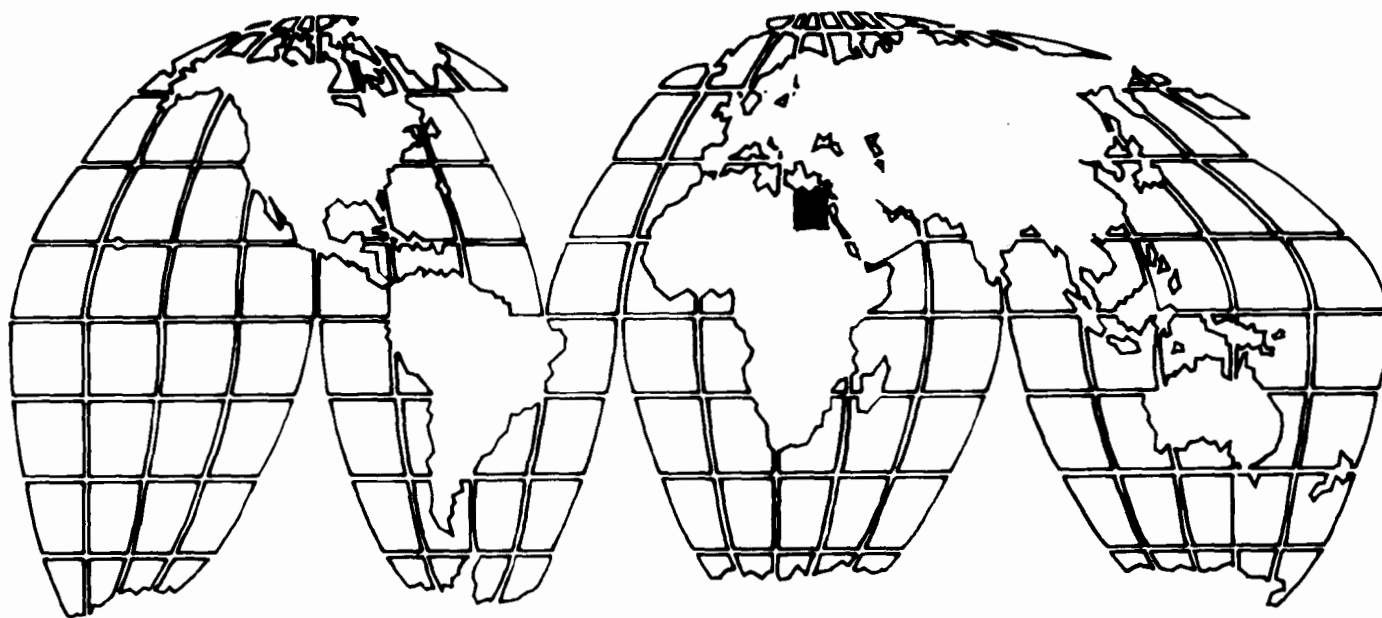


A.I.D. Project Impact Evaluation Report No. 45

PL 480 TITLE I: THE EGYPTIAN CASE

BEST AVAILABLE



June 1983

U.S. Agency for International Development

PL 480 TITLE I: THE EGYPTIAN CASE

A.I.D. Project Impact Evaluation No. 45

by

Richard N. Blue, Team Leader
(Bureau for Program and Policy Coordination, A.I.D.)

David W. Dunlop
(Dartmouth Medical School and
Bureau for Program and Policy Coordination, A.I.D.)

Michael Goldman
(Bureau of Economic and Business Affairs,
U.S. Department of State)

Lloyd S. Harbert
(Foreign Agriculture Service,
U.S. Department of Agriculture)

U.S. Agency for International Development

June 1983

The views and interpretations expressed in this report are those of the authors and do not necessarily represent those of the Agency for International Development, the Department of State, or the Department of Agriculture.

A.I.D. EVALUATION PUBLICATIONS

A complete list of reports issued in the A.I.D. Evaluation Publication series is included in the back of this document, together with information for ordering reports.

TABLE OF CONTENTS

	<u>Page</u>
List of Tables.....	v
List of Figures.....	vii
Foreword.....	viii
Summary.....	ix
Preface.....	xiv
Glossary.....	xviii
Map.....	xix
I. Introduction.....	1
A. Trends in Egypt's PL 480 Title I Program.....	2
B. Total Wheat Imports and Concessional Food Assistance.....	2
II. Self-Help Provisions in PL 480 Title I Agreements with Egypt.....	4
A. Objectives of PL 480 Self-Help Provisions.....	4
B. Substance of Self-Help Measures Since 1976.....	5
III. The Egyptian Context.....	7
A. An Analysis of Egypt's Wheat Supply Since 1949.....	7
B. The Political and Macroeconomic Reality Since 1974.....	14
C. An Analysis of Consumer Subsidies.....	15
D. Egypt's Food Requirements.....	17
E. Food Import Financing Capacity.....	19
F. Food and Agricultural Policy.....	21
1. Objectives.....	21
2. Decision-Making Structure.....	22
3. Agricultural Policy Issues.....	23
IV. Impact of the PL 480 Title I Program on Egypt.....	24
A. The Egyptian Political Perception.....	24
B. Effect on the Agricultural Sector.....	25
C. Government Budget Impact.....	28
D. Equity of Wheat Distribution in Egypt.....	31
E. Effect on Dietary Patterns and Health and Nutrition Status.....	33
1. Dietary Patterns.....	33
2. Health and Nutrition Status.....	33
F. The Macroeconomic Impacts of PL 480 Title I.....	36

TABLE OF CONTENTS (cont.)

	<u>Page</u>
V. Benefit of PL 480 Title I to the United States.....	40
A. U.S. Foreign Policy Objectives.....	40
B. Market Development Impact.....	41
C. Major Conclusions, 1975 to the Present.....	42
1. Major Findings and Conclusions--General Economic Effects.....	42
2. Effects on Nutrition and Diet.....	45
3. Development Impact.....	45
4. Foreign Policy Dynamic.....	47
D. Policy Issues.....	47

Appendixes

A. Relationship of PL 480 Title I to Titles II and III	
B. PL 480 Title I in a Macroeconomic Context: The Relationship between Food Aid and Economic Growth	
C. PL 480 Title I Self-Help Assessment	
D. Summary of Self-Help Measures, 1976-1981	
E. Self-Help Agreements and Identifiable Actions, 1976-1981	
F. USAID Projects in Agriculture, Rural Development, and Health Related to Self-Help Agreements, 1976-1981	
G. The Incentive Structure in Egypt's Wheat Market	
H. A Graphical Analysis of the Impact of PL 480 Title I on Egyptian Wheat Production and Government of Egypt Policy Options	
I. Statistical Tables and Figures	

Bibliography

Notes on the Authors

LIST OF TABLES

<u>Text Tables</u>	<u>Page</u>
Table 1. Egypt PL 480, 1960-1981.....	3
Table 2. Egyptian Government Expenditures on Consumer Subsidies, 1976-1981/1982.....	16
Table 3. International Comparison of Yields for Wheat, Rice, and Maize.....	18
Table 4. Forecast of Egyptian Import Requirements of Wheat, Coarse Grains, and Rice, 1978/1980 and 1985.....	18
Table 5. Egypt's External Account Balance 1977-1980/1981.....	20
Table 6. Egyptian Farm Management Options, 1979.....	27
Table 7. Trends in PL 480 Locally Generated Revenues in Egypt in Comparison with Total Government Expenditures and Total Expenditures of the Ministries of Agriculture and Irrigation, Including Related Public Service Institutions and Economic Authorities, 1975-1981.....	29
Table 8. Trends in Food Composition of Egyptian Diet, 1958/1959 to 1974/1975.....	34
Table 9. Nutritional Status of Egyptian Preschool Children, 1978.....	35
Table 10. Benefits and Costs Associated with Four Different Policy Options Facing Egypt, 1981....	38
Table 11. U.S. Shipments of Wheat and Wheat Products to Egypt, 1977-1981.....	43
Table 12. U.S. Wheat Flour Exports, 1979/1980 and 1980/1981.....	43

<u>Appendix Tables</u>	<u>Page</u>
Table F-1. USAID Projects in Agriculture, Rural Development, and Health Related to Self-Help Agreements, 1976-1981.....	F-1
Table F-2. Major Self-Help Activities of Government of Egypt, 1976-1981.....	F-7
Table G-1. Farm Management Options Facing the Egyptian Farmer, 1979.....	G-5
Table G-2. Alternative Returns to Wheat for Egyptian Farmers, 1981.....	G-6
Table G-3. Empirical Estimates of Egyptian Farmers' Supply Response.....	G-8
Table G-4. Conclusions Derived from Table G-3 About Crop Complementarity.....	G-9

LIST OF TABLES (cont.)

<u>Appendix Tables</u>	<u>Page</u>
Table H-1. A Comparison of Wheat Imports, Production, and Prices, 1974-1980.....	H-1
Table I-1. Government of Egypt Food Subsidies, 1970/1971-1980/1981.....	I-1
Table I-2. Combined Ministry of Irrigation/Ministry of Agriculture Recurrent and Capital Budgets, 1975-1981.....	I-2
Table I-3. Recurrent and Capital Budget, Ministry of Health 1974-1981.....	I-2
Table I-4. Consumption of Wheat by Rural and Urban Expenditure Groups in 1979/1980.....	I-3
Table I-5. Trends in Consumer Price of Cereals Relative to All Food and Beverage Items and All Items.....	I-4
Table I-6. Egyptian Imports of Wheat and Wheat Flour 1973/1974 to 1980/1981.....	I-4

LIST OF FIGURES

<u>Text Figures</u>	<u>Page</u>
Figure 1. Trends in Egypt's Wheat Supply Since 1949.....	8
Figure 2. Nominal Protection Coefficients for Major Crops, 1950-1979.....	9
Figure 3. Producer Price of Wheat Relative to Other Crops, 1949-1981.....	10
Figure 4. U.S. Proportion of Egypt's Total Food Aid, 1960-1981.....	12

<u>Appendix Figures</u>	<u>Page</u>
Figure B-1. Trends in Egypt's Annual Rate of GDP Growth and Food Aid as a Percentage of Imports, 1952-1981.....	B-2
Figure G-1. Cropping Patterns in Egypt, 1952-1979.....	G-10
Figure H-1. Supply and Demand for Wheat in Egypt.....	H-3
Figure I-1. Government of Egypt Total Expenditures and Combined Ministry of Agriculture/Ministry of Irrigation Expenditures, 1974-1981/1982....	I-5
Figure I-2. Percentage Share of Total Capital Budget Received by Ministry of Agriculture (MOA)/ Ministry of Irrigation (MOI) and Selected Ministries, 1974-1981/1982.....	I-6
Figure I-3. Percentage Share of Total Recurrent Budget Received by Ministry of Agriculture (MOA)/ Ministry of Irrigation (MOI) Plus Institutions and Authorities, 1974-1981/1982.....	I-7
Figure I-4. Percentage Shares of Selected Social Service Ministries, Recurrent Budget, 1974-1981/1982.....	I-8
Figure I-5. Lorenz Curve Analysis of Wheat Distribution in Egypt, 1980/1981.....	I-9
Figure I-6. Impact of Change in Relative Food Prices on Dietary Patterns.....	I-10

FOREWORD

In October 1979, the Administrator of the Agency for International Development initiated an Agency-wide ex-post evaluation system focusing on the impact of AID-funded projects. These impact evaluations are concentrated in particular substantive areas as determined by A.I.D.'s most senior executives. The evaluations are to be performed largely by Agency personnel and result in a series of studies which, by virtue of their comparability in scope, will ensure cumulative findings of use to the Agency and the larger development community. This study of the impact of A.I.D. PL 480 Title I: The Egyptian Case was conducted in January 1982 as part of this effort. A final evaluation report will summarize and analyze the results of all the studies in this sector, and relate them to program, policy and design requirements.

SUMMARY

Background

Food Aid has been a major component of U.S. foreign assistance to Egypt since 1955. Since 1960 the United States has shipped over \$42.3 billion (18.9 million metric tons) worth of wheat to Egypt under all three PL 480 titles. Following a break in flows between 1967 and 1974, PL 480 shipments increased to a level of about 1.5 million tons by 1976 and have continued at about that level to the present.

This evaluation focuses on the impact of PL 480 Title I assistance on Egyptian economic development, U.S. foreign policy objectives, and U.S. trade and market development objectives. In addition, the evaluation examines the effectiveness of the Agency for International Development's (A.I.D.) management and use of PL 480, Title I resources as a development resource.

The impact of U.S. PL 480 Title I assistance was assessed in the context of Government of Egypt (GOE) policies, the objectives of U.S. law and policy, the historical evolution of the program, and Egypt's agricultural performance.

Major Conclusions

1. Domestic Production and Food Supply. The objectives of the Government of Egypt with respect to food and agriculture are to achieve food security through increased agricultural production, to keep basic food (bread) cheap and plentiful, to earn foreign exchange through cash crop exports (cotton), and to keep production costs and prices low.

The Government of Egypt believes that the ready availability of cheap bread is a key factor in that country's stability and that an essential GOE responsibility is to ensure this availability. Supplies are assured through private "unencouraged" local wheat production (1.5 million metric tons) and imports (6.5 million tons). Of these imports, PL 480 Title I accounted for 1.5 million tons in 1981, about 17.5 percent of total consumption. Flour and bread prices to consumers are fixed by the Government and subsidized by the GOE at a cost of \$800 million per year.

The Government's dual policies of ensuring a virtually limitless supply of wheat flour/bread and subsidizing consumer wheat flour/bread prices combine to reduce the economic incentive to farmers to produce wheat. To the extent that PL 480

reduces the cost to the GOE of imports in support of its wheat flour/bread policies, it contributes to the implementation of policies which act as disincentives to farmers. To determine whether PL 480 acts as a disincentive, one would have to know that in the absence of PL 480, imports would decrease and prices would rise. Most GOE officials outside the Ministry of Agriculture insist that if PL 480 were not available, imports would continue at similar levels, albeit at greater expense to Egyptian public sector resources.

Because the program of PL 480 assistance was interrupted between 1967 and 1974, it is possible to examine the changes in price policy and supply response during a period without food assistance. The evidence shows that the GOE did increase producer prices and that farmers did respond by increasing both productivity and overall production of wheat during this period. When PL 480 was re-introduced in 1975, producer prices were allowed to decline relative to other crops and relative to world market prices. Production also leveled off. Egypt's wheat imports expanded significantly to the present level of 6.5 million metric tons. Although PL 480 Title I accounts for about 23 percent of total imports, the GOE's ability to finance this high level depends on the availability of foreign exchange earnings, principally from oil exports, the Suez Canal, and remittances from Egyptians overseas. Since all of these sources are more or less flat or declining, the importance of PL 480 in helping offset the import bill may increase in the future.

It is unclear whether Egypt enjoys a comparative advantage in wheat production. Certainly under the present price regime, domestically produced wheat may be assigned more value as fodder for animals and in brick making than for human consumption. Farmers do appear to follow their own "food security" program, although very little domestic wheat is marketed. There is little disagreement that Egypt can increase productivity in wheat through application of existing improved technology. An experiment sponsored by the GOE and A.I.D. subsidized a sample of wheat farmers throughout Egypt to adopt new varieties and improved agronomic practices. Yield increases were in the order of 50 percent or higher. However, there is little economic incentive to adopt these practices. Egypt cannot meet its food security goal through self-sufficiency in wheat. Population pressure, improved incomes, and changing consumer preferences combine to increase demand for wheat and wheat flour. This pressure, combined with expanding claims on available foreign exchange earnings, may more than anything else force the GOE to find ways to improve domestic wheat production.

