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**AGRICULTURE STRATEGY**

**EGYPT**

**USAID  
Agricultural Resources  
Directorate  
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## TABLE OF CONTENTS

1.	Introduction	1
2.	The Agricultural Sector	2
3.	Constraints to Growth	5
4.	Strategic Objective	15
5.	Program Outcomes	17
6.	Program Content	21

### ANNEX: Agricultural Sector Data

- Table (1): Annual Change in Real GDP: National and Agriculture
- Table (2): Agricultural GDP as Percentage of Total
- Table (3): Nominal Value of Total and Agricultural Exports
- Table (4): Nominal Value of Agricultural Exports
- Table (5): Nominal Value of Total Imports and Food Imports
- Table (6.1) Nominal Value of Food Imports
- Table (6.2) Nominal Value of Food Imports
- Table (7) Area Production and Yield
- Table (8.1) Food Production, Import and Consumption 1980/81
- Table (8.2) Food Production, Import and Consumption 1984/85
- Table (8.3) Food Production, Import and Consumption 1989/90
- Table (9.1) Gross Fixed Domestic Investment
- Table (9.2) Fixed Domestic Investment in Agricultural Sector
- Table (9.3) Gross Fixed Domestic Investment

# AGRICULTURAL STRATEGY - EGYPT

## **1. INTRODUCTION.**

This USAID agricultural strategy statement represents a further evolution of the 1987 strategy and 1989 strategy update statements for the agricultural sector. It reflects Egypt's commitment to macro economic policy change and privatization; the changes in AID worldwide strategic direction as articulated in the five new initiatives; and accomplishments in USAID's past and current agriculture programs that form a basis for the next phase of USAID investment in Egypt's agricultural sector. These new program commitments will be planned and established during the FY 1992 - FY 1994 period and will be the basis for the USAID agriculture program for the remainder of the decade.

The premise of the strategy is that Egyptian agriculture has growth potential; and, therefore, agriculture can provide a significant contribution to economic growth, expanded employment, and increased incomes. Moreover, it can assure an adequate level of food security for Egypt. The potential for growth will be realized provided the key factors that have constrained growth in the past are effectively addressed. These factors are policies, technology, land and water resources, and institutions.

Egypt's resource endowment for agriculture is exceptional -- an irrigation system that allows complete water control for all of agriculture, fertile soils, temperate climate, adequate year-round sunshine and the absence of recurring natural disasters (drought, flood, frost) that reduce productivity elsewhere in the world. Its location is also central to the expanding markets for agricultural products in Europe, Africa and the Middle East.

Assessments completed over the past twelve years have concluded that Egyptian agriculture holds the potential for large increases in both productivity and overall levels of production. The very positive performance over the past five years for the most important crops, those which were decontrolled beginning in 1987, is indicative of the rates of growth in Egyptian agriculture that can be realized.

The objective of the USAID agricultural sector strategy is to increase productivity, production and incomes in the agricultural sector. Investments that will be made over the remainder of the 1990s to accomplish the objective will be focused on those areas with the greatest potential growth in production, income, and employment in Egyptian agriculture.

## **2. THE AGRICULTURAL SECTOR.**

The sector is an important element of the Egyptian economy. It accounts for approximately 17 percent of the gross domestic product (GDP), 36 percent of employment (on farms) and 22 percent of commodity exports. Half of the Egyptian population live in rural areas in which agriculture is the primary economic activity. Agriculturally-related industry, including the production of agricultural inputs and processing and marketing of commodities accounts

for roughly another 20 percent of the GDP and a substantial added share of the work-force.

Growth in the sector has been sluggish over the past ten years, with its share of GDP declining from 20 to 17 percent and the real value of production growing at only 0.8 percent per year. Employment in the sector during this period grew at less than 1.0 percent annually. The value of agricultural production increased at an average annual rate substantially below the rate of population growth of 2.4 percent and slightly below the overall real rate of GDP growth, which was 1.1 percent per year. On the bright side, growth rates of crops liberalized under the policy reform programs far exceeded overall sector performance. Production of wheat, rice, corn and berseem clover increased by 59 percent between 1986 and 1992. Cotton production, still a highly controlled crop, declined by 25 percent during the same period. This is strong evidence that policy reform has the potential to stimulate growth in the sector.

Import dependence for agricultural commodities began in 1974, when the value of agricultural imports exceeded exports for the first time. Since then, the major GOE objective for the agricultural sector has been to assure the highest level of production of agricultural commodities (food, fiber, livestock, fish) in order to minimize the gap between production and consumption. Unfortunately, the gap between the production and utilization of major food commodities has continued to widen since 1974. The current level of food imports is approximately \$2.5 billion per year. Approximately 50 percent is accounted for by four commodities -- wheat, corn, vegetable oil, and red meat. The value of total agricultural exports was \$434 million in 1990, only about 20 percent of the value of food imports.

Exports of agricultural commodities have amounted to about 20 percent of total commodity exports since 1985. The principal products exported are cotton, rice, fruit, and vegetables, amounting to 70 percent of the agricultural total in 1990. Growth in exports of agricultural crops having a comparative advantage, as well as increased production to meet expanded demand in domestic markets, could be the engine that drives growth in the agricultural sector overall. Crops with high potential for increased exports are cotton, rice, and fruits and vegetables. Cotton has been performing poorly, with the nominal value of exports declining by half between 1980 and 1990. Rice is a real bright spot, with the value of exports surging from \$2.4 million in 1980 to \$23 million in 1990/91 following liberalization of rice trade in 1988-89. The total value of fruits and vegetables exported increased slightly from \$114 million in 1980 to \$120 million in 1990. Citrus exports showed the greatest growth, followed by vegetables. Important vegetable crops exported were tomatoes, potatoes, melons, and green beans.

Vegetables for the European winter market appear to be a high potential export growth area. A 1991 by assessment estimated that good demand potential exists for vegetable crops, including garlic, onions, potatoes, strawberries, fine green beans, peppers, and tomatoes. Fruit crops with potential include grapes, peaches, and pears, as well as the traditional citrus crops. This assessment concluded that possible annual increases in exports by crop could reach:

Increase in Annual Exports (MT)

Garlic	5,000
Onions	20,000
Potatoes	40,000
Green beans and sweet peppers	5,000
Tomatoes, peaches, pears, and melons	200,000

According to the assessment, achieving approximately \$100-150 million in additional annual exports of fruits and vegetables per year is possible during the next five years. This would amount to adding 25 percent to the 1990 level for total annual agricultural exports.

Farm technology is relatively advanced in Egypt. Yields of major field crops in Egypt are high by world standards. Rice, wheat, and corn yields are at or above world average levels. All production is under irrigation, high-yielding varieties are widely used by farmers and high levels of modern inputs are applied. Trends in yields are also encouraging. Wheat, rice, and corn yield increases were 62%, 25% and 43%, respectively, during the last decade. Cotton yields declined drastically over the same ten year period, caused, as has been discussed above, by the government's policy of setting procurement prices far below the world price. Yields of vegetable crops increased nicely since 1980, with onion yields increasing by 19%, potatoes by 18%, tomatoes by 55%, and broad beans by 42%. Yields of most other field crops either held their own or increased slightly over the last decade. The 1982 USAID sponsored Presidential Mission on agricultural development concluded that the potential productivity gains for important crops ranged from 10 to over 100 percent. These conclusions are still valid in 1992, provided that constraints in the four basic areas, policies, technology, land and water, and institutions, are effectively remedied.

Despite high and increasing yields and evidence of solid technological change, Egypt lost ground in terms of producing enough to feed its people. Production of only two food crops, beans and rice, exceeded domestic consumption in 1990. Vegetable oil production was only 35 percent of domestic needs, wheat 37 percent, and lentils 19 percent. The cost of wheat imports alone was almost a quarter of a billion dollars in 1990, about 25 percent of the total food import bill. The primary reasons for the widening food gap and rising import costs are population growth, inappropriate farm policies, and limited land and water resources.

Technical efficiency in agricultural marketing and processing is low, even by developing country standards. Output in cotton spinning per worker, for example, is only 25% of European standards. Over-employment in cotton ginning is 1.3 to 1.5 times that of ginning mills in other developing countries. Despite subsidized raw material and energy costs, Egyptian yarn manufacturing costs are equal to or higher than all third world competitors (except Turkey). The fresh fruit and vegetable export industry lacks technological innovation. There is little or no difference in production methods between crops grown for export and those grown for domestic markets. Post harvest handling, packing and shipping methods

must be classified as primitive, except for a few new private enterprises that are attempting to break into the technically demanding European winter market.

