	133	146	134	141	130	102	100	121	105
Pulses											
Beans	250	290	161	328	263	366	344	381	188	283	297
Lentils	32	50	34	56	47	52	61	44	34	35	24
Fenugreek	34	43	24	44	42	42	37	30	21	19	22
Lupines	6	13	9	12	13	13	12	7	7	7	6
Chickpeas	9	11	5	7	8	10	9	6	6	7	4
Vegetables											
Onion	243	504	469	600	659	646	670	701	587	479	445
Other	1,834	3,424	3,571	3,919	4,320	4,378	4,636	4,928	4,505	5,141	5,323
Fruits											
Oranges		210	157	280	338	331	342	488		494	625
Mandarines & Limes		101	79	117	101	141	141	141		128	158
Grapes		102	106	120	106	91	92	118		111	104
Mangos		63	48	86	91	97	79	90		55	62

continued.....

Table 7.1: OUTPUT OF MAJOR AGRICULTURAL PRODUCTS (EXCLUDING LIVESTOCK)
1952 and 1960 - 1969 (concluded)

Crop	1952	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Oils											
Groundnuts	20	35	25	49	45	46	50	40	32	36	43
Sesame	14	15	11	17	26	23	22	11	7	10	16
Flax (seed)	5	9	12	11	11	14	10	9	9	15	17
Flax (fiber)	26	53	64	64	61	74	58	51	54	83	92
Cottonseed	842	888	658	857	858	912	961	820	758	758	921
Sugarcane	3,258	4,545	4,186	4,808	5,153	4,890	4,739	5,189	5,269	6,083	6,592
Clover Seed	36	41	39	33	27	27	28	34	31	34	37

Note: Alternative series are not always in agreement with these data.

Source: IBRD, Projects Department, Middle East Studies: UAR Findings on Agricultural Sector, 1968 Mission, July 19, 1968; Ministry of Agriculture, Bureau of Agricultural Economics and Statistics, unpublished.

Table 7.2: CROPPED AREA BY SEASON
1960 - 1969
(In Thousand Feddan)

	Annual Crops				
Year	Winter	Summer	Nile	Fruit	Total
1960	4,808	3,533	1,898	131	10,370
1961	4,693	3,527	1,616	137	9,973
1962	4,822	3,703	1,695	145	10,365
1963	4,717	3,900	1,588	152	10,351
1964	4,758	3,916	1,536	167	10,377
1965	4,624	4,697	762	178	10,261
1966	4,739	4,794	760	195	10,488
1967	4,776	4,857	822	207	10,462
1968	4,923	4,945	646	225	10,739
1969	4,849	5,049	601	233	10,732

Source: Ministry of Irrigation

Table 7.3: YIELDS PER FEDDAN FOR IMPORTANT CROPS, 1960/1969

(Kilograms)

Crop	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969/1
Seed Cotton	737	502	806	806	891	791	693	737	822	912
Rice (Paddy)	2,107	2,126	2,457	2,315	2,111	2,107	1,984	2,117	2,145	2,145
Maize	1,330	1,379	1,338	1,506	1,495	1,690	1,659	1,636	1,478	1,594
Millet	928	1,009	1,093	1,085	1,165	1,476	1,509	1,406	1,701	1,715
Sugarcane	40,950	37,575	39,690	38,745	36,450	36,810	39,060	38,475	38,925	39,006
Groundnuts	825	746	939	847	918	926	826	782	854	878
Sesame	361	390	408	433	424	433	384	344	406	454
Wheat	1,029	1,038	1,095	1,110	1,180	1,115	1,135	1,126	1,074	1,018
Beans	801	490	890	732	896	886	956	628	922	880
Barley	1,048	1,096	1,118	1,112	1,165	1,038	1,042	929	1,035	1,019
Fenugreek	685	591	739	702	748	735	735	657	672	502
Lentil	588	542	706	602	666	688	594	515	664	513
Flaxseed	410	407	412	415	426	401	400	382	400	428
Lupine	646	642	666	694	717	724	688	638	594	582
Chickpeas	693	645	648	708	706	698	669	645	714	667
Garlic	4,680	5,070	4,960	5,850	5,270	5,530	6,270	5,740	6,120	15,711
Clover Seed	200	186	205	212	205	212	214	220	222	243

/1 Preliminary

Source: Ministry of Irrigation and Ministry of Agriculture

Table 7.4: AREA AND YIELD OF PRINCIPAL FIELD CROPS

	Average 1963/64-1967/68	1966/67	1967/68	1968/69	Record (year)[1/]
	AREA (1,000 feddans)				
Cotton	1,692	1,626	1,464	1,622	1,986 (1960/61)
Rice	987	1,075	1,204	1,192	1,204 (1967/68)
Maize	1,545	1,485	1,554	1,484	1,832 (1961/62)
Wheat	1,278	1,245	1,413	1,246	1,456 (1959/60)
	YIELD (Kgs. per feddan)				
Cotton (seed)	787	737	822	912	912 (1968/69)
Rice (paddy)	2,092	2,117	2,145	2,145	2,457 (1961/62)
Maize	1,592	1,636	1,478	1,594	1,690 (1964/65)
Wheat	1,126	1,126	1,074	1,018	1,135 (1965/66)

1/ The highest level achieved over the last decade; the specific year given in parentheses.

Source: Tables 4.1 and 4.3

Table 7.5: REALIZED EXPORT PRICES FOR SELECTED AGRICULTURAL COMMODITIES 1965/66 - 1969/70

(Sterling Pounds per ton)

Commodity	1965/66	1966/67	1967/68	1968/69	1969/70 /1
Rice	50	53	74	55	36
Onions, Raw	29	54	51	52	46
Onions, Dehydrated	201	217	277	280	300
Potatoes	29	29	33	34	38
Garlic	89	127	169	135	125
Groundnuts	123	113	125	126	150
Flax	158	133	118	190	190
Tomatoes	50	123	114	85	85
Watermelons	31	71	95	80	80

/1 Preliminary

Source: The Ministry of Supply

Table 7.6: GROSS (PUBLIC & PRIVATE) INVESTMENT IN AGRICULTURE IN CURRENT PRICES

(LE. Millions)