An analysis was done of four options available to the GOE: (a) maintain the status quo; (b) maintain the consumer

subsidy on wheat, while raising the producer price to international levels and increasing Government procurement levels; (c) remove the current subsidy, allowing prices to rise to international levels, but continuing PL 480 shipments; and (d) allow prices to rise and curtail PL 480. This analysis is not intended to assess the social and political impact of these options. It also assumes that if PL 480 were curtailed, no other government would step in and provide similar support. Nevertheless, it is useful to illustrate the budget and foreign exchange costs and savings of the array of possibilities which the Government may consider.

2. Distribution of Wheat. The Government wheat distribution system via the Ministry of Supply (MOS) works to provide all parts of the country with wheat and wheat products. Although differences do exist between supplies to urban and rural areas, these were not found to be serious. There is some evidence to suggest that wheat may be in excess in some areas, leading to a perception of wheat as a "free good." One of the effects of this Government system has been to strengthen considerably the MOS control over all elements of the food chain, from importation to final distribution. Since it is administratively easier to operate the system as "through-put" for imported grains, the team observed that it may be difficult to reorient procurement and distribution to a system that relies on increased local production. It is clear that this system has eliminated or severely reduced regionally centered private marketing and processing of wheat and wheat flour.

3. Nutritional Impact of PL 480 Title I. It is difficult if not impossible to disaggregate the effect of PL 480 wheat from the total supply which the Government makes available to Egyptian consumers. There are inferential data to show that increased per capita caloric intake has reached nearly 2,800 calories per day. Because a high percentage of this is in the form of carbohydrates, there is some indication of increased obesity and diabetes. On the positive side, there is research evidence to indicate that the infant mortality rate fluctuates positively in relation to wheat supply.

4. Impact on the Government of Egyptian Budget. As GOE expenditures have increased since 1975, the share of the budget supported by PL 480 Title I local sales proceeds has declined from 5.5 percent in 1976 to 2.4 percent in 1981. If all local sales proceeds were assigned to the two principal ministries for agriculture, the Ministry of Agriculture and the Ministry of Irrigation, the share would increase to about 40 percent of those budgets. Of course, locally generated proceeds are not allocated to specific accounts.

A more obvious finding is that food aid, as with any form of foreign assistance, relieves foreign exchange constraints.

5. Self-Help Agreements. The self-help sections of PL 480 agreements through 1979 were written in general and ambiguous terms, and thus PL 480 did not have a maximum impact on developments through these sections. Indeed, self-help agreements have been poorly monitored and do not reflect efforts beyond existing project agreements. Policy dialogue, however, showed some improvement beginning in 1979, as did the degree of Egyptian coordination and the specificity of agreements. Greater effort is needed to clarify the Mission's responsibility for management of the reporting process.

6. Foreign Policy Objectives. U.S. food aid has helped ensure Egyptian stability, which in turn permitted the Mideast peace process, a top U.S. foreign policy priority, to proceed. The Government of Egypt considers PL 480 to be a critical element in the U.S.-Egyptian relationship, and views the size of the annual allocation as a barometer of U.S. support.

7. Market Development. PL 480 Title I has had mixed results as a market development tool in Egypt. Commercial purchasing decisions are based primarily on price and availability, not on Title I levels.

Issues and Conclusions

PL 480 Title I has been an important symbol of U.S. commitment to Egypt. It combines well with Egypt's past and present food policy which has worked to provide the Egyptian consumer with increasing amounts of cheap bread. The system of subsidies, however, has worked to the detriment of wheat production. So long as Egypt's foreign exchange position was improving, PL 480 Title I represented a declining portion of the overall food bill. This may change as foreign exchange earnings decline or level off.

PL 480 poses four objectives: indigenous economic development, support of U.S. foreign policy aims, U.S. market development, and humanitarian assistance. In the best of situations, these objectives are difficult to attain. In the Egyptian context, the foreign policy objective has been overriding. Perhaps this is necessary. While efforts have been made to encourage commercial purchases of wheat, wheat flour, and other commodities, the evidence suggests that Egypt (like most countries) bases purchasing decisions primarily on price. However, the indirect impact of PL 480 was evidenced by the recent U.S. sale of one million tons of wheat flour to Egypt, which was facilitated by our long PL 480 presence there; the Egyptian were familiar with U.S. wheat, U.S. Government-related export procedures, U.S. shippers, and U.S. Department of Agriculture officials. Finally, there appears to be growing

recognition by the Egyptian Government of the fact that Egyptian food production has suffered from neglect and inappropriate policies. The U.S. Government should continue to encourage any effort by the GOE to adjust its agricultural pricing policy. The record over time seems to indicate that although foreign policy dialogue was facilitated by PL 480, there was little apparent interest in Washington, our A.I.D. Mission, or the Egyptian Government in specific economic development efforts related directly to our PL 480 program. Improvement in this area is both possible and desirable to ensure that our largest Title I program is in full compliance with the letter and spirit of recently legislated amendments to PL 480 (e.g., the Gilman-Solarz amendments), as well as to the development policy initiatives of the U.S. Government.

PREFACE

This study is part of a series being conducted by the Agency for International Development on the impact of food aid programs. Beginning in the fall of 1981, the Administrator of A.I.D. requested that studies be undertaken on all aspects of food aid. As a result, a policy guidance paper was prepared by a special task force. Other studies were underway on the impact of Title II of PL 480, and annual evaluations of Title III programs have been required by law. To complete this review of the impact and effectiveness of PL 480, Title I studies of selected programs at the country level were undertaken by the Office of Evaluation, Bureau for Program and Policy Coordination (PPC/E).

Several concerns motivate this study. First, growing budgetary pressure in the United States has prompted a reexamination of the effectiveness of all foreign assistance programs. Second, there is a perception that programs to dispose of "surplus" U.S. grains may no longer be necessary, given rising worldwide commercial demand. Although this perception may be inaccurate in the near term, long-term fears about meeting world food requirements persist. Third, there is a growing apprehension that food aid may be counterproductive to development in a variety of ways, including disincentive effects on production, subsidization of urban cheap food policies by recipient governments, and the use of food aid by some governments to reward favored groups in the society.

These and other criticisms continue, together with budgetary pressure, to mount a strong attack on policies favoring the continuation of food aid. A.I.D.'s objective is to assist development in lesser developed countries (LDC) while serving as an instrument of American foreign policy; A.I.D.'s concern is to find a way to balance those interests that see food aid as a valuable tool of foreign policy and those that see it as a hindrance to true development, i.e., to reduced dependency and more efficient and effective allocation of limited economic and financial resources in LDCs. A.I.D.'s primary effort has been to improve the development effectiveness of food aid. It is to this end that this and other studies in the series are directed.

Even though there have been many criticisms of food aid, as pointed out above, several key arguments in favor of food aid have prevailed in recent debates. The State Department considers food aid to be an important foreign policy instrument. This view is reinforced in the United States by the coalition of agricultural and agroprocessing interests that favor food aid as a market development tool for export promotion, as well as a more direct way of disposing of surplus U.S. production.

In the long run, the broad base of support for food aid will be eroded, not only in the United States but in the host countries as well, unless a way can be found to mitigate the alleged negative effects of the aid and to better integrate food aid as a positive factor in an overall development strategy. In the long run, a dynamic and increasingly productive Third World, in which the benefits of growth are shared by the population, will be a better market for U.S. goods and services than economies that are inefficient, inequitable, and highly dependent, given all the political fragility associated with such societies. The "real world," however, has always imposed severe constraints on translating long-term goals into near-term policies.

Thus, the purpose of these studies is to assess the uses and impacts of food aid through the PL 480 Title I program with a view towards learning lessons from our past experience and finding ways to better integrate and rationalize the legitimate foreign policy, commercial, and development objectives inherent in the program.

In FY 1982, the Office of Evaluation selected four countries in which to begin this set of studies: Jamaica, Peru, Sri Lanka, and Egypt. Another program, the Bangladesh Title III program, was the last of the series to be evaluated in February 1983. These countries were selected for several reasons, including size of the program, length of time the program had been in operation, conversion to a Title III program, level of foreign policy interest, and geographical and sociocultural variation.

The overall scope of work for the study had been developed by A.I.D. in collaboration with the U.S. Department of Agriculture (USDA). Each team had the responsibility of developing the specific scope of its study to fit the context of its country. To help delineate general issues, Hans Singer and Edward Clay, of the Institute for Development Studies of Sussex University, prepared an issues paper.

An impact evaluation, as defined by A.I.D., primarily explores the effects of A.I.D.-supported projects on the intended and unintended beneficiaries. A PL 480 Title I evaluation provides a challenge in meeting this objective.

Title I commodity imports do not constitute a project in usual A.I.D. parlance; there is no carefully crafted paper relating the project to a strategy and outlining in detail the nature of the implementation process. PL 480 is, rather, a program, and one that has often continued for many years in some countries. Furthermore, if one is to analyze the beneficiaries of Title I, then one must look to the society as a whole, both its government and its people. Its total economic

performance, macroeconomic and microeconomic, must be assessed. Although the opportunities for analysis are many and varied, the job is both complex and of major magnitude.

These requirements cannot be fulfilled within the context of the usual A.I.D. impact evaluation format and timing. Thus, in both breadth and length this report is different. The reasons lie in the nature of the PL 480 program as well as in the structure of food policy formulation and its political responsiveness. The report's length also reflects the need to include discussion of aspects of the economic structure of the nation in a manner that few other impact evaluations may require.

The evaluation team that conducted the Egyptian study consisted of four members: two from A.I.D., one from the U.S. Department of Agriculture, and one from the U.S. State Department. Three of the four team members have an economics or agricultural economics background, and one member is a political scientist. Nutrition, health, policy analysis, and technical agriculture are other areas of expertise embodied in one or more members of the team.

The opinions expressed in the report and the appendixes are those of the team as a whole and its individual members respectively, and these conclusions should not be considered in any manner to reflect the official views of the United States Embassy or the A.I.D. Mission in Cairo, or any other part of the U.S. Government.

The team would like to thank the Government of Egypt for allowing so many of its busy officials to meet with us and for making available the data that existed on these complex issues. Our meetings with these officials and with respected leaders of the business, banking, and academic communities were frank and cordial, and often gave the team insight into aspects of food policy in a manner that could not be obtained elsewhere. The team has not listed these individuals in the report to protect their privacy and to indicate that the responsibility for the conclusions and errors rests with the team.

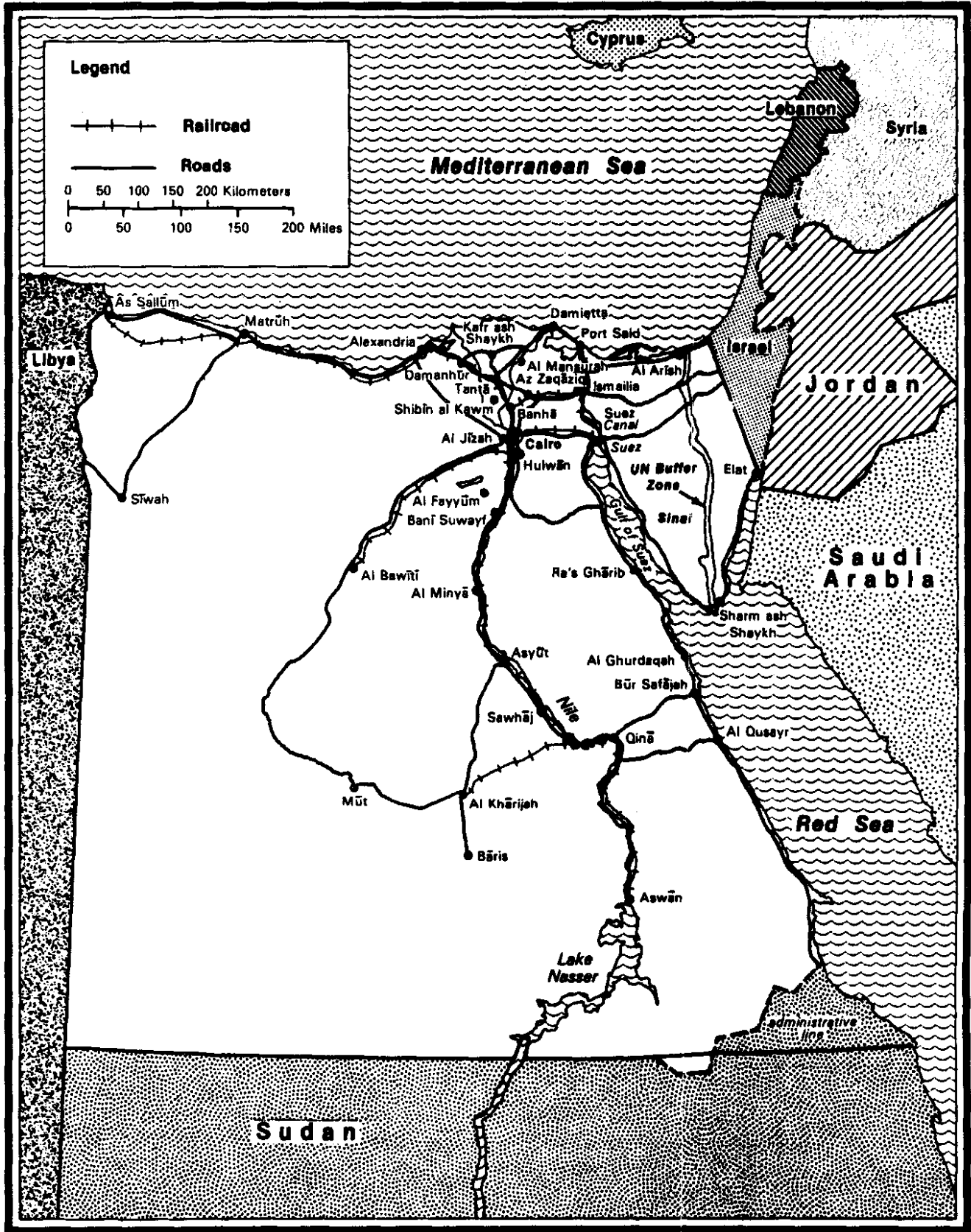
The team had the privilege of traveling around a large part of the nation, meeting with a number of farmers, officials, and other people from a variety of occupations. All of these people gave graciously of their time. Special thanks is extended to the members of the International Food Policy Research Institute (IFPRI) Food Grain Research Project, who facilitated travel and team members' contacts with Egyptian officials in Alexandria, Asheut, and Cairo. Special thanks is also extended to Richard Fraenkel at USAID/Cairo, who acted as our primary contact and analytical critic in Egypt; Ray Fort, the Director of the agricultural office of the Mission; David

Dunford, the Embassy counselor for economic affairs, and his staff members Shaughn Donnelly and Bobbie Eason; and Verle Lanier, the agricultural counselor at the Embassy, who facilitated the process of obtaining appointments and who reviewed our thoughts as they emerged throughout our stay. We also want to acknowledge Ms. Genay Allison for typing our many initial thoughts, analyses, and ideas while we were in Cairo.