Employment and investment data for public and private sectors of agriculture clearly indicate the predominant role of public institutions. Of the approximately 36 percent of Egyptian workers that are employed in agriculture (farmers), all may be considered to be in the private sector. Over one-half of non-farm employment is in the public sector. Approximately 4.6 million people are employed in the public sector, including government and productive enterprises, and 4.0 million in private sector industry. About 466,000 public sector employees will be directly affected by the agricultural policy reforms proposed in this strategy. The public enterprises affected include textiles, inputs production and marketing, fertilizer production, feed milling, fruit and vegetable processing and trade, international trade, rice milling and wheat milling.

Public sector investment in agriculture has and does exceed private investment. Total investment in agriculture, irrigation and related enterprises was L.E. 2.1 billion in 1990/91. Private investment comprised 49 percent of this total. Investment in all industries amounted to L.E. 16.3 billion in 1990/91, of which 33.1 percent was in the private sector. In contrast to agriculture, private sector investment was 53 percent for industry, 57 percent for construction, and zero for petroleum and electricity. Private sector investment has grown relative to public sector investment in agricultural industry and construction. Investment in water development is still predominately public (100% in 1990), but private investment in new lands development is growing. Within agricultural sector industry, the private sector has been most active in fruit and vegetable processing and trade, grain milling, and trade, pesticides and marketing of specialty fertilizers marketing.

To sum up the overview of the agricultural sector, the following points are emphasized:

- Real GDP in agriculture has been growing at less than one percent per year, far below the population growth rate and the estimated annual growth rate of four to five percent that is possible. Growth rates of liberalized crops greatly exceeded that of controlled crops.
- Imports of food, valued at \$2.1 billion in 1990, continue to exceed the value of agricultural exports by a wide margin.
- Yields of major field crops are high and rising, with strong potential for future increases. The level of farm technology is high by world standards.
- The gap between consumption and production has widened to date, requiring sharply rising import costs to meet consumer demand.
- Efficiency in agribusiness industries is generally low, even by developing country standards.

- About 4.6 million people are employed in publicly controlled industry. About 10 percent of these would be directly affected by the policy reforms proposed in this strategy.

- About 49 percent of the investment in agriculture and related industry was done by the private sector in 1990/91. This includes on-farm investment which is private. Thus, the percentage of private investment in agriculturally-related industry would be much lower than 49 percent.

### 3. CONSTRAINTS TO GROWTH.

Egypt enjoys a rich endowment of agricultural resources. It has a year-round favorable climate with three distinct cropping seasons, fertile soils and a dependable -- although finite -- supply of fresh water for irrigation. These fertile areas, most of which can produce two crops a year, can be compared to one huge, controlled greenhouse. Virtually all high value and staple crop varieties can be grown throughout the year in Egypt.

Historical increases in Egypt's productivity and agricultural production have fallen short of the potential that could be realized from its rich resource endowment. Why? Four basic factors have constrained growth in agriculture over the past twenty years and continue to retard achievement of the large increases possible in agricultural productivity and production. These constraints fall into four categories: (a) Policies; (b) Technology; (c) Land and Water Resources; and (d) Institutions.

(a) Policies. In the early 1970s, the Government of Egypt began introducing tight controls over agriculture, including prices set below economic levels, planting controls and delivery quotas on most crops, subsidies on farm inputs and public monopolies in marketing and processing of most crops. The result of these policies was a predictable decline in per capita production, soaring subsidy costs, declining exports, rising imports of basic foods and animal feeds, and lagging resource productivity.

By the early 1980s the magnitude of the economic costs of these distorted policies became clearly evident. In 1986, USAID and the leadership of the Ministry of Agriculture embarked on a program of policy reform for the agricultural sector.

Phase I of the policy reform program (1987-1989) under the Agricultural Production and Credit project (APCP) achieved significant reforms and began the process of reducing the control of government over the agricultural sector. Direct price, acreage and marketing controls were eliminated for ten crops, although the government continued to pressure farmers to follow the official cropping pattern so that they might receive subsidized inputs. Citrus exports were opened to the private sector. Fertilizer subsidies were substantially reduced. The prices of sugarcane, cotton, and rice increased slightly, although deregulation

of these three crops was not pursued because of political sensitivities. Little progress was made in increasing the cotton price, which during Phase I was below 40 percent of the international farmgate price. The lack of incentive to cotton producers deprived both the farmers and the country of substantial economic benefit.

Phase II of the policy reform program (1990-1994) is at the mid-point of implementation. The policy reform benchmarks for Phase II include:

1. Increase cotton prices to 66 percent of the international farmgate level.
2. Reduce quota sales of rice to zero and remove restrictive marketing and trade regulations on rice.
3. Eliminate remaining subsidies on agricultural inputs.
4. Reduce the quantity of agricultural inputs marketed by the Principal Bank for Development and Agricultural Credit (PBDAC) and other public entities.
5. Restrict subsidized credit.
6. Improve PBDACs financial condition and divest it of its input supply operations.
7. Reform the structure of seed production and marketing and privatize commercial seed processing facilities.

Progress toward accomplishing Phase II benchmarks has been mixed, but positive overall. The cotton price for 1991 and 1992 fell short of the benchmark and remains below the level that would make cotton profitable compared to other crop rotations. The rice quota sale requirement was eliminated a year in advance of the goals, rice exports were opened to private traders, and good progress is being made toward accomplishing the other benchmarks.

Progress in policy reform since 1986 has been impressive. However, given the magnitude of the distortions and government controls in the agricultural sector, several major policy constraints to achieving liberalization of the agricultural sector and improving the productivity of the sector remain.

The primary policy areas still constraining agricultural development include:

1. Pricing and marketing: Price, area and marketing controls for cotton and sugarcane. Government controls over the cropping pattern. Import restrictions on red meat and government subsidies for livestock

production. Government control of agricultural cooperatives.

2. **Private investment and privatization:** Barriers to private sector entry into processing, marketing, importing and exporting of all agricultural commodities. Government-owned companies in fertilizer production, cotton ginning, cotton spinning, rice milling and exporting, feed milling, seed processing and wheat milling. PBDAC still controls most input marketing. Government-owned agricultural land.
3. **Public investment:** Lack of use of economic criteria for investment in land reclamation. Need to develop a rationale land use policy. Inappropriate level of recovery of irrigation costs. Irrigation charges need to be structured to maximize the efficiency of water use. Lack of a rational water use policy. Economic criteria not used for allocating government investments among research and extension priorities and among other government provided services. Government investment in activities more appropriate for the private sector.
4. **Subsidies:** Subsidies remain on credit, cotton, pest control and potassium fertilizer. Subsidies are provided to publicly-owned enterprises in agriculturally-related industry. Consumer subsidies on basic foods. Lack of a food stabilization program to minimize disruptions that may arise from fluctuations in world prices as the new, free market system emerges.
5. **Environment:** Lack of environmental impact analysis for public and private investment. Lack of sound environmental policies for land development, water use, and water quality.

Progress in these policy areas is crucial for achieving an open and productive agricultural sector. The aim is that a policy environment conducive to growth, characterized by open markets, free market pricing, private competition and the absence of state control and intervention will be established. Price and marketing controls contribute to misallocation of resources and inappropriate cropping patterns. Public enterprises are generally inefficient, are usually subsidized by the Treasury, and, therefore, unfairly compete with private investors. Public institutions are characterized by redundant employment, poor management practices, and absence of appropriate employee incentives. Public investment lacks suitable economic criteria. Food subsidies distort consumer decisions and contribute to false price signals to producers. Lack of environmental criteria for investment has led to seriously declining land, air, and water quality.

(b) **Technology.** In Egypt, agricultural productivity, production and incomes are limited by the availability and dissemination of appropriate technologies for production activities on the farm, and for post harvest activities involving the storage, processing, and marketing of

commodities. To date, USAID interventions in technology generation and adoption have concentrated on the farmer. Much remains to be done in both areas.

Relatively high levels of productivity and production already achieved for many crops in Egypt demonstrate that significant agricultural growth is possible. The near-universal availability of irrigation reduces farmers' perception of risk associated with adoption of new technology. Land resources are unusually well-suited for intensive cultivation practices and more efficient resource utilization.

Highly productive agriculture depends on a reliable flow of advanced technology. Continual technological innovation is likewise important for improving the efficiency of post-harvest handling, marketing and processing of agricultural commodities.

Because of the relatively high levels of productivity and production already achieved in Egypt, the technological constraints on Egyptian agriculture are much more profuse and complex (sophisticated) than those for the other developing countries and even those for some parts of the developed world. However, the technological constraints for post-harvest handling, marketing and processing of agricultural commodities in Egypt are more characteristic of the developing world.

Huge post-harvest losses and outdated and inefficient processing technologies characterize agriculturally-related industry in Egypt. Surveys conducted by the Egyptian Agricultural Research Center indicate that post-harvest losses at the harvest point and in the wholesale and retail markets for fruits and vegetables average close to 20 percent. Annual gross tonnage losses total approximately 400,000 metric tons for fruits and 1.4 million metric tons for vegetables. These estimates do not include further losses that are incurred in processing. Losses for wheat and other grains may exceed 25 percent, most of which accrues at the processing stage. Post harvest technological constraints are generally less complex than agricultural production technology constraints and lend themselves to solution largely through adaptation of known technology.