Year	Agriculture (a)	Irrigation & Drainage (b)	Combined (c)	High Dam (d)	Total National Investment (e)	Percent Col (c) of (e) (f)
1959-60	16.7	8.6	25.3	4.2	171.4	14.8
1960-61	16.6	14.8	31.4	6.8	225.6	13.9
1961-62	17.8	19.7	37.5	14.4	251.1	14.9
1962-63	20.6	29.2	49.8	24.0	299.6	16.6
1963-64	30.9	36.4	67.3	34.8	372.4	18.1
1964-65	32.5	37.9	70.4	18.6	364.3	19.3
1965-66	30.7	32.6	63.3	19.0	383.8	16.5
1966-67	31.3	34.4	65.7	16.5	365.8	18.0
1967-68			49.9			
1968-69	26.2	32.5	58.7	9.5	331.0	17.7

Source: Ministry of Planning

Table 7.7: PRODUCTION AND CONSUMPTION OF COMMERCIAL FERTILIZERS, 1960 to 1969

(in thousand tons)

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
Production										
Nitrogenous 1/	244	590	762	692	931	947	1,011	1,075	930	891
Phosphatic 2/	175	185	171	158	175	260	260	262	304	322
Consumption										
Nitrogenous 1/	1,100	1,166	1,235	1,353	1,463	1,631	1,805	1,701	1,720	1,775
Phosphatic 2/	210	218	249	257	268	293	345	286	292	330
Potassic 3/	5.1	4.3	2.2	2.0	1.7	1.5	9.4	3.5	3.0	3.0

1/ 15.5% N through 1959/60 and 15% N thereafter

2/ 15% P_2O_5

3/ 48% K

Source: Ministry of Agriculture, Bureau of Agricultural Economics and Statistics

Table 7.8 : PRODUCTION, EXPORTS AND IMPORTS OF RICE

Year	Area Planted (thousand feddans)	Yield (tons/feddan)	Production (thousand /1 tons)	Exports (thousand /2 tons)	Imports (thousand /2 tons)	Domestic Consumption (thousand /2 tons)
Average 1935/39	446	1.53	685	--	--	--
Average 1950/54	519	1.56	830	111.0	--	428.4
Average 1955/59	654	2.11	1385	227.8	9.5	682.1
1960/61	706	2.10	1486	299.1	--	666.8
1961/62	537	2.13	1142	70.6	--	671.7
1962/63	830	2.46	2039	386.1	--	938.6
1963/64	959	2.31	2219	532.6	--	905.9
1964/65	962	2.12	2036	352.5	--	993.0
1965/66	848	2.11	1788	327.9	--	--
1966/67	844	1.99	1679	364.5	--	--
1967/68	1075	2.12	2279	527.0	--	924.0
1968/69	1204	2.14	2586	670.0	--	1076.0
1969/70	1192	2.14	2557		--	--

/1 Paddy
/2 Rice

Note: Consumption figures in some years may include changes in stocks.

Source: Ministry of Planning and Ministry of Agriculture

Table 7.9 : PRODUCTION AND USES OF COTTON

Production Year Ended October 31	Total Production ('000 Tons)	Percentage of Production			Consumption Year Ended August 31	Exports and Local Factory Consumption		
		Extra Long (percent)	Medium Long (percent)	Medium (percent)		Exports ('000 Tons)	Consumption ('000 Tons)	Consumption as Percentage of Production
1950	381.9	33.7	19.4	44.5	1951	288.7	60.7	15.9
1951	362.8	38.6	15.4	43.1	1952	261.5	65.4	18.0
1952	445.8	45.0	13.4	39.5	1953	319.0	68.7	15.4
1953	318.2	34.6	27.3	35.8	1954	324.5	73.2	23.0
1954	348.0	33.1	25.6	39.0	1955	247.1	80.2	23.0
1955	334.1	35.8	18.8	42.9	1956	292.5	87.1	26.0
1956	324.8	41.0	18.2	38.5	1957	230.9	90.7	27.9
1957	405.3	45.3	12.7	39.8	1958	254.5	97.4	24.0
1958	445.9	58.6	7.8	31.3	1959	327.3	106.2	23.8
1959	457.2	51.1	15.0	31.8	1960	381.8	109.4	23.9
1960	478.2	47.4	22.2	28.5	1961	337.0	121.3	25.4
1961	335.7	41.2	24.7	31.7	1962	229.4	135.2	40.3
1962	457.3	50.3	22.5	25.7	1963	303.0	135.5	29.6
1963	441.7	46.6	22.9	28.9	1964	291.8	139.3	31.5
1964	504.1	45.8	24.5	28.1	1965	342.2	153.0	30.4
1965	520.1	43.4	25.9	29.1	1966	342.4	160.8	30.9
1966	454.9	40.2	21.3	36.5	1967	302.2	175.8	38.6
1967	436.6	38.1	24.7	35.2				
1968	436.5	40.0	26.1	33.9	1968	259.5	179.5	41.1
1969 1/	527.5	36.2	34.8	29.0	1969 1/	238.0	184.5	35.0

1/ Preliminary.

Source: Central Agency for Public Mobilization and Statistics

Table 7.10: PRICES AT WHICH STAPLE FOODS HAVE BEEN MADE AVAILABLE TO THE FOOD TRADE BY THE GENERAL ORGANIZATION FOR SUPPLY

(L.E. per ton)

ITEM	1965/66	1966/67	1967/68	1968/69	1969/70
Wheat	30	30	30	31	30
Flour (extra)	46	46	46 to 52[1]	52	52
Maize	26	26	31	31	30
Lentils	76	76	60	80	80
Sesame (Upper Egypt)	80	107	107	107	107
Sesame (Sharbia)	85				
Edible Oil (rationed)	50	45	50	50	50
Edible Oil (factory)	100	100	100	100	100
Soap fats (solid)	123	123	123	123	123
Soap fats (in containers)	130	130	130	130	130
Edible fats	180	180	220	220	220
Sugar (rationed)	66	66	66 to 70	70	70
Sugar (free)	138	160	160	160	160
Tea (Indian/Chinese/Turkish)	1,141	1,141	1,166	1,166	1,166
Tea (Yacout Indian)	1,449	1,449	2,263	2,263	2,263
Tea (Ceylon)	1,822	1,822	2,778	2,778	2,278
Tea (Extra)	2,536	2,536	4,036	4,036	4,036
Coffee (Brazilian)	674	674	674	674	674
Coffee (Yemenese)	814	814	814	814	814

Source: The General Organization for Supply

[1] Change to 52 in February 1968.