GLOSSARY

A.I.D.	Agency for International Development
DA	Développement Assistance Funds
ESF	Economic Support Funds
FAS	Foreign Agriculture Service of the U.S. Department of Agriculture
GASC	General Authority for Supply Commodities of the Ministry of Supply
GOE	Government of Egypt
IFPRI	International Food Policy Research Institute
LDC	Lesser Developed Countries
LE	The Egyptian pound (currency unit), in February 1982 the pound = U.S.\$1.03
Mmt	Million Metric Tons
MOA	Ministry of Agriculture
MOH	Ministry of Health
MOI	Ministry of Irrigation
Pd	Producers' price
Pi	International price
PPC/E	Office of Evaluation, Bureau for Program and Policy Coordination
USAID	United States Agency for International Development/Overseas Mission
USDA	U.S. Department of Agriculture

Egypt



I. INTRODUCTION

The Agricultural Trade Development and Assistance Act of 1954, also known as Public Law 480 (PL 480), cites as its basic objectives the implementation of U.S. policy to

- Develop and expand U.S. agricultural export markets;
- Provide humanitarian assistance by combating hunger and malnutrition;
- Encourage economic development, with particular emphasis on those countries determined to improve their own agricultural production; and,
- Promote the foreign policy of the United States.

Each of these objectives has been a significant factor motivating government to enter into agreements on an annual government of Egypt (GOE) under Title I of PL 480

t
b Previous Page Blank
4

The U.S. Department of Agriculture (USDA) has viewed this program as crucial to maintaining a continued presence as a large-scale supplier of wheat to Egypt. The PL 480 program facilitates this objective by making the commodities available on highly concessional terms which, for wheat in Egypt, approximate a 60-percent grant element. In the same vein, the Title I agreements with Egypt have each included the provision of wheat flour equal to about one-third of the total wheat allotments under Title I.

The humanitarian objectives of the Act are probably served more directly through Title II activities, with their emphasis on targeted feeding of nutritionally vulnerable poor through food donations, rather than through Title I wheat, which is sold in the Egyptian marketplace. Nevertheless, the provision of about 30 percent of Egypt's wheat import needs under Title I has, by its very size, made basic food grains available to poorer elements of Egypt's population.

A.I.D. has maintained a strong interest since the Title I program's re-initiation in 1974 in seeing that the program contributes to Egypt's economic development. This interest has been demonstrated primarily by the rural and agricultural development focus incorporated into the self-help section of the annually negotiated agreement.

Finally, the program serves to advance the foreign policy objectives of the United States. Title I has been of particular importance in demonstrating the closeness of the U.S.-

Egyptian relationship at a time of great sensitivity in the Middle East peace process.

A. Trends in Egypt's PL 480 Title I Program

In many ways the Egyptian PL 480 Title I program is unique. It is particularly visible, given its size and the importance of Egypt to American foreign policy interests in the Middle East. The PL 480 program in Egypt represents a major share (about 30 percent) of the total U.S. Title I food aid program. In addition, the program in Egypt has a long history.

Egypt began receiving food aid in the form of wheat in 1955, a year after PL 480 was enacted. Egypt received significant wheat shipments under the program in 1956 and again in 1959, before and after the 1959 Suez Canal crisis. Since 1960, the United States has shipped over \$2.3 billion worth of wheat (18.9 million metric tons) to Egypt under all three titles of PL 480 (Table 1). Following a break in these flows during the two Egyptian-Israeli wars between 1967 and 1974, total PL 480 shipments increased to a level of about 1.5 million metric tons (Mmt) by 1976 and have continued at about that level to the present.

While Title II donations (totally grant) have played an important role, accounting for \$21 million in FY 1981, most PL 480 shipments to Egypt have been in the form of a Title I concessional sale of wheat and wheat flour. In addition, in the last several years, a modest Title III program worth \$15 million has been incorporated into the Title I allotment in Egypt. Thus, it is clear that Title I predominates in the PL 480 program.

B. Total Wheat Imports and Concessional Food Assistance

Over the last 5 years, Egypt has received 39 percent of its wheat imports from the United States, with PL 480 Title I accounting for between 59 percent (1981) and 95 percent (1979) of the U.S. share. Although Canada, Bulgaria, Greece, Romania, and Turkey have also supplied Egypt with wheat in varying amounts, the bulk of Egypt's remaining imports beyond those supplied by the United States originate from France and Australia. Taken together, these two countries and the United States have supplied more than 95 percent of total Egyptian imports over the last 5 years.

Table 1. Egypt PL 480, 1960-1981

Year	Title I (\$ mil.)	Title I (000mt) ¹	Title II (\$ mil.)	Title II (000mt) ¹	PL 480 Wheat Imports as % of Total Imports
1960	77.0	991.8			
1961	67.5	891.2			
1962	129.2	1,713.7			
1963	111.6	1,484.5			
1964	153.2	1,955.0			
1965	105.2	1,286.2			
1966	87.7	1,108.5			
1967	0.9	14.4			
1968	0	0	0	0	
1969	0	0	0	0	
1970	0	0	0	0	
1971	0	0	0	0	
1972	0	0	0	0	
1973	0	0	0.8	4.2	
1974	0	0	3.2	13.3	
1975	76.1	439.8	12.7	30.5	
1976	212.0	1,333.1	4.4	9.2	
1977	200.9	1,639.0	11.6	53.7	37.7
1978	177.8	1,313.8	12.5	49.9	25.6
1979	229.3	1,434.6	21.0	71.0	29.2
1980	285.4	1,486.7	16.1	42.1	27.4
1981	286.7	1,464.4	21.8	62.9	23.6
Total	2,200.5	18,556.7	104.1	336.8	

¹mt = metric ton

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Export Credits, various years.

While Egyptian imports of U.S. wheat have been substantial since 1976, the U.S. share of Egyptian imports declined steadily until last year (1981). This trend is primarily explained by a rather marked increase in imports from France, particularly of wheat flour. Whereas Egypt's total imports during the last 5 years increased by roughly 6 percent per year, French exports to Egypt increased by more than 40 percent per year from 1977 to 1980. In fact, France's share of the Egyptian wheat import market has exceeded that of the United States during 1980. However, a rather surprising reversal of this trend occurred in 1981 with a commercial import of roughly 1 Mmt of U.S. wheat.

Information currently available on the price and financial terms associated with French and Australian wheat sales indicates that these terms, for the most part, are considered to be commercial. France, under its Coface system, finances 80 percent of the transaction value for 2 years at an annual interest rate of 7.25 percent. Similarly, Australia also offers 2-year financing at slightly higher but still concessionary interest rates of 12 percent. In contrast, PL 480 Title I has been provided on more concessional terms.¹

Two countries are known to have long-term supply agreements with Egypt. A new 5-year agreement with Australia (January 1982) guarantees the purchase and supply of 1 Mmt of wheat with the option that the parties can negotiate additional purchases. A 3-year supply arrangement with Canada (1981-1983) requires Canada to supply Egypt with a minimum of 250,000 mt of white wheat each year.²

II. SELF-HELP PROVISIONS IN PL 480 TITLE I AGREEMENTS WITH EGYPT

A. Objectives of PL 480 Self-Help Provisions

PL 480, Section 109, requires that prior to any agreement on commodity mix or levels, consideration be given to the extent to which the recipient country is undertaking measures

¹Terms include 40-year repayment, 10-year grace, initial payment equaling 5 percent of the total purchase price, and 2 and 3 percent interest charges during the grace and repayment periods, respectively.

²Given more favorable prices for U.S. and Australian white wheat, Egypt imported only 216,000 mt from Canada during the first year of the agreement.

to increase agricultural production and to improve commodity storage and distribution. The agreement must describe the measures and, under a new section, say "in specific and measurable terms" what self-help measures the country undertakes and how the needy benefit. Although not required, additionality must also be sought.³

The self-help measures are an important link between the import of food aid and the agricultural and rural development efforts of the recipient governments. Because the Egypt program is A.I.D.'s largest development program (albeit funded through Economic Support Funds--ESF), as well as the largest PL 480 program, it is worthwhile examining the substance and the monitoring of these agreements in some detail.

B. Substance of Self-Help Measures Since 1976

In the agreements, self-help activities have focused principally on problems of Egyptian agricultural development; the only exception was an emphasis on population and family planning from 1977 through 1981 and on social services including health in 1977 and 1978.

Two conditions have applied consistently to all measures:

1. Proceeds accruing to the importing country from the sale of commodities financed under this agreement will be used for financing the self-help measures [emphasis added] set forth in the agreement and for the following economic development sectors: agriculture, nutrition, and rural development.

2. In using local sales proceeds for these purposes, emphasis will be placed on directly improving the levels of the poorest of the recipient country's people and their capacity to participate in the development of their country.

Self-help measures show both continuity and change over the 5-year period. A total of 15 separate activities have been written into the amendments over this period. The activities that have persisted throughout all or most of the period are (a) data collection and analysis on agricultural production and related variables, and (b) agricultural research that shifted from a technology-transfer focus in the early years (in the form of technical assistance) to an increased emphasis on capacity-building (via training of Egyptians) in later years of the program. The period 1976 through 1979 showed a strong

³PL 480, Section 109 d.

interest in (a) improving internal marketing, storage, and port facilities for foods, oils, and fruits and vegetables (1977); (b) strengthening family planning efforts by improving information, analyzing bottlenecks, and developing plans; (c) improving land and water management, with special emphasis on irrigation and drainage; and (d) strengthening social service delivery (1977 and 1978).

The period 1979 through 1981 showed a shift towards improvements in Egyptian macroeconomic policy for agriculture, with greater emphasis on analyses and studies of various aspects of economic issues in agriculture. These included the following: (a) policy review and studies of agricultural pricing with a view towards changing existing price structure; (b) review and analysis of agricultural sector investments, particularly with respect to land use; (c) comprehensive review of subsidization policies; and (d) establishment of an agricultural mechanization policy emphasizing equipment suitable for small farmers.

Since 1979, there has also been a growing emphasis on the role of the private sector, with a specific requirement for the establishment of private agricultural cooperatives.

Throughout the period there has been a trend toward increasing the specificity of the self-help agreements. Draft agreements prepared by A.I.D. indicate improved efforts to pin down specific dates for completion of plans and studies. While most of these dates did not survive to the final agreement, the record reflects a growing concern for timely implementation of the agreements.

It is also apparent that the agreements are used to reinforce GOE-USAID (United States Agency for International Development/Overseas Mission) project agreements in other fields of rural development. For example, the Ministry of Agriculture (MOA) has taken an increasingly active role in formulating suggestions for inclusion in the agreements. As the MOA's own policy positions matured, in part as a function of a growing body of literature and research results on Egyptian agriculture financed by the U.S. Government, the self-help agreements have come to represent opportunities for the MOA to build its own case for policy reform.

However, there remains a problem with the relationship between the agreements and the Ministry's ability to implement them. The "development" ministries in Egypt do not control the policy agenda and have only limited influence over revenue allocations not tied to specific projects. To the extent that the agreements involve actions within their control, ministries still may be limited in their ability to implement the agreements due to budgetary and personnel constraints. If self-help

agreements compete with projects, it is likely the latter will prevail. This is no doubt why project initiatives have been so closely related to self-help agreements in the past. Without close coordination and support from other, more powerful elements of the Government, it would be difficult for the MOA or Ministry of Irrigation (MOI) to assume these responsibilities. As is noted elsewhere, the possibility of coordinated action has improved recently through the joint signatures, by the Ministry of Agriculture and the Ministry of Supply and Economic Planning, on the minutes of the final memorandum of understanding between the U.S. and Egyptian Governments on PL 480.

III. THE EGYPTIAN CONTEXT

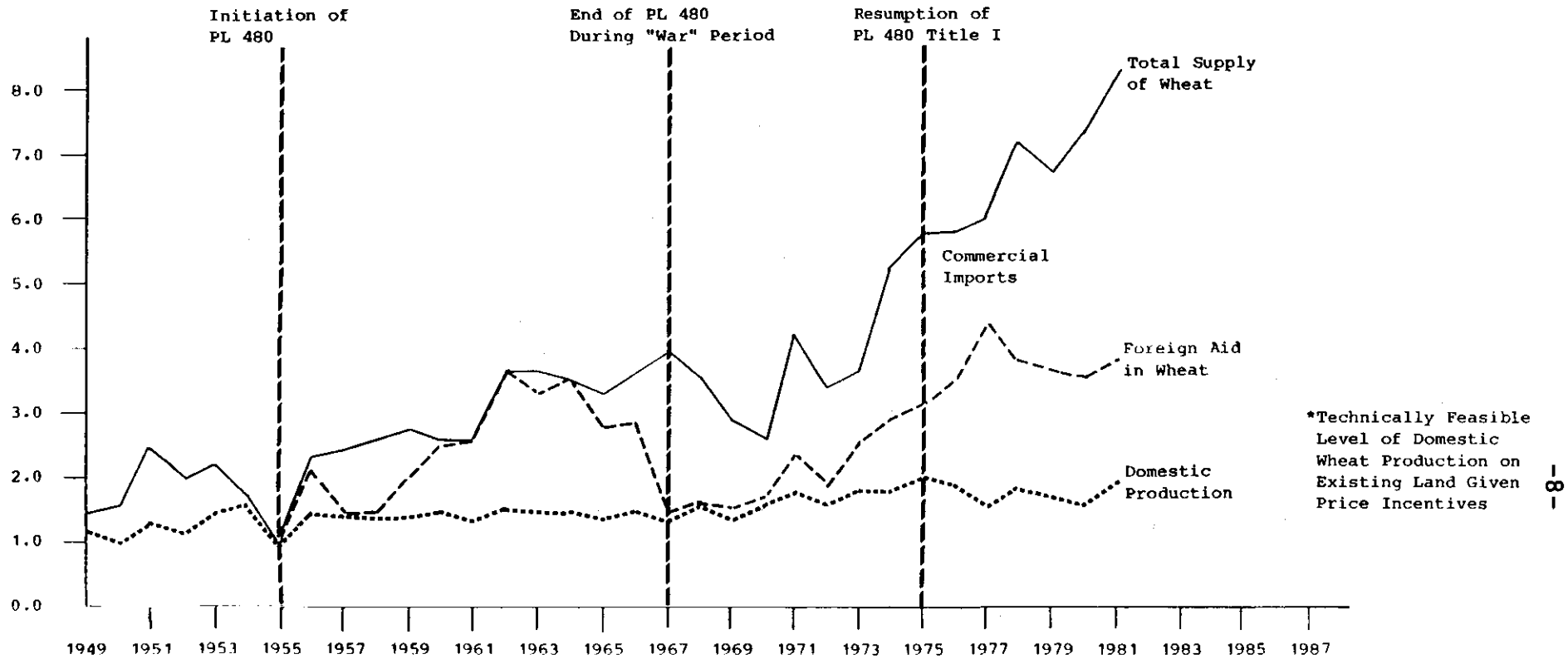
A. An Analysis of Egypt's Wheat Supply Since 1949

In order to understand the role of PL 480 Title I, it is useful to review trends in Egypt's supply of wheat from 1949 to 1981. Figure 1 provides a graphic presentation of the trends in Egypt's supply of wheat.