The agricultural research system must be improved in order to resolve the most important problems that constrain Egyptian agriculture. Increased efficiency of water use can be attained through application of methods other than flood irrigation. On-farm water management practices need improvement. A reduction in the use of chemical inputs may be indicated both for improving economic efficiency and environmental management of agricultural production. Plant breeders will be challenged to develop genetic traits to overcome problems that will arise as the intensive agriculture of Egypt becomes even more intensive. A broad range of technical problems must be overcome to realize the huge potential for aquaculture.

This scenario implies a more tightly focused research program throughout the research system and greatly improved linkages among the primary organizations responsible for agricultural research. The responsibilities of the research and extension systems are

presently dispersed among various agencies without adequate emphasis on developing a rigorous national program. The present system is largely focused on the delta and old lands. Programs in support of the new lands (approximately 20 percent of the cultivated area) are extremely weak.

Programs of research in the different government ministries are not integrated within the framework of a national agricultural research program. Consequently, there is considerable overlap. Economic criteria are also absent as a guide for research investments at both the macro and micro levels of research. There is considerable scope for merger of activities and programs and better linkages with Egyptian universities and among the national research institutes.

The government's long emphasis on planning and establishment of specific commodity production targets has caused the agricultural research system to primarily address specific concerns associated with meeting these production targets, rather than responding to the specific needs of farmers and agribusiness. Commodity research should respond to market signals and comparative advantage considerations much more than it does at present.

Egyptian agriculture needs private sector research in the future. The most dynamic future area of agricultural research will be biotechnology and genetic engineering of plants and animals. Throughout the world this has been largely private sector led or carried out by the public sector in partnership with the private sector. Egypt should provide the environment and incentives for private sector research, in part by assuring the protection of any intellectual property that results from such research. This and other incentives are largely absent at present. Thus, Egypt is overly dependent on the public sector research system for meeting the future technical needs of agriculture.

The agricultural research system is relatively isolated from outreach mechanisms, which has reduced its effectiveness in both developing and disseminating technologies to farmers. Currently, links between the agricultural research system and end-users are very weak and must be improved through reorientation of the traditional overcentralized and largely ineffective extension structure. Involvement of other public and private extension entities is essential.

Finally, in line with the liberalization of the agriculture sector, the agricultural research system has to adjust to better serve and support the needs of private agribusiness. The generation and adaptation of new technologies for the future in the context of potentially emerging new markets for agricultural commodities is especially crucial.

c. Land and Water Resources. Egypt's fertile arable lands and its irrigation waters are excellent resources for agriculture. However, these resource bases are already extensively exploited and the opportunities for incorporating additional quantities of either to expand agricultural production are extremely limited.

The fertile land base (old lands in the Nile Valley and the Delta region) used by agriculture is being reduced as population grows and urbanization pressures increase. These losses, currently estimated to be approximately 30,000 acres per year, are alarming and create tremendous pressures to expand into new lands for both agricultural and other purposes. This raises serious and complex policy issues concerning land utilization; i.e., which land should be maintained for agricultural purposes and which should be developed for urban and industrial uses? Land reclamation for agriculture is expensive and often the land lost to urbanization is agriculturally more productive than the newly reclaimed land.

In response to the severe land limitations, development of new lands in the desert areas within or close to the Nile valley and Delta region has been underway in some form for most of the past 40 years. Over the past decade, about 600,000 added productive acres of new land have been developed or only about double the annual loss of land to urbanization. The range of productivity of these new lands is great. In general, private sector led development, primarily using groundwater, has resulted in the best outcome. Recent assessments and studies indicate that further development of new lands (which is a very high priority of the Government of Egypt) will require revised policies, new program approaches, greatly improved institutional support and significant added investments for technology development and transfer.

For a very arid country like Egypt, the prime factor which makes land productive is water. Water is the constraint for the further expansion of the land area under cultivation in Egypt. Expansion into new lands, while constrained by soil characteristics to a certain extent, is ultimately determined by the quantity of water available to irrigate the added new land.

The Nile is the principal source of water for Egypt and supplies 95 percent of present water requirements. There is only limited room to add to the Nile water resource with further exploitation of groundwater in very selected sites. Therefore, increasing the efficiency of water use is crucial for improving agricultural productivity and production.

In 1990, estimated water resources available for Egypt totaled 63.5 billion cubic meters (55.5 from the River Nile, 0.5 from deep groundwater, 2.6 from Nile Valley and Delta groundwater, 4.7 from agricultural drainage water, 0.2 from treated sewage). Estimated demand for 1990 totaled 59.2 billion cubic meters (49.7 for agriculture, 3.1 for municipal water, 4.6 for industrial, 1.8 for navigation). This would theoretically allow sufficient water for the addition of 860,000 acres of new land over the near term. Long range water resource planning and analysis has concentrated on how to optimize the efficiency of water use and increase the quantity of water for the development of new lands. The most reasonable scenario for the year 2025 assumes that improved field irrigation efficiency, reuse of agricultural drainage water and increased efficiency in urban and industrial use along with the completion of the first phase of the Jonglei canal in Sudan (which will increase water flow through this swampy area and thus into Lake Nasser) will provide an annual available water resource of 71.6 billion cubic meters. The estimated total demand would be 57.7 billion cubic meters. The balance of 13.9 billion cubic meters would enable the addition of 2.38

million acres of new land. While this would amount to more than a 25 percent increase over current acreage, as indicated below, much needs to happen to convert these projections into reality.

Free provision of water for all users and an inadequately maintained water distribution system are serious impediments to water use efficiency. Water efficiency improvements would be greatly facilitated by an irrigation cost recovery program that would make the value of water a factor in the choice of crops that will be cultivated. Cost recovery is also required to provide for the large investments needed to adequately maintain and sustain the system. In addition, better management and institutional capability are needed to improve the overall performance of the distribution system and increase water use efficiency at all levels within the system.

Maintaining the required level of water quality for agricultural uses will also be an important determinant of water use efficiency and, thereby, agricultural productivity. The utility of water for agriculture (and other uses) is a function of its quality. Indications are that water quality is rapidly emerging as a serious constraint to agricultural productivity. Fertile lands are being degraded by water logging and salinity. The major concern is that declining water quality over this decade could dramatically reduce the reuse of agricultural, municipal and industrial drainage water. This would reduce both the productivity of old lands and capacity to meet the growing demand for water for new lands development.

One scenario posits a potential reduction in cultivated acreage of 10 to 12 percent by the end of the decade, if water quality continues to decline at rates observed over the past decade. The resultant loss of agricultural output would be about two percent of GDP, roughly \$700 million based on 1990 prices. One of the major constraints to resolution of the water quality issue is lack of adequate information on levels, sources, and impacts of pollution. This information must be collected and analyzed to better define the problems and their solutions. Then, appropriate programs and policy responses need to be put in place to assure and improve the water quality for increased water use efficiency. Toward this end, a major assessment of the water pollution problem is planned for 1992.

The above constraints must be removed to achieve the much higher levels of water use efficiency upon which the scenario for water resource management in 2025 is based. Also, it is important to note the risks inherent in the assumptions upon which this scenario is based. In addition to the completion of the first phase of the Jonglei Canal, it assumes that the present quality and quantity of Nile waters flowing into Egypt will be maintained. The Nile is a regional water source involving eight different African countries. The water available to Egypt could be affected by any number of events in these upstream countries. This risk serves to magnify the importance of attacking the constraints to increased water use efficiency.

(d) Institutions. While there is a role for government in maintaining a basic supportive infrastructure--in the case of agriculture, such public infrastructure generally includes research and extension services, main-system irrigation infrastructure and management,

policy development, regulatory functions and data collection and dissemination--the state's presence in Egyptian agriculture has reached untenable proportions. This extensive state presence inhibited the establishment of strong private sector institutions. At one point, the state maintained absolute control of both inputs and outputs and owned outright all of the marketing and processing facilities. The market system had virtually no role in the direction of decision making within public institutions.

The Ministry of Agriculture and Land Reclamation and the Ministry of Public Works and Water Resources are the two key ministries responsible for agricultural administration, along with 12 affiliated authorities or organizations. Two major research centers, the Agricultural Research Center and the Water Research Center (comprised of over 30 research institutes and central laboratories) and scores of production projects or activities now organized into three holding companies in preparation for privatization, also form part of the public agricultural administration.

A bloated bureaucracy developed over the last 40 years. Government structures and organizations overlap, duplicate, and operate with poor coordination within and between the organizations. The system is overly centralized. Decision making is slow. Implementation of projects is cumbersome. Program design and implementation do not respond adequately to regional or area specific problems.