Table 7.11: INVENTORY OF THE GENERAL ORGANIZATION FOR SUPPLY

(As at June 30 - Tons)

Commodity	1965/66	1966/67	1967/68	1968/69
Wheat	268,916	181,000	414,000	400,000
Flour Extra	129,001	56,094	185,000	100,000
Maize	---	37,768	155,182	---
Lentils	---	6,018	9,767	---
Sesame	---	2,386	4,703	---
Edible Oil	24,000	34,000	45,000	41,000
Soap Fats	1,000	2,000	4,693	3,000
Edible Fats	0,500	0,600	3,970	1,000
Sugar	228,300	230,700	247,400	296,300
Tea	9,670	7,500	9,880	10,500
Coffee	0,900	1,059	0,575	1,559

Note: Figures on beginning stock in 1969/70 are not available.

Source: The General Organization for Supply

Table 7.12: FOOD CONSUMPTION PER CAPITA PER DAY BY COMMODITY GROUP IN SELECTED RECENT YEARS
(Grams)

Group	1950/51[1/]	1955/56[1/]	1965/66[2/]	1966/67[2/]	1967/68[2/]
Cereals	469	510	551	600	620
Other Starch Foods	19	18	30	26	19
Sugar & Syrups	40	48	54	64	53
Pulses, Nuts, Seeds	27	32	34	32	22
Vegetables (fresh)	94	178	247	227	249
Fruits	91	180	138	146	137
Meats	25	37	29	29	27
Eggs	2	3	4	4	4
Fish	10	17	9	10	8
Milk & Milk Products	165	162	122	120	120
Vegetable Oils	10	11	19	15	16

1/ Source: U.A.R., The Journal of the Egyptian Public Health Association, Vol. XXXV, No. 3, 1960 (Ismail Abdou, Nutrition Problems in the Egyptian Region).

2/ Source: Ministry of Agriculture and Agrarian Reform.

Table 8.1: INDUSTRIAL PRODUCTION INDEX NUMBERS

(1959 = 100)

ISIC	Economic Activities	1960	1961	1962	1963	1964	1965	1966	1967
1	Mining and quarrying	107.5	128.6	139.2	172.4	274.8	213.4	235.8	229.6
12	Metal mining	99.2	117.4	130.0	144.0	126.7	105.6	91.7	89.7
13	Crude petroleum & Natural Gas	106.1	124.2	147.4	191.7	214.7	228.4	267.8	244.2
14	Stone quarrying, clay & sand pits	110.6	114.7	132.8	136.5	159.8	174.1	187.1	200.3
15	Salt mining	130.7	95.6	94.5	141.5	172.6	157.0	170.8	192.4
19	Other Non-metallic mining & quarrying	106.3	189.8	123.4	96.5	162.1	284.2	232.7	256.8
2-3	Manufacturing Industries	116.1	144.3	174.2	228.9	261.6	276.6	264.9	249.9
20	Food Manuf.Industries	83.4	84.7	117.5	134.9	129.4	138.0	119.9	120.2
21	Beverage Industries	95.5	125.2	137.0	167.3	169.2	204.9	230.1	182.1
22	Tobacco Industries	112.1	125.8	147.1	158.5	174.4	191.4	204.1	211.0
23	Spinning & Weaving	125.5	140.5	144.4	141.8	149.2	162.3	150.3	165.6
24	Industries Manuf. of Foot wear, Other Wearing apparel & made up textile goods	108.9	209.2	251.9	254.7	262.2	300.1	279.8	278.4
25	Wood, rattan bamboo & cork	114.9	308.6	323.4	576.9	1267.2	1137.5	992.3	610.6
26	Furniture and Fixtures	93.8	71.6	90.9	105.8	106.9	114.1	119.4	103.3
27	Paper and articles of paper	110.6	164.1	412.6	439.7	516.4	561.2	614.6	562.1
28	Printing & allied Industries	103.1	121.9	159.4	293.8	281.3	268.8	240.6	159.4
29	Leather & leather products	100.9	94.5	145.2	144.3	161.4	202.6	210.9	215.6
30	Rubber products	109.7	139.8	153.2	190.1	185.1	180.9	169.1	168.5
31	Chemicals & chemical products	123.3	183.9	146.2	254.3	324.0	410.7	455.2	387.3
32	Product of petroleum & coal	122.1	134.6	138.2	164.6	218.9	165.1	167.0	162.4
33	Manuf. of non-metallic mineral products	88.6	117.4	134.3	176.0	154.5	173.2	213.8	183.6
34	Basic metal industries	159.8	222.7	258.8	273.9	273.2	270.6	364.5	295.9
35	Metal products	91.2	117.3	135.0	160.4	153.3	190.1	216.2	254.3
36	Manuf. & Rep. of non-electrical machines	275.3	412.3	769.4	1403.6	1469.8	1394.4	1079.9	1187.2
37	Manuf. & Rep. of electrical machines	129.1	249.3	302.4	585.2	739.0	686.4	699.5	703.0
38	Transport equipment & supplies	158.8	241.5	419.6	669.8	815.8	711.0	664.6	411.4
39	Manuf. Industries not elsewhere classified	112.7	154.0	395.7	494.9	858.5	983.3	980.3	732.8
5	Electricity, Gas, Water & Sanitary Services	124.1	170.4	193.4	209.8	240.3	257.6	277.3	282.8
51	Electricity, Gas & Steam Production & distribution	124.1	170.4	193.4	209.8	240.3	257.6	277.3	282.8
	General Total	116.2	145.4	173.6	224.2	260.8	271.2	262.9	248.9

Source: Central Agency for Public Mobilization and Statistics

Table 8.2: PRODUCTION OF MINERALS.