Until 1955, there was no foreign food aid assistance, and in this early period, there was an increasing trend in domestic production from around 1.1 Mmt to as high as 1.7 Mmt, with the average annual domestic production being about 1.5 Mmt, which is a 40 percent increase over 6 years. During this period, imports fluctuated substantially. For example, in 1951, imported wheat constituted nearly 50 percent of the available supply, whereas in 1954 and 1955, the country had a small exportable surplus. To reduce this heavy reliance on imports during 1951, the GOE in 1952 markedly increased the producer price of wheat relative to the world market price and, perhaps more important, relative to the other major food and cash crops, e.g., cotton, maize, and rice (see Figures 2 and 3). The farmers responded by increasing both yields (by about 25 percent in 3 years) and the area under wheat cultivation (by about 10 percent in the same period).

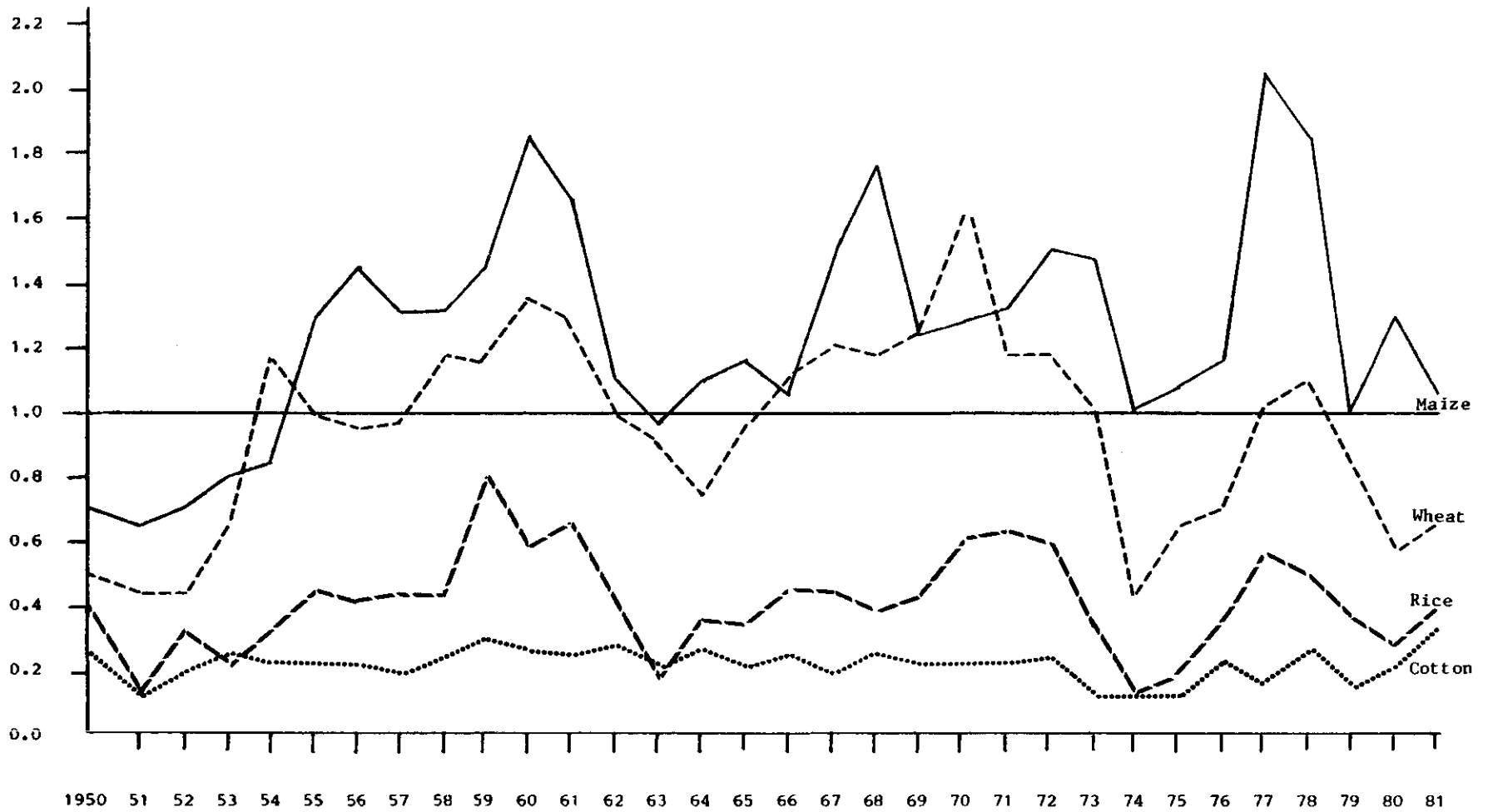
With the advent of food aid in 1955 and particularly in 1956, the GOE dropped the producer price of wheat relative to the world price and relative to the prices of maize, rice, and cotton. During the Suez crisis of 1957/1958, the GOE, to maintain consumption levels, imported large quantities of wheat amounting to approximately 40 percent of total supplies during each year. At the same time, to try to stimulate local production, the Government increased producer wheat prices relative to the world price and relative to the price of maize (not rice or cotton). Given the short time period and considerable international uncertainty, there was no discernible increase in domestic wheat yields or acreage (review Figures 1, 2, and 3).

Figure 1. Trends in Egypt's Wheat Supply Since 1949



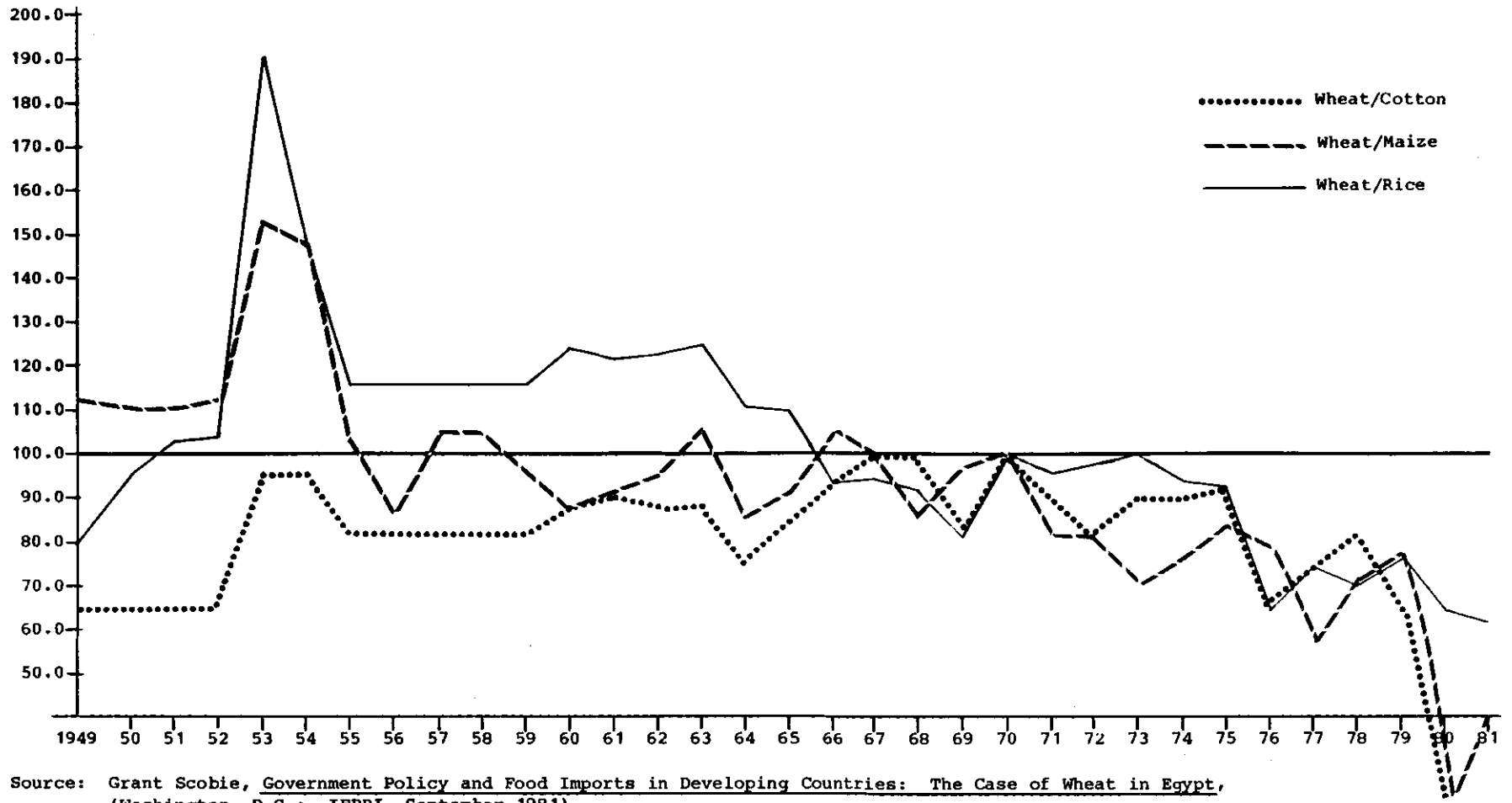
Source: Grant Scobie, Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt, (Washington, D.C.: IFPRI, September 1981).

Figure 2. Egypt: Nominal Protection Coefficients for Major Crops, 1950-1981



Source: Grant Scobie, Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt, (Washington, D.C.: IFPRI, September 1981).

Figure 3. Egypt: Producer Price of Wheat Relative to Other Crops, 1949-1981
(1970=100)



Source: Grant Scobie, Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt, (Washington, D.C.: IFPRI, September 1981).

In 1959, food aid was renewed. Food aid assistance increased to such an extent during the period from 1959 to 1966 that Egypt did not have to commercially import any wheat for 3 of the 8 years (see Figure 1). Only after 1964 was the GOE faced with the necessity of significantly increasing commercial wheat imports. As both the absolute level and the proportion of food aid grew after 1960, with PL 480 wheat shipments constituting more than 80 percent of all food aid during the period (see Figure 4), the domestic procurement price of wheat fell dramatically relative to the international price, and the farmgate price of wheat also declined in comparison to that of maize, rice, and cotton (see Figures 2 and 3).

After 1964, the price of wheat relative to cotton and maize began to increase again as the amount of commercially procured imported wheat began to rise. This change in relative prices became more marked after the 1967 War and continued until 1974 (refer to Figures 1 and 3).

During the 1967-1974 period, Egypt received very little food aid and the U.S. PL 480 Title I program was completely halted. The domestic procurement price for wheat, relative to both the international price and the price of competitive domestic crops, rose significantly in 1967 and remained high. Domestic wheat production gradually increased from the low level of less than 1.4 Mmt, to which it had gradually declined in 1967, to over 2.0 Mmt in 1975 (an increase of 43 percent). This increased output was achieved by yield increases of about 35 percent and acreage increases of between 8 and 10 percent.

Before the end of the period of hostilities in 1974 the domestic procurement price of wheat declined relative to the rapid increases in international wheat prices fueled by the first round of OPEC oil price rises in 1973. In addition, the level of U.S. PL 480 Title I wheat began to build rapidly in 1975, so that by 1977 total wheat food aid had reached a historically unprecedented level of over 2.5 Mmt, with the U.S. share being more than 85 percent. It is significant to note that this increased food aid occurred just after the food riots in January 1977. In addition, domestic wheat production was slumping again due to poor domestic price incentives, particularly in comparison to prices received for competing commodities, such as cotton, maize, and rice (see Figures 2 and 3).

After the food riots in 1977, the producer price of wheat was substantially raised compared to both the price of cotton and the international price of wheat. Both maize and rice producer prices were raised in the same year, with the effect that the relative price of wheat with respect to rice remained constant but fell with respect to maize. Domestic production of wheat has increased slightly since 1977, but has not yet attained the level reached in 1975.

Figure 4. U.S. Proportion of Egypt's Total Food Aid, 1960-1981



Source : Grant Scobie, Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt, (Washington, D.C.: IFPRI, September 1981); Joachim Von Braun, "Wirkungen von Nahrungsmittelleilfe in Empfängerländern--Vergleichende Untersuchung für Ägypten und Bangladesch," Quarterly Journal of International Agriculture, 19, 4, (1980) 338-365.

With rising export earnings from petroleum and tourism and increased remittances from Egyptian workers abroad, commercial wheat and flour imports have increased dramatically. Food aid in the form of wheat leveled off in 1979 at about 1.9 Mmt, with PL 480 wheat constituting about 80 percent. Incremental changes have occurred in prices, basically representing increasingly poor returns to domestic wheat production. Without the strong demand for a return to wheat straw, wheat production would have declined even more. Furthermore, unless the Government actively procures more wheat at the price it has established, the return to wheat production will be increasingly dependent on straw demand. During the last several years the Government has procured only 10 to 15 percent of the crop.

Applied agricultural research conducted in Egypt for over 20 years has recently resulted in the development and testing of a higher yielding wheat variety that, in conjunction with changes in farming practices with respect to tilling, watering, and fertilizer application, has increased yields on farmers' fields by about 65 percent. However, without a substantial increase in the domestic procurement price of wheat or a significant increase in the price of straw, it would not be economically rational for farmers to adopt the new seed and related practices given crop rotation practices and other factors constraining their behavior.

To summarize the findings of this section, the data show that when the GOE did not have food aid or when the Government was insecure, as in 1951, 1957, and again in 1977, the Government clearly implemented price policies to stimulate domestic wheat production. Given a 3- to 5-year production response period, domestic production clearly increased, as was the case in the early 1950s and between 1967 and 1975. The direct disincentive effect on domestic production of wheat resulting from wheat imports (including PL 480 Title I imports) in support of low domestic producer price policy is clear.

The disincentive effect of PL 480 wheat imports is somewhat less clear. On the one hand, all imports must share in the responsibility for the effect of those imports. On the other hand, GOE officials indicated that in the absence of PL 480, the GOE would continue wheat imports at current levels, despite the greater financial strain entailed. Unlike the situation in the 1950s or between 1967 and 1975, Egypt now has more diverse sources of foreign exchange--worker remittances, Suez Canal revenues, oil export earnings, and tourism--which could help pay to fill the PL 480 void. Also, added reliance might be placed on Egypt's newly rich oil-producing neighbors, or those who might take satisfaction in the damaged U.S.-Egyptian relationship and the derailed peace process that might result from a halt in PL 480.

B. The Political and Macroeconomic Reality Since 1974

Despite the financial and political costs involved, Egypt entered the Middle East peace process and continued to play a key role in the effort that culminated in 1978 in the Camp David Accord. The economy had recovered from a devastating low point in 1973, helped by the dramatic increases in oil revenues and in worker remittances. A close relationship developed between Egypt and the United States, reflecting the critical importance of each country to the other's international interests and objectives. However, a rift occurred between Egypt and its Arab neighbor states, which were newly rich with fast-accumulating oil revenues. The most recent political change was President Sadat's assassination (October 1981) and Hosni Mubarak's election as President.