Massive over-staffing of the complex of organizations, poorly trained staff, and inadequate salaries and other incentives characterizes the public agricultural administration. Slightly more than a half million people (about 420,000 in the Ministry of Agriculture and Land Reclamation and 85,000 in the Ministry of Public Works and Water Resources) populate this bureaucracy. This is close to 10 percent of the agricultural labor force and 10 percent of total government employment.

These organizations are unable to effectively discharge responsibilities and provide the services that are appropriate for the public sector. A strongly vested interest in continuing state control complicates the transition to new and appropriate government roles. The agricultural sector will not realize its full potential for growth unless this bloated and inefficient structure of agricultural administration is reoriented, greatly streamlined, improved and reduced in size. Its future role should be to effectively conduct research, extend technology, provide regulatory oversight, set rationale and appropriate policies, collect and disseminate data and marketing information, manage water delivery and oversee management of land and water resources.

As the state penetrated and controlled virtually all aspects of the agricultural sector, private agribusiness, as known in the rest of the world, is seriously underdeveloped in Egypt. Egypt sorely lacks the farm suppliers, processors, transporters, financiers, wholesalers, retailers, traders, and exporters who normally comprise agribusiness. The absence of a dynamic agribusiness is a serious impediment for realizing the growth potential of Egyptian agriculture. There are, however, some indications that a favorable policy environment and the

withdrawal of government from agribusiness activity will stimulate private sector interest and reasonably rapid entry. As PBDAC has withdrawn from fertilizer distribution since 1991, there are good indications that private distributors are taking over. As rice trade was opened to the private sector in 1990, private rice exports surged.

Thus, the aim of this strategy related to institutions is three fold. First, to change institutional structures that retard growth by removing state controls and divesting public enterprises that have precluded widespread private sector entry and investment in agriculture. Second, to improve the functioning of government in its legitimate roles. Third, to develop limited new roles for government, such as irrigation cost recovery and environmental management.

The USAID program with the Principle Bank for Development and Agricultural Credit (PBDAC) illustrates the relationship between policy reform and the institutional adjustment required to achieve the intended benefit of policy reform. The divestment by PBDAC of its agricultural input monopoly is proceeding well because the policy reform program is combined with direct assistance to the Bank for divestment of the input marketing activities. This will lead to PBDAC's total withdrawal from input marketing, divestment of appointed assets, and a transition to a purely agricultural development bank.

Rice is an excellent example of the progress in productivity that is possible when positive policy change occurs in conjunction with the availability of technologies for increased productivity. While the rice yield in Egypt is the highest in the world at 7.5 metric tons/hectare, demonstration field yields in 1989 were in the 9.0 to 11.0 metric tons/hectare range and research station yields approached 13.0 metric tons/hectare. Rice yields remained relatively flat during the 1981 - 1986 period when state intervention and price controls prevailed. Yields increased by 35 percent over the 1987 - 1991 period, during which state interventions were nearly totally removed and price controls lifted. Rice yields in Egypt increased at about 9 percent annually, while rice yields worldwide were increasing at only 1.9 percent annually. With a continuing free market for rice and a rigorous research and technology transfer program that responds to the range of technical needs of even more intensive rice cultivation, the potential for large gains in productivity (35 to 50 percent) remains quite high.

A contrary example is cotton. Over the past ten years, yields have fallen sharply. Very negative price incentives have caused farmers to minimize their use of technical measures to improve productivity and to fail to follow the best crop management practices. Egypt has a very strong comparative advantage for the extra long staple and long staple varieties, the most valuable cotton varieties. Total state intervention and control of cotton caused production of cotton to decline by 42 percent over the 1980 - 1990 period. Yields per acre declined from 7.18 to 5.21 seed kentars (158 kilogram measure), and cotton exports declined from 496,000 bales to 92,000 bales over this same period. Large increases in productivity would appear to be quickly possible, provided that the domestic cotton market, exporting and processing of cotton are liberalized. Farmers would then be receptive to investing in

improved seed and other technical practices that would improve productivity, and would devote more land and water resources to the crop.

These two examples illustrate the close relationships among the fundamental constraints. In both examples, the policy environment influenced the extent of the application of technical practices limiting the productivity of land and water. The weak institutions further limited the application of appropriate technology to agriculture. Thus, realizing the full benefit from the remedies for a constraint will usually require progress in more than one of the areas of constraint.

The most crucial institutional change for improving agricultural productivity and production is a greatly expanded private sector and a greatly reduced public sector. Continued policy reform is essential for creating the conditions essential for private sector entry and investment in agriculture. Institutional reforms must accompany policy reforms to assure the removal of state controls and divestment of public sector enterprises that retard private sector investment. Without appropriate and targeted institutional reform, primarily within the Ministries of Agriculture and Land Reclamation and Public Works and Water Resources and their related authorities, the liberalization of the agricultural sector would only be partially successful.

#### **4. STRATEGIC OBJECTIVE.**

The strategic objective for the USAID agricultural program is:

##### **INCREASED PRODUCTIVITY, PRODUCTION, AND INCOMES IN THE AGRICULTURAL SECTOR.**

This strategic objective builds on the two most recent (1987 and 1989) statements for agriculture. Previous statements focused on increasing agricultural sector productivity by increasing farm level production. This strategy includes specific aims for increasing incomes, both on farms and in agriculturally-related processing and marketing industries. It seeks to balance the primary focus on agricultural production by addressing post-harvest losses and handling, marketing and processing of agricultural commodities.

The strategy assumes that there is potential for continued and steady growth in Egyptian agriculture. Currently, it is estimated that Egyptian agriculture should be able to sustain an annual growth rate of over four percent, as compared to the historical growth rate of approximately two percent (less than one percent during the last decade).

The objective will primarily contribute to the achievement of the stability, free markets and prosperity aspects of the overall USAID strategic goal. The leadership of the Government of Egypt considers food security as crucial for maintaining domestic political and economic stability. Increased productivity and production in Egyptian agriculture will support their

strategic goal and the attainment of Egypt's commitment to assure an adequate level of food security for its people.

Liberalization of the agricultural sector, well underway with the USAID-supported agricultural policy reform program, will enable the development of fully free markets for agriculture. By virtue of the size of agriculture in the economy of Egypt and the strong linkages with other sectors of the economy, the contribution to overall economic growth arising from agriculture, resulting primarily from the establishment of free markets, should be substantial. Freeing prices will encourage farmers, buyers and processors of agricultural commodities to invest in productivity enhancing capital and technological improvements, and over time should shift the sector toward the production of commodities for which Egypt has a comparative advantage. Increases in income in the agricultural sector will provide a significant and broad-based contribution to the enhancement of Egypt's long-term prosperity.

The strategic objective for agriculture will most directly contribute to the achievement of the first USAID strategic subgoal: increased economic growth. Increased productivity and production in the agricultural sector will result in sustained growth for the sector and contribute to overall growth of the economy. Likewise, increased incomes in agriculture will expand the demand for goods and services from the other sectors of the economy and propel a measure of growth in these sectors.

The objective will indirectly contribute to the attainment of the second USAID strategic subgoal: increased human resource productivity and quality of life. Increased incomes from agricultural production at the farm level and in agribusiness will provide the increased purchasing power families and individuals need to improve their well-being.

The objective is consistent with the strategic directions the Government of Egypt intends to pursue over the 1990s. Preliminary indications are that the Government of Egypt's agricultural strategy for the 1990s will focus on an increase in agricultural productivity, output and incomes through a more efficient use of Egypt's limited water and land resources. The drive for efficiency will likely proceed in the context of equity considerations. Within this broad objective, there will be several specific subgoals. These will likely include: (a) conservation of land and water resources; (b) food security; (c) increased rural employment; (d) expansion of land and water resources; and (e) increased attention to environmental sustainability of agricultural development. This strategy is being developed with technical assistance from the World Bank and will be completed in November 1992.

The realization of the strategic objective for the agricultural sector is dependent upon successfully addressing over the 1990s the four key constraints discussed in Section 3. Collaboration with the other major donors (the World Bank in particular) will enhance the USAID resources invested for the accomplishment of the strategic objective and such collaboration should be high on the USAID agenda for agricultural development.

## 5. PROGRAM OUTCOMES.

The strategic objective for the agricultural sector will be accomplished if three broad program outcomes are realized. Each of these program outcomes also addresses one or more of the key constraints to growth in the agricultural sector discussed in Section 3. The three program outcomes are:

(a) Liberalized product and input markets and increased private sector share of agricultural processing and marketing. The establishment of open markets, free market pricing, private competition and the removal of remaining state controls over agriculture will allow expanded opportunities and provide the incentives required to improve agricultural productivity and increase production. Divestment of government input marketing, commodity marketing and processing enterprises will allow significant opportunities for private sector (agribusiness) entry. Increased investment and improved efficiencies throughout the agricultural system will result. The substantial liberalization that occurred for the primary crops of rice, wheat, corn and berseem clover during the 1986 - 1990 period illustrates the positive impact of successful policy reform on productivity. During this period, the production of these crops increased by 59 percent. In this same time period, complete state control over cotton continued. Cotton production, as would be expected, declined by 25 percent during 1986 - 1990.