(Metric tons unless otherwise specified)

Commodity	1965	1966	1967	1968
METALS				
Aluminum, metal, semimanufactures	5,155	6,220	6,539	N.A.
Copper, metal, semimanufactures and unwrought	7,057	6,941	5,441	N.A.
Iron and steel:				
Iron ore and concentrate (thousand tons)	507	440	423	447
Manganese, ore and concentrate, gross weight (thousand tons)	182	186	75	4
Asbestos	2,926	1,866	1,937	2,500
Barite	15,353	6,799	1,282	373
Cement, hydraulic (thousand tons)	2,422	2,637	2,754	--
Clays				
Kaolin (including china clay)	47,775	49,987	32,120	31,272
Refractory	72,915/1	63,604/1	--	77,790
Feldspar, crude	4,000	3,499	--	1,718
Fertilizer materials:				
Crude (natural)				
Nitrates	4,218	--	--	--
Phosphate rock (thousand tons)	594	661	683	1,441
Pumice /2	13,700	--	4,200	4,717
Sodium, caustic soda	18,861	19,310	18,944	--
Stone, sand and gravel, n.e.s.: Dimension stone				
Basalt (thousand cubic meters)	253	380	333	336
Granite (thousand cubic meters)	313	24	12	27
Limestone and other calcareous	3,051	3,376	3,218	4,000
Sand and gravel (including glass sand)	3,839	3,412	2,833	1,298
Sandstone	221	--	55	67
Sulfur, elemental, byproduct (recovered)	3,851	11,674	8,981	3,200
Talc, soapstone, steatite and pyrophyllite	39,628	29,638	--	--

/1 Includes small quantities of diatomite

/2 Estimated on basis of 1 cubic meter = 1300 pounds

Source: US Bureau of Minerals Yearbook 1968

Table 8.3 : PRODUCTION, EXPORTS AND IMPORTS OF COTTON FABRICS

(In Thousand Tons)

Year	Production	Exports	Imports	Balance /1
1960/61	64.0	11.9	1.1	53.2
1961/62	73.0	13.8	2.9	62.1
1962/63	79.0	13.3	0.2	65.9
1963/64	80.0	14.1	0.2	66.1
1964/65	88.0	14.4	--	73.6
1965/66	80.0	12.2	--	67.8
1966/67	85.0	17.1	--	67.9
1967/68	95.0	19.0	--	76.0
1968/69	95.0	23.0	--	72.0

/1 Balance available for home use, i.e. production plus imports less exports.

Source: The Ministry of Planning

Table 8.4 : PRODUCTION, EXPORTS AND IMPORTS OF COTTON YARN

(In Thousand Tons)

Year	Production	Exports	Imports	Balance /1
1960/61	102.0	19.4	-	82.6
1961/62	111.0	21.1	-	89.9
1962/63	121.0	20.8	-	100.2
1963/64	123.0	31.6	-	91.4
1964/65	131.0	33.1	-	97.9
1965/66	139.0	40.0	-	99.0
1966/67	148.0	42.4	-	105.6
1967/68	160.0	39.0	1.0	120.0
1968/69	162.0	48.0	1.0	113.0

/1 Balance available for home use, i.e. production plus imports less exports.

Source: The Ministry of Planning

Table 8.5: PRODUCTION OF CRUDE OIL

(Quantities in 1000 Tons)

Year	Sinai	Other Fields	Total	Foreign Share	Local Share
1964/65	5,049	1,288	6,337	--	6,337
1965/66	4,896	1,540	6,436	--	6,436
1966/67	4,406	1,933	6,339	220	6,117
1967/68	--	5,700	5,700	1,943	3,757
1968/69	--	10,939	10,939	3,906	7,033

Source: The General Organization for Petroleum

Table 8.6: ELECTRICITY 1960/61 - 1968/69

Year	Installed Power MW			Net Generated Energy Million kwh			Net Peak Load MW
	Hydraulic	Thermal	Total	Hydraulic	Thermal	Total	
1960/61	345	1219	1564	627	2504	3131	641
1961/62	345	1308	1653	1083	2779	3862	680
1962/63	345	1308	1653	1115	3065	4180	750
1963/64	345	1308	1653	1446	3317	4763	822
1964/65	345	1283	1628	1606	3560	5166	854
1965/66	345	1482	1827	1773	3904	5677	931
1966/67	345	1554	1899	1806	4154	5960	945
1967/68	1045	1701	2746	2446	3753	6199	1000
1968/69	1395	1922	3317	3347	3749	7096	1104

Note: 1) Data of year 1967/68 estimated regarding Net Peak Load and include High Dam Electric Power.

2) These data include Power stations belonging to The General Electricity Corporation, Industrial Firms and Municipal Boards. Data on installed power and net generated energy in 1968/69 relate to unified power system only.

Source: The Ministry of Economy and Foreign Trade and General Electricity Corporation.

Table 8.7: EXPORTS OF MANUFACTURED GOODS

(Value in LE 1000)

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Cotton Yarn	7,898	12,237	19,137	29,173	31,252	31,648	30,568	31,587	38,596
Textiles	6,908	8,678	10,377	12,457	11,939	14,200	15,020	20,661	25,227
Waste, Rags	590	731	936	691	695	1,075	1,151	1,629	1,955
Crude Oil, Products	7,381	15,058	16,723	21,259	13,984	15,270	960	8,231	18,860
Sugar	2,428	1,854	638	185	588	206	431	2,673	2,741
Cigarettes	40	113	223	487	708	830	1,373	273	369
Dehydrated Onions	714	1,804	1,973	1,291	968	1,087	796	1,357	1,282
Dehydrated Garlic		29	103	52	35	20	43	92	84
Edible Preparations	2,237	2,920	5,473	4,707	4,242	1,420	1,834	6,222	7,133
Cement	2,720	2,166	1,223	1,460	2,345	2,266	1,916	5,833	4,327
Mining Products	2,953	2,303	2,510	2,906	2,748	136	352	2,860	2,166
Chemical Products	295	339	471	520	610	2,593	2,587	1,547	2,977
Metal, Engineering, Products	465	685	1,432	687	457	2,699	4,164	2,643	4,544
Articles of Leather	843	579	792	752	420	208	186	3,134	6,630
Furniture and Wood Products	100	175	163	110	93	188	180	342	1,813
Drugs	50	92	87	143	267	448	486	1,053	1,049
Souvenir, Articles									
Books, Newspaper	1,061	1,203	1,500	1,814	1,875	1,822	1,022	1,170	1,427
Other Goods	7,852	4,292	10,724	1,311	5,117	7,999	13,595	11,937	2,340
TOTAL	44,532	47,909	62,261	80,005	78,343	84,516	76,662	103,244	123,520