Egypt entered the peace process in 1974 with an economy suffering serious financial difficulty. Short-term debt owed to some 300 banks was approaching \$1 billion. Continued high population growth (2.7 to 3 percent per year) in the face of finite arable land resources had led to increased food pressures, with local grain production meeting a relatively smaller portion of the country's total cereals requirements. Foreign exchange earnings have been insufficient to cover the growing food import needs and the country's large debt service. In 1975, Egypt suffered an overall balance of payments deficit of almost \$2 billion. Underemployment was a continuing problem and the Government has maintained a policy of being the employer of last resort, particularly for college graduates.

For at least 2 decades, the Government of Egypt has subsidized bread prices. Under Sadat, the Government continued to regard as one of its essential functions the provision of bread at low prices and in sufficient quantities to meet the needs of all Egyptians. The availability of bread as a virtual "free good" was equated with stability, and thus the Government implemented a policy of subsidizing consumer bread prices while importing large amounts of wheat flour via the Ministry of Supply to satisfy domestic demand at the subsidized price (see Section III below). As part of an effort to rationalize the agriculture sector, an attempt was made to increase the consumer price of flour and bread in January 1977. Rioting and bloodshed occurred, and the price rise was rescinded. The riots underscored to the Egyptian Government the need to proceed with great caution in any adjustment of bread prices.

The period 1974-1977 saw a revitalization of the Egyptian economy. The reopening of the Suez Canal produced revenues of \$167 million in 1977, compared with none in 1974. Oil exports (excluding foreign oil company exports) increased from \$187 million in 1974 to \$720 million in 1977. Likewise, worker

remittances jumped from \$189 million in 1974 to \$897 million in 1977. These gains were offset, however, by increased imports of machinery and transportation equipment; thus, the 1977 overall current account deficit of \$1.5 billion represented only a marginal improvement over 1974's \$1.6 billion deficit.

The economy had recovered significantly by 1977. However, the signing of the Camp David Accord in 1978 cut off further financial assistance to Egypt from the other Arab states. Nevertheless, the economy continued to improve through 1979, with workers' remittances jumping to more than \$2.2 billion, oil export earnings to almost \$2 billion (reflecting the sharp 1979 oil price increase), and Suez Canal revenues to almost \$600 million.

The current economic outlook shows a leveling off of virtually all current sources of foreign exchange. Oil exports will remain steady at best, given the current world oil glut and in the absence of new major discoveries. Suez Canal revenues also parallel world oil demand and are thus expected to show no growth. Workers' remittances probably will flatten as the neighboring Arab states reach their labor absorption capacity. Tourism, valued at about \$600 million in 1979, has actually been declining since 1977. Thus, Egypt will have to redouble efforts to earn or attract the resources needed for continued economic development. (These data are summarized in Table 5.)

C. An Analysis of Consumer Subsidies

Egypt's system for subsidizing consumption of both energy and food is well documented and has been the subject of debate since the mid-1970s. In 1979 these two subsidies were estimated to have cost the Egyptian economy approximately \$4 billion, roughly one-third directed toward food (\$1.4 billion) and the remainder to energy (\$2.6 billion) (see below and Table 2). In the short run, removing such subsidies would be equivalent to reducing real incomes in Egypt by more than 20 percent. For the most part, the food subsidy is concentrated on two commodities--wheat and wheat flour (58 percent) and maize (20 percent)--while the energy subsidy is directed toward consumers of gas oil (24.5 percent), kerosene (17.4 percent), fuel oil (13.6 percent), and gasoline (8 percent). At first glance, it would appear that the food subsidy has increased markedly since 1976 when it represented less than 20 percent of total public expenditures. However, the startling increase between 1978 and the two more recent periods can for the most part be explained by the devaluation of the Egyptian pound and not by a significant expansion in the volume of food subsidized. Nevertheless, the predominance of this subsidy relative to total expenditures cannot be ignored.

Table 2. Egyptian Government Expenditures on Consumer Subsidies, 1976-1981/1982

Category	1976	1977	1978	1979	1980/ 1981	1981/ 1982
Total Public Expenditures on Consumer Subsidies	1,670	1,628	2,012	2,375	2,912	3,999
Food Subsidies	322	313	450	880	1,108	1,473
Food Subsidies as a % of Total Consumer Subsidies	19.2	19.2	22.4	37.1	38.0	36.8

Sources: Alderman et al., 1981; Ministry of Finance.

Following the food riots of 1977, 2 years passed before the Egyptian Government began a serious reconsideration of food subsidies. In 1979, it established an interministerial committee that made several reform recommendations, some of which were adopted and concentrated on reducing the wheat subsidy. The details of these reforms are listed below.⁴

In February 1980, the Government implemented the following reforms: (a) ration books were reissued with slight reductions in eligibility, thereby removing 300,000 of a total of 7,804,614 families from the rolls; (b) the implicit price of bread was raised by changing the extraction rate from 87.5 to 93 percent on the half-piaster bread loaf; (c) a new loaf was introduced at 1 piaster (87.5 percent extraction) which was 25 percent larger; and (d) the flour price of 72 percent extraction quality flour to bakers was set at 12 piasters per kilo. In July 1980, other reforms were implemented. These included (a) the phasing out of coarse balady bread (93 percent extraction); (b) reducing the loaf size of higher quality breads (72 percent extraction); and increasing the bakers' margin on balady bread

⁴Source: Alderman et al., Egypt's Food Subsidy and Rationing System: A Description, August 15, 1981.

by lowering the price of flour (82 percent extraction) from LE 6.28 per bag to LE 5 per bag. Finally, late in 1980 the Government increased the price of sugar.

The public reacted in predicatable ways to these actions. Various adversely affected groups engaged in work stoppages and warning strikes. The Government, wary of any negative reactions, rescinded the announced sugar price increase, and has since been reluctant to pursue any further actions.

The reluctance of the Government to remove or reduce the wheat subsidy is not centered so much on the likely effects on consumption levels as on the perceived hardship of the necessary price adjustment and the resulting wage demands by labor and Government workers. Removing the wheat subsidy would be equivalent to reducing real incomes by 4 percent, average consumption by 2.2 kg per capita per year, and total consumption of wheat by 90,000 Mmt or 1.5 percent of 1981 imports. While it is true that the relative effect on the poor would be greater, it is doubtful that given current consumption levels, any significant nutritional deprivation would occur. As already mentioned, the problem centers mainly on the magnitude of the price adjustment (about 20 percent) that would be required to reach this lower level of consumption.⁵

D. Egypt's Food Requirements

It is widely accepted that Egypt cannot produce enough food to feed its people, given its land constraint. Although there is some room for improvement, Egyptian yields are commendable, when compared with those achieved in other countries. In fact, even if Egypt were to obtain the highest yields on record internationally for irrigated wheat, maize, and rice, it would still remain a net importer of cereals (Tables 3 and 4).

Egypt currently imports roughly 75 percent of its total consumption of wheat and wheat flour. Traditionally an exporter of rice, Egypt is faced with the prospect of becoming an importer unless domestic prices are increased or rice yields are improved in the near future. Moreover, to meet growing

⁵The wheat subsidy in 1979 was estimated at LE 580 million (\$805 million) which is equivalent to \$19.63 per capita (\$805 million/41 million) or 4 percent of average per capita incomes (\$19.63/\$460). Given per capita wheat consumption of 185 kg a year and assuming an income elasticity of demand of 0.3, this is equivalent to 2.2 kg per capita. The price elasticity used was .15 (Source: Alderman, et al., 1981).

Table 3. International Comparison of Yields
for Wheat, Rice, and Maize

Area	Wheat (mt 1 ha)	Maize (mt 1 ha)	Rice (mt 1 ha)
Egypt	3.4	3.7	5.3
United States	2.2	6.3	4.0
World Average	1.8	3.0	2.6
World Record ¹	4.7	6.8	6.1

¹France, Austria, and Japan, respectively.

Source: USDA, Agricultural Statistics, 1980 (Washington, D.C.: U.S. Government Printing Office, 1980).

Table 4. Forecast of Egyptian Import Requirements of
Wheat, Coarse Grains, and Rice, 1978/1980 and 1985

Crop	1978/1980	1985
<u>Wheat</u>		
Consumption	7,228	10,488
Production	1,862	1,627
Imports	5,366	8,861
(% of consumption)	(74)	(85)
<u>Coarse Grains</u>		
Consumption	4,617	5,675
Production	3,868	4,330
Imports	749	1,345
(% of consumption)	(16)	(24)
<u>Rice</u>		
Consumption	1,494	1,614
Production	1,618	1,598
Exports	124	(16)

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Agricultural Situation, Selected Issues.

demand for livestock and poultry products, imports of feed-grains, particularly maize, have increased dramatically in recent years, and now account for over half of total consumption. Concurrent with this growth in imports of feedgrains has been a rather significant increase in imports of red meat and frozen poultry.

Two underlying and often cited reasons for Egypt's rapid increase in food consumption are growth in population (2.7 percent per year) and income (8.2 percent per year). However, just as important has been the Egyptian Government's efforts to spread income growth equitably across the population through a rather elaborate system of controlled prices. These Government subsidies on wheat consumption levels have an important effect. According to best estimates, per capita wheat consumption in Egypt has grown more than 6.4 percent per year since 1975. While population and income growth explains some of this consumption increase, a residual amount of growth (2.3 percent) can be attributed only to a steady decline totaling approximately 14 percent in the real price of wheat as a result of the subsidy system (assuming a price elasticity of demand of .15).

E. Food Import Financing Capacity

While a brief review of Egypt's balance of payments situation was incorporated in Section III.B above, it is useful to pursue this analysis a bit further, to ascertain Egypt's ability to finance an increasing food import bill. Because Egypt cannot expect to meet domestic food needs through local production, its ability to finance the required imports from its external accounts should be examined (see Table 5). This capacity is in turn dependent on several factors: (a) current foreign exchange reserves; (b) the level of Egypt's nonfood imports; (c) anticipated merchandise export earnings from cotton and its byproducts and from petroleum; (d) expected service revenues from worker remittances, Suez Canal dues, and tourism; (e) private and public capital inflows; and (f) debt service payments coming due on earlier borrowings.

Egypt's foreign exchange reserve position has improved steadily for the last several years despite a recurrent deficit on its merchandise trade account. In part, this growth in reserves has been due to receipts from Egypt's services accounts, specifically receipts from the Suez Canal, worker's remittances, and tourism. However, another important factor has been the continual inflows of both public and private capital. (In other words, Egypt has been able to borrow to finance its trade deficit.) In fact, since 1976 when Egypt's debt service totaled \$665 million, payments have increased by roughly 30

Table 5. Egypt's External Account Balance, 1977-1980/1981
(\$U.S. million)

Item	1977	1978	1979	1979/ 1980	1980/ 1981
<u>Trade Balance</u>	<u>-2,710</u>	<u>-3,492</u>	<u>-4,395</u>	<u>-3,843</u>	<u>4,240</u>
Exports, fob	1,995	1,984	2,513	3,383	4,330
Petroleum	413	688	1,348	2,140	2,740
Cotton	--	--	--	700	890
Imports, cif	-4,715	-5,476	-6,908	-7,230	-8,870
Food	-1,178	-1,342	-1,348	--	--
Other	-3,537	-4,134	-5,160	--	--
<u>Service Balance</u>	<u>1,460</u>	<u>2,219</u>	<u>2,789</u>	<u>3,090</u>	<u>3,035</u>
Receipts	2,550	3,446	4,081	4,940	5,415
Suez	428	514	589	660	780
Workers	897	1,762	2,214	3,000	3,000
Tourism	728	702	601	920	1,135
Other	497	468	677	--	--
Payments	-1,090	-1,227	-1,292	-1,850	-2,380
<u>Current Account¹</u>					
<u>Balance</u>	<u>-1,200</u>	<u>-1,221</u>	<u>-1,551</u>	<u>-820</u>	<u>-1,240</u>
<u>Net Transfers¹</u>	1,802.7	1,257.1	1,252.1	1,246.3	--
Public	1,682.0	1,233.1	914.7	1,035.9	--
Multilateral (%)	(80.4)	(53.1)	(29.8)	(16.4)	
Bilateral (%)	(19.6)	(46.9)	(70.2)	(83.6)	
Private	120.6	24.0	337.4	210.4	--
<u>Debt Service¹</u>	1,098.5	1,211.3	1,040.8	1,735.4	1,946.1
Public (%)	(44.3)	(40.3)	(31.5)	(42.5)	(51.6)
Private (%)	(55.7)	(59.7)	(68.5)	(57.5)	(48.4)

¹Information taken from International Bank for Reconstruction and Development, World Debt Tables.

Sources: 1977-1979, International Monetary Fund, Arab Republic of Egypt--Recent Economic Developments, January 23, 1981; 1977/1980-1980/1981, U.S. Embassy, Economic Section, Egypt Economic Trend Report (Cairo: February 1982).

percent per year. Current estimates for 1981 indicate payments of more than \$1.9 billion, of which roughly half is due to private creditors. At issue is whether or not this pattern can continue.

In examining Egypt's merchandise imports, four elements stand out: (1) the rate at which these imports have increased over the last 5 years, and more important, during the last year; (2) the share (25 percent) devoted to food imports; (3) wheat and wheat flour's share of this total, which is roughly a third; and (4) the extent to which the food import share of total imports has remained relatively constant. Thus, although food imports comprise a significant portion of Egypt's total merchandise imports, this proportion has not been increasing relative to other imports.

F. Food and Agricultural Policy

1. Objectives

Egyptian food and agricultural policy has two sets of objectives, those pertaining to (a) consumer requirements and (b) producer incentives and response. In an administered economy such as Egypt's, normal market forces do not operate in the food market. Rather, since 1964, the Government of Egypt has attempted to provide subsidized basic foodstuffs to the masses.

Although the Government also seeks to improve domestic agricultural production, its traditional mechanism has not been price incentives, but administrative mechanisms and regulatory policy. In effect, the Government establishes prices, provides subsidies, and regulates amounts produced and supplied based on considerations of equity and political stability. Food security is the goal. When production falls short of what the Government determines is necessary to meet requirements, the Government historically has turned to imports to meet these requirements. If imports are not available or the Government lacks foreign exchange or access to concessionary food, producer prices are changed. Thus, from the consumption perspective, the GOE's primary concern is to keep bread and other basics plentiful and cheap.

On the production side, Government has tended to order its priorities around crops that produce foreign exchange--traditionally cotton and rice, and more recently citrus and vegetables as well. Production increases in cereal grains, for example, have not received a very high priority in the past except in periods of emergency, as was delineated above (see Section III.A). Thus, through a combination of regulated

prices and water supply, mandatory crop rotations, and Government procurement systems that favor some crops over others, the Government has attempted to control production to meet national objectives.

To summarize, the GOE's objectives with respect to food and agriculture are (a) to keep basic food (bread) cheap and plentiful; (b) to earn foreign exchange through cash crop exports (cotton); and (c) to keep production costs and prices low.

2. Decision-Making Structure

The instruments for attaining these objectives are the various ministries that manage and implement the command economy. The Ministry of Supply, especially its General Authority for Supply Commodities, is responsible for keeping food cheap and plentiful. This Ministry, charged with the important political task of keeping commodities flowing to the public, has an enormous and complex job, along with a commensurate status in the decision-making process.