The assumption underpinning this program outcome is that the impact of continued policy reform will contribute to growth in agriculture through improved productivity, increased production, and increased economic efficiency. Likewise, policy reforms that greatly expand the private sector's share of agricultural processing and marketing would improve economic efficiency and value added through increased competition. Free input markets with market pricing and private sector competition would also improve the productivity of the basic agricultural inputs (fertilizer, chemicals, seed, machinery). For example, preliminary estimates indicate that state controlled and subsidized fertilizer distribution resulted in a substantial overuse of fertilizer, possibly approaching double the economically optimum level.

Estimates of the precise magnitude of expected gains from anticipated reforms must await completion of a series of sector studies. However, preliminary estimates of the potential gains from four key policy reforms alone are indicative of the magnitude of net economic returns possible. Other potential gains, of course, include increased productivity of resources, increased productivity in marketing and processing, budgetary savings from eliminating consumer and producer subsidies, and increased efficiency of public and private investment. Estimated annual net gains from four key policy reforms are:

- |  |                   |
|--|-------------------|
| 1. Liberalization of the cotton market<br>(net gains to farmers) | L.E. 1.20 billion |
| 2. Cotton export earnings  | L.E. 0.80 billion |

3. Increased efficiency of investment in land reclamation	L.E. 0.08 billion
4. Increased irrigation efficiency	L.E. 0.75 billion
Total net gains generated by reforms	L.E. 2.83 billion

Additionally, the GOE's annual budget outlay for consumer and producer subsidies would be reduced by LE 5 billion per year.

This program outcome will be accomplished as policy reform and concomitant institutional reform is completed to free input markets, remove remaining state production controls, remove marketing and processing controls and divest the public enterprises active in input provision, marketing and processing. The most important single area for reform is cotton because of the substantial comparative advantage Egypt has for extra long staple and long staple cotton. A substantial domestic and foreign exchange income impact is possible if production, marketing, processing and trade of cotton is liberalized.

Finally, this program outcome will result in establishing a greatly expanded private agribusiness presence in the agricultural sector and a greatly diminished public sector. The public sector will be restricted to appropriate supporting and service roles.

(b) Improved technologies developed and adopted for the production, processing and marketing of agricultural commodities. Egyptian agriculture must become even more technology intensive over the 1990s. As described in Section 3, increased productivity and production in Egyptian agriculture will depend on a reliable flow of advanced technology. The development and adaptation of technology will also be crucial for reducing post-harvest losses and improving productivity in the processing of agricultural commodities.

Agricultural growth in Egypt, as for the rest of the world, will depend more and more on yield-increasing technology of the "green revolution" type. As projected by the International Center for Agricultural Research in the Dry Areas (ICARDA), located in Syria, there will be little increase in the area of arable land in the Middle East. Therefore, the expanded food needs of the region must be met by new combinations of policy and technology to simultaneously increase land, water and labor productivity without damaging the environment. ICARDA estimates that in the Middle East seventy percent of future gains in productivity and production will result from the application of new technology and only thirty percent from expansion of land and water resources. The potential for the expansion of land and water resources in Egypt is significantly less than the ICARDA estimate of 30 percent for the region. The water resource scenario described in Section 3 would result in an increase in water availability of approximately 13 percent by 2025, and in a total net land expansion of 20 percent by 2025. Therefore, the portion of future gains that must result from the

application of new technology will be even higher for Egypt than projected for the most of the region.

The agricultural research system must adjust its programs and establish a clear focus on the most important impediment to increased productivity and growth. Economic considerations should guide research investments as more focused programs are developed. Linkages among users of technology and research institutions must be improved to assure that research programs are responding to user problems and that the technology transfer process is timely and effective.

Investment in research and technology adaptation should be greatly expanded in the areas of post-harvest loss and handling and agricultural processing. The high level of post-harvest loss and inefficiencies in processing provide opportunities to capture productivity gains and significant economic returns. It will be important to foster new relationships between the agricultural research system and the private sector. Additionally, incentives for the private sector to seek and adapt commercially available technologies and establish their own research capabilities must be provided.

(c) Increased efficiency of land and water use for agriculture. Egypt's finite land and water resource base will be under increasing pressure during the 1990s to accommodate the growing population. Land and water resources are prime but limited assets that must be more efficiently managed. Technical innovation and policy measures combined with institutional changes will be required to gain the increased efficiencies that are possible. Water efficiency improvements must occur to provide the water needs for further intensification of agriculture and new lands expansion. Water saving technologies will need to be developed. Most crucial for improving the efficiency of water use is establishing an irrigation cost recovery program so that the cost of water become an integral part of the calculus for crop selection by farmers. Cost recovery, of course, also contributes to overall system operating efficiency by enabling appropriate maintenance procedures.

Improved institutional arrangements involving both the Ministry of Agriculture and Land Reclamation and the Ministry of Public Works and Water Resources and local level water user associations are essential for increasing water efficiency at the farm level. Coordination of extension efforts concerning recommendations on water requirements by crop is an example of required institutional collaboration. A significant portion of the added water availability forecast for 2025 is premised on achieving increased on-farm water use efficiency. Liberalization of the agricultural sector coupled with an appropriate cost paid for water by users should also result in improved efficiency of water use. Shifts that will occur in crop production under open market conditions will reflect changes in water costs as well as crop and factor price increases. Therefore, incentives to save water would be established.

Policy measures and program approaches should also support economically sound investment in new lands development and intensification of the agricultural use of the old lands in the

## **Nile Valley and Delta region.**

The environmental quality of land and water must be maintained to assure that past gains in agricultural productivity are maintained and that significant opportunities for increased agricultural productivity and production are not lost. Water quality is crucial and is presently the most in jeopardy. Both technical and policy responses will be needed to protect the quality of Egypt's water.

These three program outcomes were selected and focused on the most critical elements for achieving the strategic objective. They address the four basic constraints to growth in agriculture. Not included as a separate program outcome is the public sector institutional reforms needed to enable accomplishment of the program outcomes. Within each of the three program outcomes, carefully focused institutional reforms are necessary. These reforms will include terminating existing public sector functions as the private sector expands in agriculture, and improving legitimate public sector functions.

The most important public sector institutional reforms are: (1) divesting public enterprises of their production and marketing functions, (2) reforming the "line" ministry units to remove redundancy, establish an incentive system to increase productivity and reorganize to better deliver those services appropriate for the public sector, (3) increasing the technical and managerial capacity of regulatory bodies to oversee private sector activity in agriculture, and (4) fostering coordination of Ministry of Agriculture and Land Reclamation and Ministry of Public Works and Water Resources activities in matters concerning cross-cutting issues such as technical transfer. Priority activities thus far identified include divestiture of the marketing functions of PBDAC, privatization of seed processing plants, focussing research on priority problems of private sector agriculture, reforming the public system for recovery of irrigation costs, and improving the environmental management of Egypt's land and water resources.

## **6. PROGRAM CONTENT.**

The programs for achieving the strategic objective defined in Section 4 and the program outcomes described in Section 5 will be comprised of both new activities and continuation of selected elements of ongoing USAID agricultural programs. The latter will be developed into new programs during the 1992-1994 period.

The strategic objective addresses post-production concerns as well as farm-level constraints. New program activities will be selected and developed for the primary post-production areas (post-harvest loss and handling, marketing and processing) that offer profitable opportunities to improve productivity and contribute to the growth of Egyptian agriculture.

The programs thus developed will comprise the USAID agriculture program for at least the remainder of this decade.

The selection of program activities is based on the following premises:

- (a) Program consolidation and focus. This is consistent with the AID strategic management initiative and Mission management directions. The three ongoing programs (Agricultural Production and Credit, Irrigation Management Systems, and National Agricultural Research) are composed of a total of 17 individual components. The life of project funding level for these components ranges from \$8 million to \$143 million.

The present total of 17 components will be reduced to five or six units. These new management units will in all likelihood be separate bilateral projects instead of a continuation of the current umbrella program approach. Fewer, smaller and separate bilateral projects will enable both focused and simplified management, in contrast to past experiences with umbrella projects.

- (b) Modification of ongoing programs. Selected activities of the three ongoing programs will be continued into the new programs to be established during the 1992-1994 period. These will be modified or adjusted to prepare for the transition to the new programs as soon as possible. This will allow for a rapid transition to the implementation of program activities that would more directly support the three program outcomes. The ongoing policy reform program is already being modified to facilitate the transition to the new program.