Source: General Organization for Trade

Table 8.8: ESTIMATED TRAFFIC VOLUMES BY PRINCIPAL MODES

FREIGHT TRAFFIC	MILLIONS OF TONS					MILLIONS OF TON-KMS				
	1964/65	65/66	66/67	67/68	68/69	1964/65	65/66	66/67	67/68	68/69
RAILWAYS	13.3	12.6	11.6	11.4	10.6	3,431	3,361	3,046	2,975	2,643
HIGHWAYS 1/	21.8	24.0	28.0	33.0	33.5	1,767	2,063	2,501	3,074	3,157
WATERWAYS 2/3/	1.3	1.7	1.7	1.6	1.6	800	1,030	1,261	1,407	1,446
TOTAL	36.4	38.3	41.3	46.0	45.7	5,998	6,464	6,808	7,456	7,246

FREIGHT TRAFFIC	PERCENT INCREASE AND AVERAGE ANNUAL GROWTH (%)			
	1964/65 To 1968/69		1967/68 To 1968/69	
	Tons	Ton-Kms	Tons	Ton-Kms
RAILWAYS	-20.4 (-5.5)	-22.8 (-6.3)	-7.1	-11.2
HIGHWAYS 1/	53.7 (11.3)	78.7 (15.6)	1.5	2.7
WATERWAYS 2/3/	23.1 (5.5)	80.7 (16.0)	0.0	2.8
TOTAL	25.5 (5.9)	20.8 (4.9)	-0.6	-2.8

PASSENGER TRAFFIC	MILLIONS OF PASSENGERS					MILLIONS OF PASSENGER-KMS				
	1964/65	65/66	66/67	67/68	68/69	1964/65	65/66	66/67	67/68	68/69
RAILWAYS	172.0	189.5	198.6	189.4	206.3	5,788	6,170	6,268	5,512	5,796
HIGHWAYS 4/	1,308.0	1,393.0	1,468.0	1,438.0	1,470.0	11,206	11,492	12,052	12,061	12,506
TOTAL	1,480.0	1,582.5	1,666.6	1,627.4	1,676.3	16,994	17,662	18,320	17,573	18,302

PASSENGER TRAFFIC	PERCENT INCREASE AND AVERAGE ANNUAL GROWTH (%)			
	1964/65 To 1968/69		1967/68 To 1968/69	
	Pass.	Pass.-Kms	Pass	Pass-Kms
RAILWAYS	19.9 (4.7)	0.0 (0.0)	8.9	5.1
HIGHWAYS 4/	12.4 (3.0)	11.6 (2.8)	2.2	3.7
TOTAL	13.3 (3.2)	7.7 (1.9)	3.0	4.1

FREIGHT DISTRIBUTION BETWEEN MODES (%)

YEARS	RAILWAYS		HIGHWAYS		WATERWAYS	
	T	TKm	T	TKm	T	TKm
1964/65	36.5	57.2	59.9	29.5	3.6	13.3
1965/66	32.9	52.0	62.7	32.0	4.4	16.0
1966/67	28.1	44.7	67.8	36.8	4.1	18.5
1967/68	24.8	39.9	71.7	41.2	3.5	18.9
1968/69	23.2	36.5	73.3	43.5	3.5	18.9

PASSENGER DISTRIBUTION BETWEEN MODES (%)

YEARS	RAILWAYS		HIGHWAYS	
	Pass	Pass-Kms	Pass	Pass-Kms
1964/65	11.6	34.1	88.4	65.9
1965/66	12.0	34.9	88.0	65.1
1966/67	11.9	34.2	88.1	65.8
1967/68	11.6	31.4	88.4	68.6
1968/69	12.3	31.7	87.7	63.3

AVERAGE LENGTH OF HAUL (KMS)

YEARS	RAILWAYS		HIGHWAYS		WATERWAYS
	Freight	Passenger	Freight	Passenger	Freight
1964/65	258	34	81	9	615
1965/66	267	33	86	8	606
1966/67	263	32	89	8	742
1967/68	261	29	93	8	879
1968/69	249	28	94	9	904

1/ Includes 4 public freight companies, other public organization, cooperative trucking societies and private truckers.
2/ Only nationalized companies. Additionally some 3 m. tons are annually transported for short distances mainly by privately owned sailboats.
3/ Ton-kms are not real but virtual. The real distance is corrected according to the number of locks and bridges, for example, between Cairo and Alexandria the virtual distance is about 4 times the real, whereas, between Cairo and Aswan the virtual distance is around 20% higher than the real one.
4/ Includes the Cairo and Alexandria Public Transports, Helliopolis Metro (tram) and inter-city bus services.

Source: Ministry of Planning

Table 8.9: CAIRO AIRPORT TRAFFIC

Year	No. of Aircraft Arrivals & Departures (Domestic & Internat.)	Passenger Arrivals & Departures (Persons)			Incoming and Outgoing Freight (Tons)		
		International[1/]	Domestic	Grand Total	International	Domestic	Grand Total
1965	33,227	968,577	138,720	1,107,297	6,452	1,055	7,507
1966	34,846	1,041,348	170,758	1,212,106	7,032	1,176	8,208
1967	28,824	855,936	117,051	972,987	7,484	1,139	8,623
1968	29,614	976,388	140,822	1,117,210	8,989	1,612	10,601
1969	31,331	1,091,450	157,085	1,248,535	10,895	2,093	12,988

ALEXANDRIA AIRPORT TRAFFIC

Years	No. of Aircraft Arrivals & Departures Domestic & Internat.)	Passenger Arrivals & Departures (Persons)			Incoming and Outgoing Freight (Tons)		
		International	Domestic	Grand Total	International	Domestic	Grand Total
1965	2,432	n.a.	n.a.	30,102	n.a.	n.a.	371
1966	3,109	n.a.	n.a.	50,122	n.a.	n.a.	482
1967	1,866	n.a.	n.a.	30,077	n.a.	n.a.	410
1968	3,399	n.a.	n.a.	69,771	n.a.	n.a.	572
1969	3,652	5,032	59,884	65,876	45	656	701

Source: Ministry of Transport

1/ Includes passengers in transit, which in 1969 totalled 193,725.