Because food and agriculture play an important part in the overall economy, and because 70 percent of industrial production is in public hands, the Ministry of Economy has a major role in setting relative prices. Basic food and energy prices to urban industry and workers are kept low; bread, in fact, may be seen as an almost free good. Raising consumer prices for these items would put pressure on salaries in the urban industrial and service sectors. Raising producer procurement prices without removing subsidies would also put pressure on the budget and on resources available for further industrial investment. These price relationships are of obvious importance in the overall management of the economy and, therefore, so is the Ministry of Economy.

The Ministry of Agriculture is responsible for research, extension, agricultural statistics, and production. In a command economy, the MOA is one of the management units used to improve farming technology. In one respect, the MOA has a much more active role in Egyptian agriculture than its U.S. counterpart. However, in the past, the regulatory management role has been more important than the information generation and dissemination role familiar to U.S. observers. Most analysts conclude that although Egypt has a number of well-qualified agricultural scientists, support research seriously atrophied in the late 1960s and early 1970s. Similarly, analysts often comment that it is difficult for Egypt's extension service to perform both regulatory and crop management functions while also extending new information to farmers.

Given the basic objectives outlined above, it is not surprising that MOA is the least powerful actor in the process. So long as the overall strategy is to keep basic consumer prices low through subsidies, while new investment is concentrated in industrial and urban infrastructure, agriculture is unlikely to be the recipient of major new sources of investment other than that supplied through donor assistance.

3. Agricultural Policy Issues

Under President Mubarak, Dr. Yussaf Wally, the Minister for Agriculture in Egypt, has focused attention on the following issues:

1. Comparative Advantage. What should be the role of Egyptian agriculture? What crops should be grown for export and what crops for domestic consumption?
2. Land. The issues center on the quantity and quality of Egypt's limited "old" land, and the acceleration of investment for developing "new" land (reclaimed from the desert). With respect to old land, major projects are underway to improve drainage, but the quantity of good agricultural land going to urban development is alarming. Land values are high and increasing, more as a function of urban pressure than rising productivity of agriculture.
3. Production. Egyptian yields compare favorably with those of other countries, but there is considerable potential for improvement. The Minister believes that technology is immediately available for improved yields, but production incentives are not consistent with these possibilities. In the unregulated sectors of the agricultural economy, i.e., meat and vegetables, farmer production response has been positive.
4. Labor. Whether labor is short or plentiful, the general perception is that Egyptian agriculture must mechanize if increased production and comparative advantage are to be realized. Mechanization on an appropriate scale for Egyptian conditions, it is argued, would reduce constraints on the intensity of land use for food crops, much of which now goes for fodder to feed draft animals, and vastly improve harvesting time, now hampered by seasonal labor constraints.
5. Inputs. Although Egyptian consumption of improved inputs is increasing, most observers agree that

consumption of improved seeds, fertilizer, machinery, and other inputs is still relatively weak. With the possible exception of irrigation drainage, agricultural investment could increase significantly and would result in higher yields and greater production if investment incentives were made available.

Much of the MOA's position may be summed up by the following argument. Egyptian agriculture has been heavily taxed to finance a strategy of industrialization. Although agriculture procurement prices have risen, they are still well below world market prices. Where prices have been allowed to rise, there has been a supply response.

On the basis of demonstration plots organized by joint GOE-A.I.D. projects, the MOA is convinced that technology is available which can immediately expand output if the GOE were willing to consider a more positive policy toward agriculture investments and procurement prices. It is argued that a true food security policy would reduce dependence on foreign imports, although most people recognize that Egypt will never become self-sufficient. Improvements in MOA research, extension, and other aspects of Egypt's agriculture will permit Egypt to marginally increase current levels of production, but there will be no "take off" unless there is a significant shift in current Government price procurement policies.

IV. IMPACT OF THE PL 480 TITLE I PROGRAM ON EGYPT

A. The Egyptian Political Perception

Since U.S. food aid to Egypt under Title I of PL 480 began in 1954, the program has been viewed in Egypt as a symbol of U.S. support. The Government of Egypt derives several benefits from this program that are considered crucial to the Government's performance. These benefits include (a) the Government's continued ability to provide bread to the masses, (b) foreign exchange savings, (c) supply assurance in times of world wheat scarcity, and (d) budgetary support provided by the sale of the PL 480 wheat and wheat flour on the local market. The Egyptian view of PL 480 as a bellwether of U.S.-Egyptian relations is supported by the local recollection of changes in PL 480 levels paralleling shifts in the bilateral relationship. This was, of course, most obvious when Title I to Egypt ceased in 1967.

Under President Sadat, bread was viewed by the people and Government as a fundamental right and responsibility, respectively. Thus, the export of Title I wheat and wheat flour to

Egypt was accorded special significance, since it implied U.S. concern to fulfill a basic Egyptian responsibility.

The importance of U.S. Title I wheat shipments to Egypt was underscored by the difficulties Egypt experienced in obtaining wheat in 1973-1974, a period when serious financial difficulties coincided with a worldwide wheat scarcity and high prices (wheat was quoted at up to \$250 per ton compared with \$80-\$100 per ton the previous year). According to Egyptian Government officials charged with procuring 1 million tons of imported wheat at that time, the USSR rejected an Egyptian request, Canada did not have sufficient wheat, American suppliers were unable to reach agreement on price or terms, and Australia eventually supplied the wheat on 18-month, 18-percent credit terms. Since they had difficulty in procuring the needed wheat, Egyptian officials considered it particularly important not only to obtain assurances of wheat supply via Title I, but also to obtain it on concessional terms. Further, unlike other bilateral and multilateral assistance programs, PL 480 benefits are realized during the year in which an agreement is signed. This is because all U.S. outlays occur in the same year that funds are authorized. The result, as Egyptian leaders view it, is a program marked by the absence of a "pipeline" or any blockages therein. In light of PL 480's historical importance in Egypt and the fact that the program was abruptly terminated in 1967, it is not surprising that the Government of Egypt has viewed Title I as a critical element in the development of U.S.-Egyptian relations.

B. Effect on the Agricultural Sector

PL 480 Title I has affected the agricultural sector in at least two ways. The program has supported GOE policies regarding producer prices and consumer subsidies which have had a direct negative impact on domestic wheat production in Egypt. In Section III.A above, an historical analysis of the changing availability of food aid (mainly PL 480 Title I) is shown to be a major factor in the Government of Egypt's determination of domestic wheat-procurement price policy and thus, in the longer run, domestic production. During the two periods when food aid was plentiful, i.e., 1955-1966 and 1975-present, the wheat procurement price generally did not support wheat production. Not only was it generally set below the international price, but the price was also allowed to fall relative to the prices of other crops of interest to the Government. As a consequence, the domestic production of wheat during both periods of substantial food aid remained stable or declined slightly.

In contrast to the two periods of substantial food aid, there were two periods when U.S. food assistance was nonexistent or negligible, i.e., prior to 1955 and during 1967-1974.

During those two periods, domestic wheat procurement prices often were close to or above international prices, the relative price of wheat in relation to other primary agricultural commodities was high, and domestic wheat output gradually increased after a 2- to 3-year lag because of increased yields and, to a lesser extent, increased land under wheat cultivation.

It is important to note that during both periods when food aid was plentiful, events prompted the Government to raise domestic wheat procurement prices in an effort to seek short-run domestic supply responses. In the earlier period, the stimulus was the 1957 Suez Canal crisis, and in the later period, the food riots of 1977 prompted the action. In both cases, the domestic supply response was negligible, which indicates that price changes have only a longer run effect on decisions taken by farmers, particularly given crop rotation requirements.

Besides directly affecting domestic wheat production as outlined above, the PL 480 Title I program has contributed to other changes in agriculture. These other changes are primarily caused by interconnections existing in the Egyptian farming system. Cropping patterns are determined in part by the Government via cotton production targets. Farmers also make a considerable number of decisions about how to allocate their labor time to crops and other activities, and the extent to which fertilizers and water will be applied according to extension specifications. Furthermore, the timing of crop planting, tending, and harvesting is a decision made by farmers, who consider the relative return of each decision.

In the first instance, a significant research program was initiated through PL 480 resources to develop a set of new technology packages for wheat, rice, maize, and other grains. Work with wheat has progressed to the point where a new package, including new seed and the appropriate application of fertilizer, water, and mechanization, can increase small farmers' yields by more than 50 percent. Agricultural technicians are convinced that similar productivity increases are feasible within 1 to 2 years with other crops as well. However, farmers have little if any incentive to produce such commodities, given the existing agricultural extension system and other weaknesses in the capability of the GOE to implement rapid changes in the present agricultural price policy (particularly with respect to wheat and rice), which has kept domestic prices well below international prices (see Figure 2).

If one analyzes the crop options available to the typical small farmer, the importance of price policy becomes immediately obvious if technology acceptance and production choices are to be altered. (See Appendix G for a more in-depth statement.) Table 6 presents the salient features of these options.

Table 6. Egyptian Farm Management Options, 1979

Principal Crop	Crop Season (E)	Gross Margin ¹	Gross Margin per Personday (E/fed./day)
Wheat			
No Straw (farmgate prices)	Winter	-23	-0.9
With Straw	Winter	67	2.5
International Prices (with straw)	Winter	155	5.7
New Technology (50% yield increase in farmgate prices, with straw)	Winter	81	3.0
New Technology and International Prices (with straw)	Winter	280	10.4
Long Berseem	Winter	282	14.8
Short Berseem	Winter	126	7.4
Cotton (farmgate prices)	Summer	83	0.8
Rice (farmgate prices)	Summer	19	0.4
Maize (farmgate prices)	Summer	-7	-0.2

¹Gross margin = revenue minus cost of production.

Source: Cuddihy, World Bank, 1980, and Appendix G, Table G-1.

Given farmers' constraints on land and labor, and given a farmer's option of determining every 2 or 3 years which crop rotation to choose (which defines the area planted in cotton), farmers prefer to plant the crops that bring them the largest returns. During the winter, the farmer has a choice between growing berseem (clover) or wheat (excluding many vegetable options of local importance). Further, farmers can choose how long to wait to plant and harvest the winter crops, depending

on the relative returns of summer crops and the time required to obtain these returns (growing seasons for each crop are of variable lengths). Farmers also have the option of determining how much of their or other household members' time to allocate to each activity pertinent to each crop planted. The time intensity applied to key agricultural activities has a major impact on yields, and is the principal source of a short-run output response.

Thus, given the options presented in Table 6, it is not surprising to find that increasingly little wheat is being produced in areas of Egypt where berseem is a viable alternative (especially when it is possible to purchase wheat and wheat products in every small town and village throughout the country). Given farmgate prices prevailing during the 1979-1982 period, without the additional return obtained from wheat straw (a return greater than that obtained from the wheat itself), the farmers were losing money by growing wheat. Even with the additional return from straw, the berseem returns were substantially higher. Only if the domestic price of wheat were raised significantly, e.g., to that approximating the international price (an increase of about 2.5-fold), could gross margins and returns to labor begin to be competitive with either short or long berseem.

Of equal importance, the data presented in Table 7 show that without a substantial price increase, the increased output which is possible using a new technology package will not lead to significant improvements in the returns to farmers, because production costs also increase and the return to berseem is still greater. Therefore, even if wheat output could be increased by the adoption of the new technology, the high berseem returns would still dominate farmer decision-making behavior.

To summarize, the PL 480 Title I program in wheat has contributed to price policies that have supported significant winter-crop choice distortions (farmers plant berseem rather than wheat) and have led to the anomalous situation in which, although new technologies are now possible through PL 480 Title I funding, the price incentives necessary to spread the new innovation are lacking.

C. Government Budget Impact

Section 106(b)(1) of PL 480 Title I stipulates that Title I agreements must include provisions to assure that proceeds from the sale of commodities be used for the economic development purposes agreed upon in the sales agreement. Although host countries are allowed to use the local currencies generated by the sale of wheat to carry out self-help agreements,

Table 7. Trends in PL 480 Locally Generated Revenues in Egypt in Comparison With Total Government Expenditures and Total Expenditures of the Ministries of Agriculture and Irrigation, Including Related Public Service Institutions and Economic Authorities, 1975-1981.

Year	PL 480 Revenues (£E mill)	Total Central Govt. Expenditure (Recurrent and Capital) (£E mill)	Total Combined Expenditure MOI and MOA, (Recurrent and Capital) (£E mill)	PL 480 Revenue as Percentage of Total Central Govt. Expenditure (1)÷(2)	PL 480 Revenue as Percentage of Total MOI and MOA Expenditure (1)÷(3)
	(1)	(2)	(3)	(4)	(5)
1975	29.8	1,800	267.3	1.7	11.1
1976	82.9	1,510	192.8	5.5	43.0
1977	78.6	2,100	205.7	3.7	38.2
1978	69.5	3,050	313.6	2.3	22.2
1979	160.5	4,650	418.9	3.5	38.3
1980	199.8	7,620E	450.1	2.6	44.4
1981	235.1	10,020E	611.6	2.4	38.4

Source: GOE Budgets, Annual Estimates.

there is no provision for placing the currencies in a special account. This is left to the discretion of the mission.⁶

In Egypt, the revenues generated by the sale of PL 480 commodities prior to the 1967 cutoff in assistance were used to directly finance development activities. The first self-help report after the renewal of PL 480 in 1975 makes specific reference to "32 PL 480 Research Projects" funded in that earlier period at a cost of £E 1.8 million. It also noted that PL 480 contributed £E 1.55 million to the investment budget of the MOA in 1975 and 1976. Subsequent self-help reports do not provide similar information on the specific use of recycled currencies, so it is unclear how such revenues are used. It is only known that they go to the Egyptian treasury and are allocated, as are all other revenues, through the annual budget process. Since the current PL 480 program represents a dollar loan (repayment is in dollars) at a highly concessionary rate, the Egyptian view is that the local revenues generated by PL 480 sales are Egypt's to be allocated as it sees fit.

In the absence of a special account for PL 480 proceeds in Egypt, this study has investigated two questions. First, what is the value, in Egyptian pounds, of recycled proceeds each year since the program was reinstated in 1975? Second, what changes have occurred in the investment and recurrent budgets of the Ministry of Agriculture, Ministry of Irrigation, and Ministry of Health (responsible for family planning), including changes in the percentage share of the budget for those ministries most affected by self-help agreements? Although funds are fungible, our hypothesis is that the budgets for relevant Government ministries should reflect the self-help efforts indicated by the PL 480 agreement.⁷

Since 1975, the PL 480 program has provided the central Government with significant local revenues from the sale of the commodities. The trends in these revenues are presented in Table 7 in comparison with total central Government expenditure trends and expenditures by the two principal ministries through which PL 480 self-help activities have been programmed.

⁶See Agency for International Development, Bureau for Program and Policy Coordination, "Food for Peace Program," undated paper.

⁷The team considers this analysis tentative because the Egyptian budget is complicated and not amenable to comparable analysis over time. A more comprehensive analysis is necessary to obtain a complete understanding of the allocation pattern. (See Appendix I, Figures I-1 to I-4 for more detail on the Egyptian Government budget.)

The data presented in Table 7 show several important trends. First, revenues from the PL 480 program increased nearly eightfold from 1975 to 1981. Even the rapid increase in Government expenditures (over fivefold in the same period) has not been as high.