- (c) Focus on institutional utilization. Since 1975 very substantial investments have been made to strengthen and improve Egypt's agricultural institutions. Infrastructure, training and equipment provided to Egypt through USAID agricultural programs over the past 17 years greatly exceeded the levels of investment in institutional development made in most other AID recipient countries. Effective utilization of this enhanced capacity will be the focus of the new strategy. Limited and targeted support for institutional improvement and policy-level institutional reform to deal with removing constraints will be provided.

The following sections describe the proposed program for achieving the three program outcomes. The individual activities described for each program outcome represent those areas which would provide the greatest possible contribution toward accomplishment of the strategic objective, within the probable level of resources that will be available to finance them.

- (a) Liberalized product and input markets and increased private sector share of agricultural processing and marketing.

Policy and institutional reform will be the centerpiece of the strategy. A new program will be developed and designed during FY 1992 and 1993. It will expand on the impressive agricultural policy reform progress accomplished under the Agricultural Production and Credit project. The completion of the policy reform benchmarks under Tranches V and VI of the current program, the planned development of an additional Tranche within the current program's Memorandum of Understanding and the new follow-on policy reform program comprise the essential program elements.

The follow-on program will include the areas detailed in Section 3 for addressing the primary policy constraints to growth. These are pricing and marketing, private investment and privatization, production and consumer subsidies, public investment efficiency, and environmental aspects of land and water management policies.

- (b) Improved technologies developed and adopted for the production, processing and marketing of agricultural commodities.

A focused agricultural research and technology transfer activity will be developed as a follow-on to the National Agricultural Research project when it concludes in September 1994. A second new activity will be designed to assist agribusiness to develop and adopt technologies for improving the post-production handling, marketing and processing of agricultural commodities. The National Agricultural Research project will be narrowed in focus over the time remaining until its conclusion in 1994. The focus will be on activities that will provide benefit and impact by 1994 and those activities that will continue in the follow-on project.

The new program activity for research and technology transfer will establish research programs aimed at solving the most critical problems impeding productivity and production in Egyptian agriculture. These research programs will be based primarily on producer needs. They will focus increasingly on a mix of crops and commodities that reflect Egypt's comparative advantage in an environment that is responsive to free market prices. A principal aim will be to develop strong linkages with farmer users.

Expanded investment in research and development will be aimed at higher value fruits and vegetables and other crops important in new lands cultivation. Resources will also be provided to assure the maintenance of rigorous programs for the primary cereal crops (wheat, rice, maize) and to reinvigorate the cotton research program. The current programs to support collaborative research relationships with the U.S. and the international agricultural research centers would continue, as it will be essential for Egypt to maintain and broaden its external link-ages. This will likely be the centerpiece of the research element of the new program. Most of the technology that will be appropriate to address the problems of Egyptian agriculture (both production and post-production problems) will be adapted from elsewhere in the world.

The technology transfer or extension focus will be on restructuring the extension system. It should be increasingly characterized by a smaller, more effective core of staff operating through a network of regional research and extension centers. The centers in turn must collaborate with various other public and private research and extension entities.

The research and technology transfer program will be broadened to include post-production concerns (post-harvest losses and handling, marketing and processing). A separate new program activity will be developed to specifically work with agribusiness on these problems.

(c) Increased efficiency of land and water use for agriculture.

The Irrigation and Management System project provides major investments in technology transfer (telemetry and communications system, computer based models, automated data bases, high technology mapping capability), research, and human resource development to enable improved management of Egypt's irrigation system from the Aswan High Dam to the lowest level in the system. This project has been underway since 1981 with a major addition of new activities in 1988. However, as the project moves toward its 1995 PACD, its breadth will be substantially reduced by the phase-out of support for most of the project components while the remainder will be fine tuned and consolidated.

The new program will include one set of activities tightly geared to develop increased water use efficiency and another concerned primarily with improving land utilization. Activities in each of these two areas of focus will be cross-cutting, with impacts on both land and water use efficiency.

The set of program activities focusing on water use in agriculture will include a continuation of three activities initiated under the Irrigation Management System project -- irrigation improvement, cost recovery, and the Water Research Center -- plus an activity to improve proficiency in the application of the high technology management tools developed under the current Irrigation Management System project. Building on the experience gained from the Irrigation Management System irrigation improvement component, the rate at which farmers gain access to irrigation improvements will be increased by improving delivery systems, water users associations and promoting on-farm water management techniques.

Development of a cost recovery policy will contribute to water use efficiency. It will put in place an institutional framework for implementation. The policies and institutional mechanism will ensure the sustainability of increased water use efficiency.

Finally, a modest activity to assure that the substantial investments provided under the Irrigation Management System project for improvement of the overall system management are effectively used in the future. Improved overall management of the irrigation system is an important determinant of the level of efficiency in the Nile water system.

An element concerned with land utilization in both old and new areas will also be included in

the program provided that the new lands assessment planned for 1992 identifies promising interventions. Preference will be given to policy or program type interventions that will assist the GOE to maximize returns to investment in land reclamation.

The program content herein outlined, toward realizing the three program outcomes, will include activities supporting the emerging USAID environmental strategy. These activities would include improved water quality for irrigation, and possibly reduced and more efficient use of chemicals for agricultural production and policy measures that concern both old and new lands development and management.

Institutional reform and institutional utilization will form an integral part of each program element. The policy program will be the tool for reducing institutional reform, and each of the three program elements will incorporate one or more of the three reform types identified above in Section 5 into project design. For examples, restructuring of the Agricultural Research Center to facilitate research for the private sector, increasing the managerial capacity of the Ministry of Public Works and Water Resources to incorporate cost recovery programs, and divesting several public enterprises of their marketing and processing activities will be part and parcel of the new program elements.

In summary, by 1995, the three ongoing programs (Agricultural Production and Credit, Irrigation Management Systems, National Agricultural Research) will be completed. A broadened agricultural policy and institutional reform program will be underway and new, focused programs will be in place for technology development and transfer, post-production technology development and transfer for agribusiness, and water and land development and management. Targeted environmental activities and institutional reforms will be included within these new programs.

The specific indicators and targets which are intended to measure progress toward outcomes will be contained in an auxiliary document.

**TABLE (1)**  
**EGYPT: ANNUAL CHANGE IN**  
**REAL GDP; TOTAL NATIONAL**  
**AND AGRICULTURE;**  
**1980/81 - 1990/91** \*

YEAR	ANNUAL PERCENTAGE CHANGE IN REAL GDP	
	TOTAL	AGRICULTURE
1980/81	-	-
1981/82	8.08	1.88
1982/83	13.89	21.09
1983/84	2.60	(2.66)
1984/85	6.99	0.78
1985/86	1.09	5.65
1986/87	6.31	16.24
1987/88	7.50	(2.39)
1988/89	(16.98)	(14.63)
1989/90	(8.13)	(7.92)
1990/91	18.31	5.37

\* The Growth rates over the period 1980/81 - 1990/91 for total real GDP and real Agr. GDP were 1.1% and 0.8%, respectively.

\*\* Preliminary data

*SOURCE: Collected and calculated from Ministry of Planning & International Cooperation (MPIC), Center for Information & Documentation, Statistics Department; Series of Statistic Studies - 3, from 1980/81 to 1986/87; and preliminary data from 1987/88 to 1990/91.*

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**TABLE (2)**  
**EGYPT: AGRICULTURAL GDP**  
**AS A PERCENTAGE OF TOTAL GDP,**  
**1980/81 - 1990/91**

YEAR	AGRICULTURAL GDP AS A PERCENTAGE OF TOTAL GDP,
1980/81	20.3
1981/82	19.1
1982/83	20.3
1983/84	19.3
1984/85	18.2
1985/86	19.0
1986/87	20.8
1987/88 *	18.9
1988/89 *	19.4
1989/90 *	19.4
1990/91 *	17.3

\* Preliminary data

*SOURCE: Collected and calculated from Ministry of Planning & International Cooperation (MPIC), Center for Information & Documentation, Statistics Department; Series of Statistic Studies - 3, from 1980/80 to 1986/87; and preliminary data from 1987/88 to 1990/91.*

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**TABLE (3)**  
**EGYPT: NOMINAL VALUE OF TOTAL**  
**AND AGRICULTURAL EXPORTS,**  
**1980/81 - 1989/90**

YEAR	EXPORTS		AGRICULTURE AS A PERCENTAGE OF TOTAL EXPORTS
	TOTAL LE'000,000	AGRICULTURE LE'000,000	
1980/81	2,395	464	19.4
1981/82	1,988	471	23.7
1982/83	2,203	464	21.0
1983/84	2,190	183	8.4
1984/85	2,692	151	5.6
1985/86	2,451	150	6.1
1986/87	2,062	563	27.3
1987/88	3,408	703	20.6
1988/89	5,140	1,060	20.6
1989/90	6,665	1,302	19.5

\* The Growth rates over the period 1980/81 - 1990/91 for real total exports and real Agr. exports were -1.8% and -1.1%, respectively.

SOURCE: Collected and calculated from CAPMAS.