Table 8.10: PORT OF ALEXANDRIA

ACTUAL INCOMING-OUTGOING CARGO 1969-70 AND PROJECTED 1975 AND 1980 1/

(THOUSANDS OF TONS)

YEARS	INCOMING	OUTGOING	TOTAL	ANNUAL INCREASE %
1960	3,721	1,333	5,054	-
1961	3,514	1,352	4,866	-3.7
1962	4,393	1,280	5,673	17.0
1963	5,611	1,654	7,265	28.0
1964	6,083	1,705	7,788	7.3
1965	6,991	1,483	8,474	8.8
1966	7,374	1,651	9,025	6.5
1967	7,611	1,617	9,228	2.2
1968	6,959	1,872	8,831	-5.3
1969	6,989	2,362	9,351	5.9
1975	13,740	3,540	17,280	-
1980	17,190	6,120	23,310	-

1/ Liquid bulk included

Average annual increase (Total) 1960-69 - 7.1%
1969-75 - 10.7%
1969-80 - 8.7%
1975-80 - 6.2%

DISTRIBUTION OF TOTAL INCOMING-OUTGOING CARGO BY MAIN COMMODITY GROUPS

ACTUAL 1965-69 AND PROJECTED 1975 AND 1980

(THOUSANDS OF TONS)

YEARS	GENERAL CARGO	GRAIN	PHOSPHATES	COAL	OTHER MINERALS	FERTILIZERS	MISCELLANEOUS	LIQUID BULK	TOTAL
1965	2,354	1,756	443	315	409	625	410	2,162	8,474
1966	3,428	1,280	71	295	189	625	428	2,709	9,025
1967	3,016	1,900	213	464	152	377	440	2,666	9,228
1968	3,259	1,558	167	502	129	598	193	2,425	8,331
1969	3,726	1,900	190	500	129	320	86	2,500	9,351
1975	5,270	2,530	490	2,000	350	540	500	5,600	17,280
1980	6,820	3,000	1,600	2,000	700	660	1,430	7,100	23,310

Source: Alexandria Port Authority

Table 8.11: SELECTED STATISTICAL INFORMATION ON THE EGYPTIAN RAILWAYS

	64/65	65/66	66/67	67/68	68/69
A. Route and Track Length (Km)					
Single	2,608	2,608	2,608	2,608	2,608
Double	926	926	926	926	926
Double (electrified)	25	25	25	25	25
Sidings	2,148	2,154	2,162	2,166	2,166
Auxiliary	451	451	455	455	455
Total	6,258	6,164	6,176	6,180	6,180
Track	7,109	7,115	7,128	7,131	7,133
B. Rolling Stock					
Steam Locomotives	46	46	46	46	46
Diesel Locomotives	566	566	566	565	565
Railcars	463	471	476	470	477
Passenger Cars	1,070	1,124	1,148	1,140	1,138
Freight Cars	18,346	18,617	18,689	19,000	18,417
C. Passenger Traffic					
Millions of Passengers	172	190	199	189	206
Pass-Kms (millions)	5,788	6,170	6,268	5,512	5,796
D. Seat-Kms Offered					
Suburban (millions)	1,343	1,247	1,311	1,290	1,344
Main Line "	11,266	12,061	12,593	12,313	12,377
Total	12,609	13,308	13,904	13,603	13,721
E. Freight Traffic					
See Table ___ Text					
F. Average Net Loading Per Freight Train					
Freight Tons	369	368	341	367	345
G. Average Capacity Of Freight Cars (tons)	17.6	18.1	18.0	18.5	19.5
H. Average Load of Freight					
Cars Loaded & Empty (tons)	5.6	5.5	5.0	5.0	5.2
I. Average Load of Freight					
Cars Loaded (tons)	7.3	7.2	6.6	6.5	7.4

J. Main Characteristics of the System

Ruling Gradient 4%
Minimum Radius of Curves:
Main Lines 500 m
Aux. Lines 300 m

Rail Weight 46,47.52 and 54 Kg/m
Gauge 1.435 m.
Locomotives:
in service 459
awaiting repairs 152
Railcars:
in service 269
awaiting repairs 204

Source: Egyptian Railways

Table 8.12: DISTRIBUTION OF HIGHWAY TRAFFIC BETWEEN DIFFERENT CARRIERS

FREIGHT	Public Freight Companies	Other Public Organizations Various Sectors	Cooperative Trucking Societies	Private Truckers	Total
			Millions of Tons		
1964/65	2.7 (12.4)	4.8 (22.0)	1.6 (7.3)	12.7 (58.3)	21.8 (100.0)
1968/69	7.8 (23.3)	4.9 (14.6)	12.1 (36.1)	8.7 (26.0)	33.5 (100.0)
Increase (%) 64/65-68/69	188.8	2.1	656.3	-31.5	53.7
			Millions of Tons Kms		
1964/65	360 (20.4)	240 (13.6)	155 (8.8)	1,012 (57.2)	1,767(100.0)
1968/69	1,006 (31.8)	248 (7.9)	1,206 (38.2)	697 (22.1)	3,157(100.0)
Increase (%) 64/65-68/69	179.4	3.3	678.1	-31.1	- 58.7
			Average Length of Haul (Kms)		
1964/65	133	50	97	80	81
1968/69	129	51	100	80	94

PASSENGERS	Cairo Public Transport	Alexandria Public Transport	Heliopolis Metro (Cairo)	Inner-City Buses	Total
			Millions of Passengers		
1968/69	948 (64.5)	349 (23.7)	91 (6.2)	82 (5.6)	1,470 (100.0)
			Millions of Pass-Kms		
1968/69	6,170 (49.3)	2,110 (16.9)	906 (72)	3,320 (266)	12,506 (100.0)
			Average Length of Haul (Kms)		
1969/70	6.5	6.0	10.1	40.5	85

Source: Ministry of Transport

Table 8.13: ROAD VEHICLE FLEET 1957 - 1967

YEARS	CARS [1]	BUSES	TRUCKS	TOTAL	TRAILERS	MOTOR CYCLES	TAXIS
1957	66177	3470	14230	83877	153	n. a.	8702
1958	69701	3606	14379	86686	248	n. a.	9395
1959	67610	3893	15330	86863	342	n. a.	10344
1960	71765	3897	15647	91309	486	21396	11460
1961	73722	4027	15915	93564	532	22236	12266
1962	77375	4569	16204	98148	603	21952	12992
1963	87481	5086	17306	109973	890	18210	13726
1964	92837	5503	18388	117028	1363	16466	13597
1965	98745	5475	20523	124743	1731	16700	15337
1966	106675	5815	21789	134279	2608	17438	16148
1967	109939	5897	(17321) [2]	n. a.	(6410) [2]	18092	17012
AVERAGE YEARLY GROWTH %							
1957-1967	5.2	5.5	4.8*	5.4*	37.0*	na	6.9
1962-1967	7.3	5.2	7.7*	8.2*	44.0*	- 4.0	5.6
1964-1967	5.8	2.3	8.0*	7.1*	38.0*	1.9	7.8

* Growth rates for trucks, trailers and total are from 1957, 1962 and 1964 to 1966.