More significantly, PL 480 local revenues have represented nearly 40 percent of total agricultural and irrigation expenditures from all governmental institutions since 1976. Because these two sectors constitute the principal focus of activity in the self-help agreements, this increased expenditure pattern, which mirrors the growth in PL 480 revenues, is significant. However, it is important to note that the proportion of total Government expenditures in agriculture and irrigation has steadily declined since 1975 from around 15 percent to 6 percent in 1981 (see Appendix I, Figures I-2 and I-3 for details).

Several of the PL 480 self-help agreements focused on increasing health and family-planning activities. An analysis of the recurrent and capital budgets of the central Government from 1975 to 1981 shows that while total recurrent and capital expenditure on health and family-planning services has increased, the proportion of total Government expenditures that it represents has declined. Since 1977, both recurrent and capital expenditures have fluctuated at around 2 percent of the total, with recurrent expenditures showing a steady decline to less than 1.5 percent in 1981. (See Appendix I for tables and figures that provide the detailed information underlying these comments.)

In conclusion, the basic hypothesis that local revenues generated by the sale of PL 480 wheat would be reflected in the budgets of ministries charged with implementing self-help activities cannot be confirmed. Based on the available evidence, allocations to agriculture, irrigation, and health over this period show a substantial decline in the percentage share of the recurrent budget and a sharp decline from 1974 through 1977, followed by a slight increase in capital expenditures in 1981. The effects of PL 480 revenues are difficult to disentangle from the effects of A.I.D.-funded projects. Since most of the projects contain provisions for dollar purchases of local currency, as well as of direct foreign exchange, it is likely that a good deal of the MOA/MOI budget is linked closely to donor projects.

D. Equity of Wheat Distribution in Egypt

Egypt has embarked on an ambitious program of subsidizing food to the consumer. Many of the staple items in the Egyptian diet are subsidized. Wheat and related products such as balady

and shami bread are the most heavily subsidized. The food subsidy program has grown dramatically, particularly since 1974, to constitute approximately 30 percent of central Government expenditures and between 5 and 8 percent of GDP. Thus, a central thrust of Egypt's food policy has been to widely distribute staple food commodities, particularly wheat and bread, at low prices to the consumer.

Given that the GOE subsidizes the consumption of wheat via its food subsidy system, to what extent is wheat consumption equitably distributed? This question can be addressed in several ways. First, a Lorenz curve analysis of the 1980-1981 governorate-specific distribution of wheat by the General Authority for Supply Commodities (GASC) of the Ministry of Supply shows a highly equitable distribution pattern. (See Figure I-5 in Appendix I.) While the distribution is not totally equitable, it shows that the most disadvantaged 40 percent of the population receives 30 percent of the wheat, which is equivalent to 1,350 calories per capita per day from wheat--a level considerably above the World Food Programme's standard for food security. Further, the most advantaged 10 percent of the population receives only 15 percent of the wheat. Such a distribution is very equitable in comparison to most similar analyses of income distribution; the lowest 40 percent of the populace typically receives less than 10-12 percent of the income, and the top 10 percent often receives more than 40 percent of the income. Finally, the data underlying the Lorenz curve analysis suggest that the Upper Egyptian (South) governorates and Alexandria generally have larger-than-proportionate per capita shares of wheat, with Cairo and Giza right at the mean per capita levels.

There is evidence from 1979-1980, however, that shows that there are considerable differences in wheat distribution among various groups in the population. For that period, the data show urban dwellers generally consuming more than rural dwellers on a per capita basis. Second, in both rural and urban areas, the lowest expenditure group is consuming more wheat than the more affluent. Bread is primarily consumed in urban areas, whereas wheat flour predominates among the poor in the rural areas. (See Table I-4 in Appendix I for the details of this analysis.)

The above analysis tends to support the proposition that the Government monitors local production before distributing the imported wheat and wheat flour. A statistical analysis conducted by Von Braun (1982) further confirms that finding. In addition, his analysis provides supporting evidence that other factors may be considered in the regional distribution of wheat. These other factors include the percentage of the population residing in urban areas (positive association), the average wage rate (negative association), and the proportion of

the work force employed by the Government (positive association).

In summary, the Government wheat distribution system via the MOS works to provide all parts of the country with a wheat supply that is now significantly above the World Food Programme's minimum food security standard. To have developed such a system represents an important contribution to the attainment of equitable development.

E. Effect on Dietary Patterns and Health and Nutrition Status

1. Dietary Patterns

Some authors have postulated that PL 480 has an adverse effect on dietary patterns by substituting imported for local food and by changing consumption patterns toward the commodity being subsidized. In Egypt, wheat and related products are subsidized, in part through PL 480 Title I. In this section, evidence for shifts in dietary patterns are reviewed. In the next section, the adversity of this shift is analyzed in terms of effects on health and nutritional status.

Between 1970 and 1979, cereal prices in Egypt--heavily dominated by wheat and wheat products--fell by 20 to 50 percent relative to all foods and all consumer items in both rural and urban areas (see Appendix I, Table I-5 for details). Assuming that cereals are normal goods, and that Egyptian consumers respond to price shifts as described, the consumers probably will consume more of the relatively cheaper food, i.e., wheat and related items.

Limited inferential data support such a consumption shift. The data presented in Table 8 show that an increasing proportion of calories in rural and urban Egyptian diets is consumed in the form of wheat and related items, particularly after 1965 when the relative price changes began to manifest themselves. It would be useful to conduct a similar analysis after the completion of the 1981-1982 household consumption survey, particularly given the increasing drop in the relative price of wheat in recent years.

2. Health and Nutrition Status

While it is difficult in Egypt to determine empirically an unambiguous relationship between the PL 480 Title I program and

Table 8. Trends in Food Composition of Egyptian Diet, 1958/1959 to 1974/1975

Year	Rural			Urban		
	1958/ 1959	1964/ 1965	1974/ 1975	1958/ 1959	1964/ 1965	1974/ 1975
Total Calories per Capita per Day From Wheat, Wheat Flour, Bread, and Noodles	846	985	1,109	1,188	1,075	1,375
Total Calories per Capita per Day, All Items	2,729	2,898	2,590	2,252	2,227	2,433
Percentage of Calories From Wheat Items	31.0	34.0	42.8	52.8	48.3	56.5

Source: Table 4.5, page 125 in Alderman, and Department of Health, Education, and Welfare/Food and Agriculture Organization, Food Composition Table for Use in Africa, (Bethesda, Md.: DHEW, National Center for Chronic Disease Control, 1963)

human welfare, as measured by improvements in health and nutrition status and corresponding changes in demographic variables, a number of useful points can be made.

First, a national nutrition survey was conducted in 1978. A summary of the findings is presented in Table 9. These data show that 1 to 5 percent of preschool children are severely malnourished, depending on the measure of nutritional status used, and that moderate malnutrition also exists. The weight-for-height measure also shows that more than 3 percent of the children are overweight (20+ percent). When comparing nutritional status across geographical regions, the data show a 50-percent range of variance above and below the average figures presented above. The most favorable nutrition status was found in Alexandria, small cities, and large villages. The most unfavorable measures were located in rural areas, especially in the south.

Table 9. Nutritional Status of Egyptian Preschool Children, 1978 (Percentages)

Measure	Nutritional Status			
	Undernourished		Normal	Overweight
	Severe	Moderate		
Weight for Height	0.6	1.7	94.7	3.1
Height for Age	4.5	16.7	78.9	NA
Weight for Age	0.8	8.0	91.2	NA

Source: MOH, Arab Republic of Egypt, Nutrition Status Survey, 1978, pp. 24, 27, and 30.

Since 1978, wheat consumption has increased from about 157 kg per capita per year to nearly 200 kg per capita per year, an increase of nearly 24 percent. The distribution system developed for imported wheat has been improved to the point that it permeates even the most remote areas of the country, including the rural south. The Lorenz curve analysis (Appendix I, Figure I-5) conducted on 1980-1981 data pointed out that the lowest per capita distribution to a governorate is about 65 percent of the average per capita level, e.g., about 130 kg per capita per

year, or nearly 1,200 calories per capita per day. Further, the governorates which were identified as having the poorest nutritional status levels in 1978, i.e., the governorates in the rural south, were receiving the largest wheat distributions in 1980-1981 of about 240 kg per person per year, or nearly 2,200 calories per capita per day.

Finally, real per capita income growth in Egypt--approximately 25 percent--has occurred over the last 3 years. Given an income elasticity of demand for food of about 0.3 (Von Braun, 1980), total food consumption probably has increased by an additional 8 to 10 percent or about 200 calories per capita per day to nearly 2,800 calories per capita per day in rural areas and 2,700 in urban areas. Since parasitic diseases in the population generally have not increased in recent years (according to Dr. Al Buck, Tropical Disease Expert, A.I.D.), it is reasonable to conclude that the nutritional status has improved, perhaps with an increasing proportion of the population being overweight.

Perhaps of greater interest to Egypt, given the change in diet toward a greater ingestion of wheat carbohydrates in a highly refined form and the increased per capita caloric intakes, is the increasing incidence of diabetes (and possibly other chronic diseases as well). According to Dr. Buck, the MOH is quite concerned and wants to initiate a diabetes screening program for children prior to their entering school.

Only inferential information is available with respect to changes in aggregate health status indicators in relation to changes in wheat consumption and PL 480 availability. The most commonly used health status measure for developing countries is the infant mortality rate (IMR). While there are data difficulties associated with Egyptian estimates of the IMR, the data presented in a paper by Rashad (Hoda Rashad, August 1981) tend to show that over the last 35 years when there was a disruption in the supply of wheat for any reason, e.g., war or significant reduction in imports, the IMR increased in the subsequent year.

F. The Macroeconomic Impacts of PL 480 Title I

Since 1975, Egypt has received significant economic assistance from the United States through PL 480 Title I. In 1981, this assistance amounted to \$275 million. Given the financial terms associated with this \$275 million transfer, the provision of the 1.5 Mmt has been roughly equivalent to giving the Egyptians \$158 million in grant assistance. One issue is whether or not the economic benefits of this transfer to the Egyptian Government outweigh its economic costs, even setting aside the critical question of the relationship between easily

available bread, PL 480 Title I assistance, and domestic political stability. A more tractable question is to what extent Egyptian policy initiatives, particularly those fostering agricultural development, might offset any negative effects of PL 480, and secondarily, whether or not it would be in Egypt's interest to receive the same level of balance-of-payments support but in a different form. The following analysis reviews four policy options for their impact on domestic wheat production, consumption, and imports. The foreign exchange implications of each option are discussed as well.⁸

As discussed above, Egypt has engaged in a major consumer price subsidization program focused on food and energy items. In 1979 alone, the total subsidy bill for food and energy cost the Egyptian Government approximately \$4 billion. Of this total, the food subsidy was estimated to cost \$1.4 billion, more than half of which was accounted for by the wheat subsidy. For these reasons, Egypt is once again reassessing its food policy toward wheat.

There are essentially four options available to the Egyptian Government: (a) to maintain the status quo; (b) to maintain the consumer subsidy on wheat, while raising the producer price to international levels and increasing Government procurement levels; (c) to depart from current policy and remove the consumer subsidy, allowing domestic prices to rise to international levels, but with the Government continuing to accept PL 480 shipments to save foreign exchange; and (d) to follow the third option, except that the Government would no longer accept PL 480 shipments.

Six economic impacts are considered in the subsequent analysis of these policy options. These effects are summarized in Table 10 below, and include the effect of PL 480 Title I on domestic wheat consumption; domestic wheat production; wheat imports; foreign exchange; production of other commodities such as cotton, maize, and rice, valued at international prices; and procurement costs borne by the Government to handle the additional domestic production. The analytical procedures employed in this analysis are based primarily on a system of equations which provided mean-point estimates of direct and cross-price elasticities of supply.⁹ Further, an estimate of the price elasticity of demand of 0.15 for wheat was used, following analysis employed by Alderman, et al. (1981). No account was taken of the other crop choice decisions that could be made by

⁸For a more complete treatment of this analysis see Appendix H.

⁹Cuddihy, 1980; Hadi Esfahani and Sarris, 1981; and Van Braun, 1980.

Table 10. Benefits and Costs Associated With Four Different Policy Options Facing Egypt, 1981 (in millions of U.S.\$)

Item	Policy Options			
	Status Quo	2	3	4
I. Consumption (Mmt)	7.1	7.1	6.6	6.6
II. Production (Mmt)	1.8	2.2	2.2	2.2
III. Imports				
A. PL 480				
(Mmt)	1.5	1.5	1.5	---
(\$mil.) ¹	157.5	157.5	157.5	---
B. Other				
(Mmt)	3.8	3.4	2.9	4.4
(\$mil.) ²	592.8	530.4	452.4	686.4
IV. Foreign Exchange Savings ³	---	62.4	159.6	63.9
V. Gain on Complementary Crops (feedgrains and rice)	---	498.6	498.6	498.6
VI. Loss on Competing Crops (cotton)	---	170.2	170.2	170.2
VII. Treasury Outlays Procurement Costs	---	145.0	---	---

¹In terms of the 60% "grant element" of the 1982 PL 480 loan.

²In international prices.

³Figures in this row are derived by adding III.A and III.B of the Status Quo column and comparing it with the figure obtained in each of the other three policy option columns when III.A and III.B are added together.

Sources: U.S. Department of Agriculture, Foreign Agricultural Service, Agricultural Situation, various issues; Appendix G, Table G-3, p. G-11.

farmers, particularly with respect to the livestock industry and vegetable production. Further, the analysis fails to consider the impact on wages and economic growth of removing the consumer subsidy, and how changes in wheat price policy would affect economic choices in the milling and baking industries.

Table 10 summarizes the economic impact of the four policy options. For example, if Egypt were to decide to raise the domestic producer price of wheat, it would have to procure a larger proportion of the domestic production, thereby increasing outlays by the treasury (option 2, row VII) by \$145 million. In contrast, if the consumer subsidy is removed, this outlay disappears (options 3 and 4) and domestic consumption would decline (row I), as would the amount of total imports required to balance a lower level of consumption with a higher level of production. (Compare total supply figures shown in rows II, III.A, and III.B.)

Assuming PL 480 shipments were to continue, the value of the imported wheat would decline by \$140 million (row III.B, option 1 less option 3). The effect of removing the \$158 million transfer of PL 480 Title I wheat is to increase the total cost of the 4.4 Mmt imported under options 3 and 4 by nearly \$77 million (row III.A, option 3 plus row III.B, option 3 less option 4).

The domestic production effects are summarized in rows 5 and 6. If Egypt were to raise producer prices to international levels, wheat, maize, and rice production would increase by 23 percent, 38 percent, and 37, percent, respectively (See Appendix Table G-3.). However, these increases would come at the expense of domestic cottonseed and lint production, which would decline by roughly 48 percent. On balance, the value of the increase in wheat (\$65 million, the difference between option 2 and option 1, row III.B), maize (\$138 million), and rice (\$361 million, row 5) would more than compensate for the loss in revenues due to reduced cotton production (\$170 million, row 6).