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**TABLE (4)**  
**EGYPT: Nominal Value of Agricultural Exports**  
**Cotton & Cotton fabrics, Rice, Vegetables and Fruits**  
**1980/81 - 1989/90**

YEAR	Cotton & Cotton Fabrics	Rice (milled)	Vegetables		Fruits	
			Potato	Oth. Veg.	Citrus	Oth. Fr.
	Nom. Val. (LE'000)	Nom. Val. (LE'000)	Nom. Val. (LE'000)	Nom. Val. (LE'000)	Nom. Val. (LE'000)	Nom. Val. (LE'000)
1980/81	419,717	25,815	26,659	20,816	33,376	788
1981/82	410,699	23,255	28,487	17,573	38,133	920
1982/83	469,055	7,442	20,560	31,693	46,723	851
1983/84	591,695	15,761	27,626	20,728	51,881	1,799
1984/85	662,725	4,065	17,995	22,153	54,385	1,485
1985/86	765,711	7,000	15,834	23,593	43,738	3,300
1986/87	739,690	27,452	31,715	23,692	79,372	3,244
1987/88	864,591	28,079	55,786	19,038	139,376	4,076
1988/89	840,354	18,923	53,982	22,389	116,000	4,051
1989/90	587,164	30,152	67,407	32,585	188,623	12,871

\* The Growth rates over the period 1980/81 - 1990/91 for real values of exports were as follows: cotton & cotton fabrics -3.4%, Rice -4.2%, potato -1.7%, other veg. -5.5%, citrus 1.4% and other fruits 5.6%

SOURCE: CAPMAS

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**TABLE (5)**  
**EGYPT: NOMINAL VALUE OF TOTAL**  
**IMPORTS AND FOOD IMPORTS,**  
**1980/81 - 1989/90**

YEAR	Imports		FOOD IMPORTS AS A PERCENTAGE OF TOTAL IMPORTS
	TOTAL LE'000,000	FOOD LE'000,000	
1980/81	4,103	1,118	27.2
1981/82	6,228	1,806	29.0
1982/83	7,274	2,042	28.1
1983/84	7,154	1,770	24.7
1984/85	7,235	1,943	26.9
1985/86	6,960	2,143	30.8
1986/87	8,467	2,403	28.4
1987/88	14,455	3,767	26.1
1988/89	16,192	4,547	28.1
1989/90	21,082	6,834	32.4

\* The Growth rates over the period 1980/81 - 1990/91 for real total imports and real food imports were 0.2% and 0.6%, respectively.

*SOURCE: Collected and calculated from CAPMAS.*

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**TABLE (6.1)**  
**EGYPT: Nominal Value of Food Imports**  
**Wheat, Wheat Flour, Corn, Lentils,**  
**Broad Beans and Fruits**  
**1980/81 - 1989/90**

YEAR	Wheat	Wheat Flour	Corn	Lentil	Broad Bean	Fruits
	Nom. Val. (LE'000)					
1980/81	679,590	280,503	186,336	22,825	19,808	2,079
1981/82	653,689	221,168	152,576	34,133	21,873	6,194
1982/83	583,691	243,663	193,828	29,512	2,456	14,981
1983/84	665,087	266,924	221,828	14,281	0	6,808
1984/85	571,864	285,836	203,888	4,101	0	4,753
1985/86	527,073	234,312	230,808	12,358	0	95
1986/87	432,795	190,313	193,167	53,651	0	2,866
1987/88	460,295	161,472	223,517	50,163	2,772	11,594
1988/89	864,900	227,613	167,682	60,869	0	7,648
1989/90	1,730,831	444,876	155,558	21,863	0	15,604

\* The Growth rates over the period 1980/81 - 1990/91 for real values of imports were as follows:  
Wheat -4.4%, wheat flour -6.2%, corn -6.6%, lentil -3.5%, broad bean -17.2% and fruits -3.4%

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SOURCE: CAPMAS

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**TABLE (6.2)**  
**EGYPT: Nominal Value of Food Imports**  
**Red Meat, Poultry, Fish, Egg, Milk**  
**and Vegetable Oil**  
**1980/81 - 1989/90**

YEAR	Red Meat	Poultry	Fish	Egg	Milk	Vegetable Oil
	Nom. Val. (LE'000)					
1980/81	134,767	56,910	22,692	3,237	1,062	26,716
1981/82	186,679	80,228	32,848	8,787	836	23,877
1982/83	127,063	37,528	44,148	14,832	1,350	28,950
1983/84	225,223	84,364	52,726	8,960	1,502	28,459
1984/85	222,857	86,409	42,049	12,337	674	37,302
1985/86	255,038	48,714	47,448	13,960	71	47,255
1986/87	307,942	69,654	46,741	4,541	0	107,030
1987/88	356,935	77,696	84,421	14,709	0	157,912
1988/89	455,544	25,990	102,253	14,350	0	309,904
1989/90	831,540	12,948	173,066	1,214	0	266,242

\* The Growth rates over the period 1980/81 - 1990/91 for real values of imports were as follows:  
red meat 1.1%, poultry -11.4%, fish 1.2%, egg -8.4%, milk -22.2% and veg. oil 7%.

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SOURCE: CAPMAS

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**TABLE (7)**  
**EGYPT: Area Production and Yield, Major Crops, 1980, 1985 & 1990**

Crop / Season	1980			1985			1990		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
	(Hectare)	(M. Tons)	(MT/Ha)	(Hectare)	(M. Tons)	(MT/Ha)	(Hectare)	(M. Tons)	(MT/Ha)
<b>Winter Crops:</b>									
Barley	40,122	106,961	2.67	52,332	145,344	2.78	53,416	129,065	2.42
Broad Bean	102,793	212,672	2.07	119,579	301,831	2.52	127,214	374,762	2.95
Berseem (Clover)	1,138,808		0.00	1,192,988		0.00	1,031,748		0.00
Chickpea	7,267	11,069	1.52	7,849	12,419	1.58	5,571	10,369	1.86
Flax (seed)	28,406	34,047	1.20	16,495	20,709	1.26	12,905	16,574	1.28
Garlic	6,906	134,064	19.41	3,528	63,904	18.11	6,211	140,026	22.54
Garlic Intercropped		65,047			29,540			45,433	
Lentil	6,390	6,517	1.02	8,368	13,481	1.61	5,884	11,743	2.00
Lupine	4,476	7,545	1.69	6,591	11,772	1.79	3,190	6,110	1.92
Sugar Beet	n/a	n/a	n/a	17,061	577,884	33.87	14,317	574,745	40.14
Wheat	556,995	1,796,436	3.23	498,088	1,872,390	3.76	620,972	4,268,049	5.20
<b>Summer Crops:</b>									
Ground nuts	11,949	25,540	2.14	11,824	22,992	1.94	12,310	26,255	2.13
Corn (Summer+Nill)	800,440	3,231,075	4.04	804,062	3,686,462	4.58	629,842	4,796,634	5.78
Onion	21,439	399,305	18.63	17,567	352,148	20.05	14,308	312,070	21.81
Onion (Intercropped)		168,228			432,018			630,719	
Rice-Paddy (S. + N.)	408,374	2,384,102	5.84	388,467	2,311,294	5.95	435,734	3,167,421	7.27
Sesame	16,227	15,918	0.98	9,079	9,171	1.01	17,719	21,292	1.20
Sorghum (S. + N.)	172,234	642,522	3.73	142,760	547,154	3.83	134,139	629,636	4.69
Soybean	34,762	92,377	2.66	50,000	139,784	2.80	41,380	106,690	2.58
<b>Permanent Crops:</b>									
Cotton	522,701	1,408,267	2.69	454,024	1,156,801	2.55	417,080	814,111	1.95
Sugarcane	106,042	8,618,393	81.27	105,002	9,683,921	92.23	110,540	11,095,262	100.37
<b>Vegetables:</b>									
Potatoes (S. + N.)	70,254	1,213,887	17.28	74,440	1,478,229	19.86	79,631	1,637,607	20.57
Tomatoes (W.+S.+N.)	139,322	2,467,793	17.71	144,924	3,575,953	24.67	155,810	4,233,642	27.17

**TABLE (8.1)**  
**EGYPT: FOOD PRODUCTION, IMPORT AND CONSUMPTION**  
**1980/81**

Commodity	Quantity ('000 Metric Tons)			Per - capita Consumption, k.g/person	Production as a percent of Consumption
	Production	Import	Consumption		
Wheat & Wheat Flour (1)	1,589	6,362	7,092	172	22
Corn	3,308	1,294	2,983	73	111
Rice (2)	1,536	0	1,359	33	113
Broad Beans	208	70	201	5	103
Lentils	5	55	66	2	8
Fruits	1,883	5	1,564	38	120
Vegetables	8,024	23	6,826	166	118
Red Meat	294	103	385	9	76
Poultry	122	56	171	4	71
Fish	139	73	205	5	68
Egg	2,115	71	2,144	52	99
Milk	1,927	2	1,929	47	100
Veg. Oil	82	214	295	7	28
Sugar (refln)	624	506	1,165	28	54