[1] Includes taxis

[2] Statistical discrepancy

Source: Ministry of Transport

Table 8.14: COMPARATIVE TRUCKING COSTS

Ton-KM Costs for 10, 20 and 30 Ton Vehicles 1/

(Egyptian Milliemes)

Includes Indirect Taxes

	TRACTOR + SEMI-TRAILER 30 TON	TRUCK + TRAILER 20 TON	TRUCK 10 TON
Fuel	0.44	0.56	1.11
Oil	0.13	0.20	0.28
Tires	1.13	1.03	0.88
Wages	1.09	1.66	2.57
Maintenance	0.61	0.96	1.69
Depreciation	1.37	1.40	1.76
Overheads	0.78	0.96	1.37
Insurance	0.19	0.19	0.26
Taxes (annual)	0.26	0.41	0.59
Interest	1.07	1.10	1.36
TOTAL	7.07	8.47	11.87
Equivalent in US$	1.62	1.95	2.73

1/ No reference to pavement type, grades, speeds.

Source: The General Egyptian Organization for Internal Transport

Table 8.15 : HIGHWAY NETWORK

LENGTH ACCORDING TO SURFACE TYPE FUNCTION AND CLASS

(KMS)

YEARS	SURFACE TYPE			FUNCTIONAL CLASSIFICATION		
	ASPHALT	EARTH	TOTAL	EXPRESS	MAIN	RURAL
1965/66	9,197	12,261	21,458	193	7,930	13,335
1966/67	9,204	12,314	21,518	193	7,990	13,335
1967/68	9,244	12,322	21,566	193	8,038	13,335
1968/69	9,279	12,287	21,566	193	8,105	13,268
1969/70	9,334	12,232	21,566	193	8,105	13,268

CLASS (Only Paved)

Express	-	193
1st Class	-	2,700
2nd Class	-	4,323
3rd Class	-	2,118
TOTAL		9,334

Source: Ministry of Transport

Table 9.1 : COST OF LIVING AND WHOLESALE PRICES

(1939 = 100)

		Cost of Living Index	General Wholesale Price Index	Foodstuffs	Industrial Products and Materials
December	1962	296	420	403	438
December	1963	302	425	403	448
December	1964	339	453	445	462
July	1965	353	474	478	471
December	1965	377	490	499	480
July	1966	390	506	529	484
December	1966	394	526	568	485
July	1967	388	551	624	485
December	1967	392	553	618	494
July	1968	381	517	538	497
December	1968	384	531	564	450
July	1969	410	547	560	535

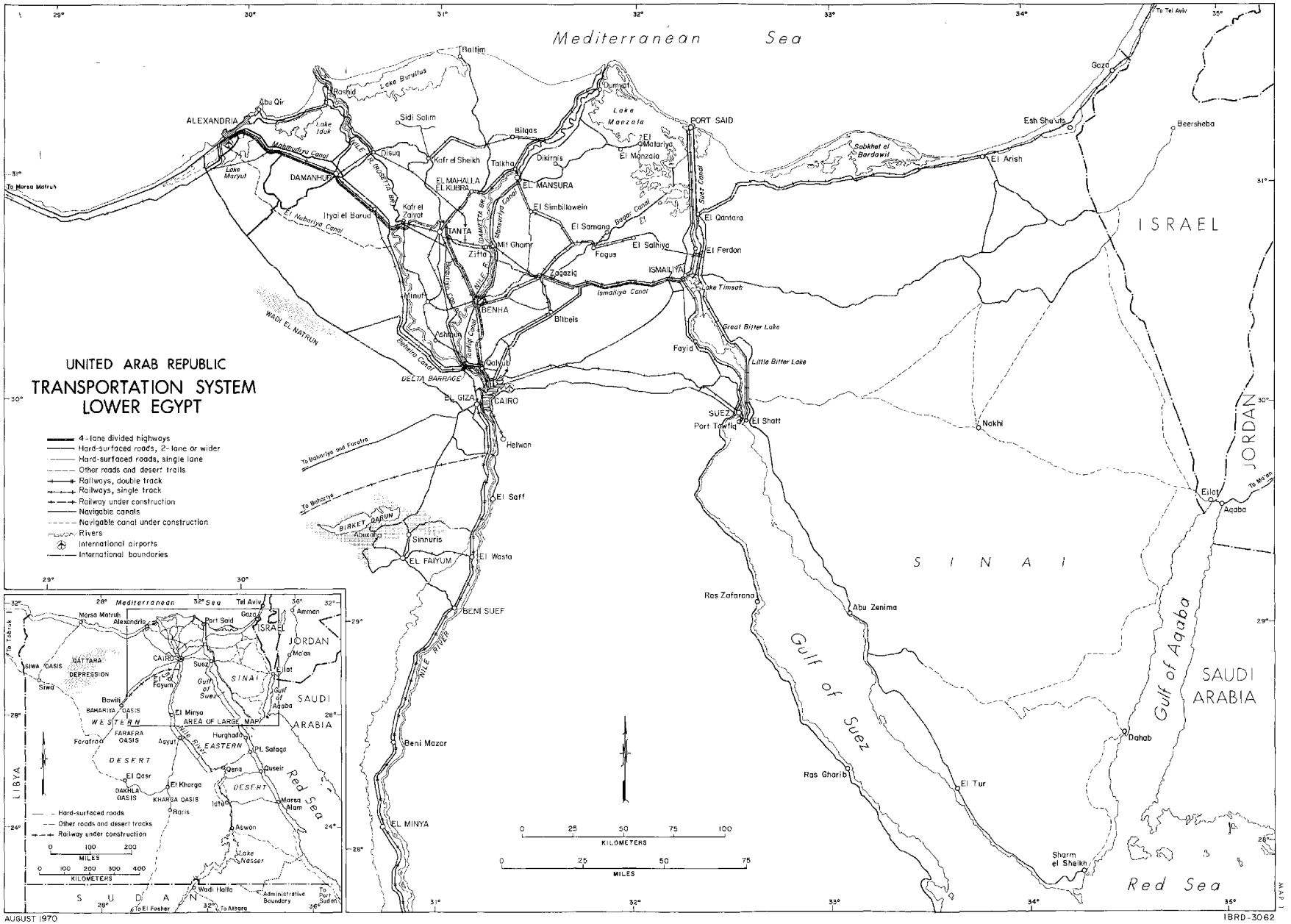
Source: Central Agency for Public Mobilization and Statistics

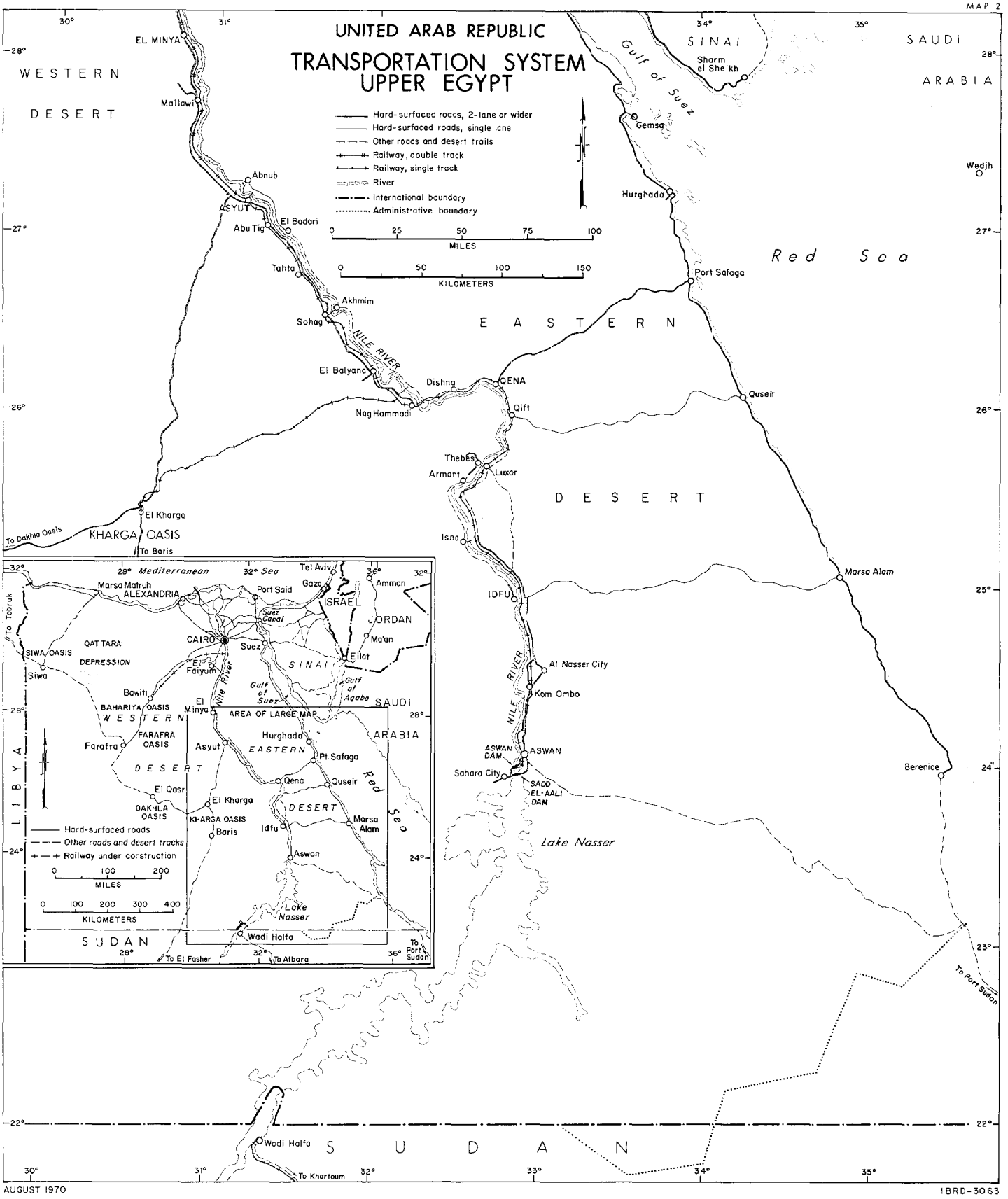
Table 9.2 : WAGE STRUCTURE BY SECTOR

(In percent)

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
Agriculture	17.5	19.0	18.0	17.6	18.6	20.1	20.3	19.6
Industry and Mining	13.9	14.7	17.8	17.4	16.8	15.7	15.3	15.8
Electricity	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
Construction	4.8	6.8	6.7	6.6	6.1	5.7	5.5	3.6
Total Commodity Sector	36.8	41.1	43.1	42.1	42.0	42.0	41.6	39.6
Transport and Communication	7.6	7.6	6.9	7.0	7.2	7.5	7.5	7.8
Trade and Finance	13.5	13.3	12.6	12.2	11.4	10.9	10.9	11.4
Housing	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Public Utilities	0.8	0.9	0.9	0.8	0.9	0.8	0.8	0.8
Other Services	41.0	36.3	36.6	37.8	38.4	38.5	39.0	40.1
Total Services Sector	63.2	58.4	57.2	58.0	58.1	57.9	58.4	60.3
GRAND TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Compilation on the basis of data from the Central Agency for Public Mobilization and Statistics and from the Ministry of Planning.


UNITED ARAB REPUBLIC
TRANSPORTATION SYSTEM
LOWER EGYPT
4-lane divided highways
Hard-surfaced roads, 2-lane or wider
Hard-surfaced roads, single lane
Other roads and desert trails
Railways, double track
Railways, single track
Railway under construction
Navigable canals
Navigable canal under construction
Rivers
International airports
International boundaries
Mediterranean Sea
Red Sea
Gulf of Suez
Gulf of Aqaba
ISRAEL
JORDAN
SAUDI ARABIA
LIBYA
SUDAN
SINAI
ALEXANDRIA
PORT SAID
CAIRO
SUEZ
EL MINYA
BENI SUEF
EL FAIYUM
TANTA
EL MANSURA
ISMAILIYA
BENHA
DELTA BARRAGE
Aswan
Lake Nasser
Abu Zenima
Ras Zafarana
Ras Gharib
El Tur
Sharm el Sheikh
Dahab
Nakhl
Eilat
Aqaba
Suez Canal
Nile River
KILOMETERS
MILES
AUGUST 1970
IBRD-3062
MAP 1



AUGUST 1970

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