(1) Flour equivalent

(2) Milled rice equivalent

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**TABLE (8.2)**  
**EGYPT: FOOD PRODUCTION, IMPORT AND CONSUMPTION**  
**1984/85**

Commodity	Quantity ('000 Metric Tons)			Per - capita Consumption, k.g/person	Production as a percent of Consumption
	Production	Import	Consumption		
Wheat & Wheat Flour (1)	1,535	5,434	7,836	171	20
Corn	3,686	1,625	3,707	81	99
Rice (2)	1,588	0	1,488	32	107
Broad Beans	302	0	266	6	113
Lentils	13	13	34	1	40
Fruits	2,441	5	2,012	44	121
Vegetables	9,807	47	8,448	104	116
Red Meat	511	154	651	14	79
Poultry	447	75	522	11	86
Fish	190	105	302	7	63
Egg	2,942	77	2,955	65	100
Milk	2,087	1	2,088	46	100
Veg. Oil	119	416	535	12	22
Sugar (refin)	828	731	1,656	36	50

(1) Flour equivalent

(2) Milled rice equivalent

**TABLE (8.3)**  
**EGYPT: FOOD PRODUCTION, IMPORT AND CONSUMPTION**  
**1989/90**

Commodity	Quantity ('000 Metric Tons)			Per - capita Consumption, k.g/person	Production as a percent of Consumption
	Production	Import	Consumption		
Wheat & Wheat Flour (1)	3,500	6,192	9,591	183	36
Corn	4,799	1,230	4,081	78	118
Rice (2)	2,176	0	1,971	38	110
Broad Beans	375	0	266	5	141
Lentils	12	27	41	1	28
Fruits	4,976	4	4,310	82	115
Vegetables	10,355	31	8,929	170	116
Red Meat	539	149	690	13	78
Poultry	412	6	418	8	99
Fish	277	139	412	8	67
Egg	3,801	4	3,721	71	102
Milk	2,178	0	2,178	42	100
Veg. Oil	170	312	484	9	35
Sugar (refin)	832	561	1,399	27	59

(1) Flour equivalent

(2) Milled rice equivalent

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**Table (9.1)**  
**Egypt: Gross Fixed**  
**Domestic Investment,**  
**(current prices, in LE'000,000)**

<b>Year</b>	<b>Public Sector</b>	<b>Private Sector</b>	<b>Total National</b>	<b>Percent in Private Sector</b>
1984/85	5,298.3	1,666.8	6,965.1	23.9
1985/86	5,621.4	2,065.8	7,687.2	26.9
1986/87	5,819.0	2,573.0	8,392.0	30.7
1987/88	7,377.7	3,444.5	10,822.2	31.8
1988/89	8,478.8	4,237.0	12,715.8	33.3
1989/90	11,185.1	5,131.3	16,316.4	31.4
1990/91	14,534.2	7,206.0	21,740.2	33.1

SOURCE: Ministry of Planning

**Table (9.2)****Egypt: Fixed Domestic Investment  
in the Agricultural Sector,  
(current prices, in LE'000,000) \***

<b>Year</b>	<b>Public Sector</b>	<b>Private Sector</b>	<b>Total Agr. Sector</b>	<b>Percent in Private Sector</b>
<b>1984/85</b>	423.4	247.0	670.4	36.8
<b>1985/86</b>	533.2	232.7	765.9	30.4
<b>1986/87</b>	532.2	370.0	902.2	41.0
<b>1987/88</b>	702.1	420.0	1,122.1	37.4
<b>1988/89</b>	838.0	504.0	1,342.0	37.6
<b>1989/90</b>	951.1	740.0	1,691.1	43.8
<b>1990/91</b>	1,092.7	1,050.0	2,142.7	49.0

\* The Agricultural Sector includes Ministries of Agriculture and Irrigation

SOURCE: Ministry of Planning

**Table (9.3)**  
**Egypt: Gross Fixed Domestic Investment,**  
**(current prices, in LE'000,000)**

YEAR	Sector	Total Domestic Investment	Sub-Total Service Sectors	Sub-Total Distribution Sectors	COMMODITY SECTORS							
					Sub-Total Commodity Sectors	Agricultural Sectors			Industry and Mining Sectors	Petroleum and Its products Sectors	Construction Sectors	Electricity Sectors
						Ag. & L. Rec. Sec.	Irr. & D. Sector	Sub-Total Ag. Sect.				
1984/85	Public	5,298.3	1,069.1	1,732.9	2,496.3	163.1	260.3	423.4	1,103.4	341.3	144.6	463.6
	Priv.	1,666.8	899.7	110.1	657.0	224.0	23.0	247.0	353.0	0.0	50.0	7.0
	Total	6,965.1	1,968.8	1,843.0	3,153.3	387.1	283.3	670.4	1,456.4	341.3	194.6	490.6
	% in Priv. Sec.	23.9%	45.7%	6.0%	20.8%	57.9%	8.1%	36.8%	24.2%	0.0%	25.7%	1.4%
1985/86	Public	5,621.4	1,270.4	1,669.7	2,681.3	191.1	342.1	533.2	1,171.8	278.9	123.4	574.0
	Priv.	2,065.8	1,316.6	122.4	626.8	202.0	30.7	232.7	339.8	0.0	45.0	9.3
	Total	7,687.2	2,587.0	1,792.1	3,308.1	393.1	372.8	765.9	1,511.6	278.9	168.4	583.3
	% in Priv. Sec.	26.9%	50.9%	6.8%	18.9%	51.4%	8.2%	30.4%	22.5%	0.0%	26.7%	1.6%
1986/87	Public	5,819.0	1,409.7	1,723.7	2,685.6	160.6	371.6	532.2	1,185.8	252.1	135.3	580.2
	Priv.	2,573.0	1,518.3	171.3	883.4	299.0	71.0	370.0	437.0	0.0	65.0	11.4
	Total	8,392.0	2,928.0	1,895.0	3,569.0	459.6	442.6	902.2	1,622.8	252.1	200.3	591.6
	% in Priv. Sec.	30.7%	51.9%	9.0%	24.8%	65.1%	16.0%	41.0%	26.9%	0.0%	32.5%	1.9%
1987/88	Public	7,377.7	1,685.6	2,320.0	3,372.1	206.5	495.6	702.1	1,493.4	180.4	119.6	876.6
	Priv.	3,444.5	1,621.5	353.0	1,470.0	420.0	0.0	420.0	950.0	0.0	100.0	0.0
	Total	10,822.2	3,307.1	2,673.0	4,842.1	626.5	495.6	1,122.1	2,443.4	180.4	219.6	876.6
	% in Priv. Sec.	31.8%	49.0%	13.2%	30.4%	67.0%	0.0%	37.4%	38.9%	0.0%	45.5%	0.0%
1988/89	Public	8,478.8	2,067.0	2,039.1	4,372.7	217.7	620.3	838.0	1,816.1	142.9	155.4	1,420.3
	Priv.	4,237.0	1,942.0	346.0	1,949.0	504.0	0.0	504.0	1,300.0	0.0	145.0	0.0
	Total	12,715.8	4,009.0	2,385.1	6,321.7	721.7	620.3	1,342.0	3,116.1	142.9	300.4	1,420.3
	% in Priv. Sec.	33.3%	48.4%	14.5%	30.8%	69.8%	0.0%	37.6%	41.7%	0.0%	48.3%	0.0%
1989/90	Public	11,185.1	2,529.8	3,089.3	5,566.0	285.2	665.9	951.1	2,232.5	139.7	171.7	2,071.0
	Priv.	5,131.3	1,624.3	732.0	2,775.0	740.0	0.0	740.0	1,855.0	0.0	180.0	0.0
	Total	16,316.4	4,154.1	3,821.3	8,341.0	1,025.2	665.9	1,691.1	4,087.5	139.7	351.7	2,071.0
	% in Priv. Sec.	31.4%	39.1%	19.2%	33.3%	72.2%	0.0%	43.8%	45.4%	0.0%	51.2%	0.0%
1990/91	Public	14,534.2	3,151.9	4,099.2	7,283.1	296.9	795.8	1,092.7	2,238.2	295.0	223.0	3,434.2
	Priv.	7,206.0	2,499.0	865.0	3,842.0	1,050.0	0.0	1,050.0	2,500.0	0.0	292.0	0.0
	Total	21,740.2	5,650.9	4,964.2	11,125.1	1,346.9	795.8	2,142.7	4,738.2	295.0	515.0	3,434.2
	% in Priv. Sec.	33.1%	44.2%	17.4%	34.5%	78.0%	0.0%	49.0%	52.8%	0.0%	56.7%	0.0%

SOURCE: Ministry of Planning

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