If the Egyptian Government were to continue to receive PL 480 Title I wheat and maintain its consumer subsidy on wheat, it would still save roughly \$391 million¹⁰ in foreign exchange if it were to raise producer wheat prices to international levels. Although the Government would undoubtedly have to procure more of the domestic crop in order to support this

¹⁰This figure was derived by adding the foreign exchange savings due to reduced wheat imports to the revenues from the increase from complementary crops (row 5), and then subtracting the loss on competing crops (row 6).

price, the additional procurement costs (\$145 million)¹¹ involved would not exceed the net increase in the value of production due to increased wheat, rice, and corn production and a reduction in cotton production. Moreover, if the Government were to remove the consumer subsidy while maintaining its imports of PL 480 (option 3), the foreign exchange savings would be larger (\$488 million) primarily because of a reduction in total imports. However, if PL 480 wheat shipments were curtailed and the \$158 million transfer foregone (option 4), the benefit to the Egyptian economy would be roughly equivalent to that resulting if the consumer subsidy were maintained while the Government increased domestic producer prices in line with international wheat prices (option 2; compare the net figure of rows IV, V, and VI).

Finally, in terms of the effectiveness of PL 480 Title I as a resource transfer, Egypt would be just as well off from a foreign exchange standpoint if, once it removed the consumer subsidy on wheat, it were to receive a monetary allocation of \$96 million instead of a PL 480 transfer with a market value of \$275 million and a grant equivalent value of \$158 million. The figure of \$96 million is obtained by comparing the foreign exchange savings difference between options 3 and 4 (row IV). However, this gain in foreign exchange savings would be counterbalanced by a loss in consumer surplus (welfare) of about \$435 million due to higher consumer prices.

V. BENEFIT OF PL 480 TITLE I TO THE UNITED STATES

A. U.S. Foreign Policy Objectives

Lasting peace in the Middle East has been a top U.S. foreign policy priority for the past 30 years. The period following the 1973 Yom Kippur War witnessed real progress toward this major U.S. objective. The participation of the Government of Egypt has been essential to the success of this effort. Such participation, a bold venture in any event, would have been far more difficult in the absence of domestic tranquility. The Government of Egypt under President Sadat considered the provision of inexpensive bread to all Egyptians to be a critical element in the country's continued tranquility. With wheat self-sufficiency not possible given the country's limited arable land area, Egypt's inexpensive bread policy had to be

¹¹This estimate does not include any administrative costs that would be incurred. It is derived by multiplying the new production level of 2.2 Mmt by the price change of \$66 per mt.

supported by large-scale imports. U.S. exports of wheat and flour under PL 480 Title I lessened the pressure on the Egyptian Government to obtain foreign exchange for these wheat purchases from other sources. From another perspective, U.S. food aid helped the Government of Egypt implement its policy of freely available bread for the masses, thus helping ensure the domestic stability required to initiate and continue the historic peace process.

B. Market Development Impact

One of the four major legislative objectives of PL 480 aid is to develop and expand markets for U.S. agricultural products. Underlying this objective is the legislative intent that concessional sales should lead to an increase in U.S. agricultural exports over and above those levels that would be purchased through "normal" commercial channels at current market prices. In the short run, it is generally assumed that the financial terms under PL 480 help to increase the U.S. share of the country's import market. Given the foreign exchange savings which result, it is also assumed that the country will be able to finance an increased level of imports. In support of this assumption, empirical studies in other countries indicate that a 1 million metric ton increase in food aid leads to 1.6 million metric ton increases in the countries' overall imports.

The long-run impact of PL 480 food aid is more problematic. One school of thought is that by speeding up foreign exchange and domestic resources PL 480 stimulates economic growth. This growth in turn leads to higher levels of consumption and increased levels of imports. Here the evidence is not quite as clear cut.

As an initial starting point, the first aspect checked is whether or not PL 480 is displacing commercial market purchases. From a technical standpoint, this criterion has been translated to mean that commercial purchases of the commodity made available under PL 480 should not, in any one year, fall below a 5-year moving average of total commercial purchases. This 5-year average is generally referred to as a usual marketing requirement (UMR). According to FAO principles, the common practice has been to view the UMR with regard to all imports, whether they are from the United States, Canada, the European Economic Community (EEC), Australia or some other donor. A quick review of Egyptian wheat imports since 1973/1974 (Appendix I, Table I-6) clearly demonstrates that Egypt has met its UMR, i.e., concessional (grant) wheat sales have not led to an overall decline in Egypt's commercial purchases of wheat.

The obvious problem with this criterion (UMR) from a U.S. market development perspective is that Egypt's total commercial purchases of wheat could be increasing while its purchases from the United States are declining. This has in fact been the case. As can be seen in Table 11, between 1978 and 1979, Egypt reduced its commercial wheat purchases from the United States. Similarly, for four consecutive years (1976-1980) the U.S. share of Egyptian wheat imports declined from 41 to 32 percent.

On the surface this trend would seem to indicate that PL 480 Title I concessional sales have not been an effective market development tool in promoting U.S. wheat exports. This conclusion is, however, slightly premature in light of recent experience. As can be seen in Table 11, U.S. commercial wheat sales to Egypt doubled between 1980 and 1981. This increase in U.S. sales effectively displaced French wheat sales. In retrospect, 1981 was a year in which there was active consideration of a reduction in Egypt's program level. This fact may have played a more significant role in explaining Egypt's commercial purchases during 1981 than can be inferred from available data.

Although the relationship between PL 480 and U.S. commercial purchases cannot be accurately measured, its importance in sustaining the level of U.S. wheat flour exports to Egypt cannot be overstated. All U.S. wheat flour exports to Egypt occur under PL 480. Moreover, as can be seen in Table 12, these exports account for nearly half of all U.S. wheat flour exports worldwide.

C. Major Conclusions, 1975 to the Present

The team used as an initial frame of reference the objectives of the law. Thus, we were concerned with foreign policy, Egyptian development, and U.S.-Egyptian trade development. In addition, we examined impacts and issues not directly specified in the legislation. The study attempts to present a balanced perspective, weighing the complex and sometimes conflicting U.S. objectives, as well as the Egyptian perspective and interests.

1. Major Findings and Conclusions--General Economic Effects

1. How effective is the Egyptian distribution system for wheat and wheat flour? Wheat and wheat flour are effectively distributed throughout the country. The Egyptian Government's objective of maintaining 3 month supplies in all governorates appears to have been achieved. While constraints may continue

Table 11. U.S. Shipments of Wheat and Wheat Products to Egypt, 1977-1981

Year	PL 480 Title I		Commercial Wheat (000mt)	Total U.S. (000mt)	U.S. Share (% of Total Egyptian Wheat Imports)
	Wheat (000mt)	Flour (000mt)			
1977	1,125	400	237	1,762	41
1978	1,118	573	318	2,009	40
1979	1,239	495	100	1,834	38
1980	831	445	448	1,724	32
1981	994	511	1,036	2,541	44

Source: U.S. Department of Agriculture, Foreign Agricultural Service.

Table 12. U.S. Wheat Flour Exports, 1979/1980 and 1980/1981

	(Grain Equiv.) ¹	
	1979/1980 (000 mt)	1980/1981 (000 mt)
PL 480	509	543
Egypt	450	422
Other	59	121
Commercial	626	498
Total	1,135	1,041

¹Marketing year.

Source: U.S. Department of Agriculture, Foreign Agricultural Service.

to exist in storage, milling, and baking, it appears that the Government's overall goal of filling the basic wheat and bread requirements of the population is being met. Continued Government investment in milling and bakeries, along with improved port facilities, will further improve the effectiveness of this Government system.

2. Is there a disincentive effect to local production of cereals, especially wheat? The general answer is that current GOE policy results in disincentives to the domestic production of wheat. The team concluded that historically, an association has existed between wheat imports and declining or stagnant domestic production of wheat. Before 1967, food aid comprised nearly 100 percent of wheat imports and in 1982 it constituted 25 percent. The Government's dual policies are (a) keeping bread cheap and plentiful through a subsidy system and (b) maintaining artificially low producer policies to reduce economic incentives to farmers to produce wheat.

3. Does it make sense to produce wheat in Egypt? Under current conditions, most studies conclude that Egypt does not have a comparative advantage in wheat production. However, a review of these studies shows that certain crucial aspects of the farming system are unaccounted for in these analyses.

4. If there are disincentives, why do farmers grow wheat? Several answers appear from the data and from interviews. First, farmers place a high value on wheat straw for fodder and brick-making. Second, farmers who own land still pursue a "micro" food security strategy--preferring to grow their own supplies. Third, quality and taste preferences seem to be in favor of locally produced or freshly milled wheat.

5. Is the technology available to increase production? Egyptian yields have been high historically. However, recent research and field demonstrations by the EMCIP (Major Cereals) project indicate major opportunities for yield increases in the order of 50 percent or more through the use of existing varieties and improved practices. It is unlikely, however, that farmers will adopt these practices on a wide scale unless there are substantial shifts in procurement prices and Government procurement practices.

6. Does the GOE buy domestic wheat? Very little. Over the last 3 to 4 years, Government procurement appears to have been no more than 10 to 15 percent of the domestic crop. In some governorates, where wheat is of less importance, little or no wheat is purchased. Although Government prices for wheat have increased, it has not actively tried to procure large quantities in recent years. In addition, with increasing imports, the "disincentive" effect has been attenuated.

7. What effect has this had on the private sector and free market development? The Government's supply system has virtually eliminated the organized private sector. As a former wheat merchant exclaimed, "The Ministry of Supply has killed the Souk." Even in privately owned mills and retail outlets, Government supply regulations and price settings keep profits very low. The result may be to waste or underuse existing private sector capacity, as well as severely to constrain future private sector expansion in this area.

2. Effects on Nutrition and Diet

A wide range of Egyptians have benefited from the cheap and plentiful bread policy. Total calories consumed have increased dramatically--to a point where total caloric intake is over 3,000 per capita per annum, of which wheat represents about 60 percent. While there is minor urban and income bias, in wheat distribution, the average Egyptian receives enough bread. Indeed, current nutrition surveys and health experts point to a growing problem of obesity and diabetes in Egypt.

3. Development Impact

A.I.D. Policy requires that concessionary food aid conform to, be consistent with, and promote development. What has been the impact in Egypt?

The answer to this question is difficult. If one believes that a stable political environment is a precondition to any development, then the U.S. food aid contribution to Egypt's food subsidy program can be said to be positive. Thus, the PL 480 system has freed up GOE resources that can be applied toward its priorities. The subsidy system is well institutionalized in Egypt. (It is almost viewed as a constitutional right.) Any changes in the system will be resisted and, unless carefully handled, may disturb the domestic stability of the Government. The food riots of 1977 are strongly imbedded in the memory of most Egyptians.

Because of the complexity of the Egyptian economy, which has evolved in an environment strongly influenced by political requirements, current economic problems in Egypt are not necessarily amenable to free market solutions. It is easy to demonstrate distortions in resource allocation, waste and inefficiency, and disincentives to production, all as a result of Egyptian economic policy. Therefore, findings and conclusions are presented with a great deal of caution and respect for what is not understood.

1. Has self-help been an effective way to link food aid with development effort? For past efforts through 1979, the answer is probably no. Self-help agreements have been written in general and ambiguous terms, and subsequent reports by the MOA, the principal ministry involved, have been equally cursory. USAID has tended to view PL 480 as a USDA program and has paid relatively little attention to it. In turn, USDA has been concerned with its responsibilities for logistics, compliance reporting, and market development. For the most part, self-help agreements and reviews have tended to be reflections of present or planned projects funded by A.I.D. or other donors. Budget and program reviews indicate that it would be difficult to say that PL 480 has "promoted" development through self-help or that it generated "additional" effort, whatever the positive effects on both A.I.D. and the GOE Agricultural Development program. Another expected benefit from PL 480 is improvement in the process of policy dialogue. The self-help agreement process and the subsequent review provide one more opportunity to discuss policy issues with the Government. This is no doubt true, and U.S. Government officials perceive it to be so.

2. Has there been improvement? Yes. Since 1979, some improvement has occurred in the level of the dialogue, in Egyptian coordination, and in the specificity of agreements. More needs to be done to clarify Mission responsibility for management of the reporting process.

3. Are PL 480 local revenues used for development? No special account exists. Revenues are allocated by the budget process. There is no evidence of "targeting" funds (except in Title III, Basic Village Services--BVS).

4. If PL 480 is not being used as a development resource directly, what are the reasons? Several reasons were suggested. First, PL 480 operates on a year-to-year allocation and is not easily programmed. Second, USAID has had enough to do with the rest of the program. A Mission with a small development assistance account might be able to devote more attention. Third, PL 480 does provide balance of payments support and helps Egypt meet its food objectives. Trying to "program" PL 480 might be a mistake.

5. Doesn't current Egyptian agricultural price policy undermine USAID's and MOA's development efforts in agriculture? A.I.D. has been rehabilitating and expanding old physical and institutional infrastructure, and payoffs are just beginning to come on-line. Agricultural production in the areas where A.I.D. has concentrated, such as cereals, has not improved much relative to the growth in animal and vegetable production. However, research results from these projects are coming in, and policy studies on prices and mechanization are

being read. A new Minister is in place in MOA, and Egypt will soon need to make decisions in this area. Two "slogans" by MOA officials that were heard by the team illustrate the issue: "We are subsidizing American farmers," and "This is our last chance."

4. Foreign Policy Dynamic

1. Have U.S. foreign policy objectives been assisted? Lasting and comprehensive peace in the Middle East has been a top U.S. foreign policy priority during the past 30 years. Our food aid helped the Government of Egypt implement its policy of freely available bread for the masses, and thus helped to ensure the domestic stability without which the peace process could not have proceeded.

2. What has been the Egyptian perspective? PL 480 has traditionally been viewed in Egypt as a symbol of U.S. support. The program is important to Egypt for the bread it supplies, the reduction in foreign exchange outlays it permits, the supply assurance it represents in times of world scarcity, and the budgetary support it provides. Thus, it was not surprising that officials of the GOE described PL 480 as a critical element in the development of U.S.-Egyptian relations.

3. What has been the trade development impact? Has the PL 480 Title I program been an effective market development tool? If by market development we mean whether concessional sales of wheat and wheat flour have led to a net expansion in our commercial sales of these two commodities to Egypt, the results are mixed. In 1979, commercial imports of U.S. wheat fell by more than 68 percent at a time when total Egyptian wheat imports fell by less than 13 percent. In contrast, it appears that in 1981 this pattern was significantly reversed with the commercial purchase of 1 million metric tons. Possibly, it is sufficient to say that the decision to purchase commercially from the United States is determined primarily by price and availability considerations and not by the level of PL 480 Title I. This view was confirmed by the Egyptians.

D. Policy Issues

1. If domestic procurement of wheat were to be accelerated, could the Government procurement system, structured as it is, physically manage this procurement?

2. Is the domestic requirement for wheat and wheat flour reaching a point where the need for imports will level off?

3. Will Government requirements for imported flour decline as domestic milling capacity increases?

4. Can Egypt continue to finance its subsidy in light of the plateau in foreign exchange earnings and rising debt service?

5. Is the disincentive effect to wheat production caused by current GOE policy in Egypt's best interest?

6. While maintaining the existing U.S. dollar commitment, should the GOE and the United States consider a shift in the composition of the program?

7. Should PL 480 be used to partially subsidize a GOE commitment to improve producer prices?

APPENDIX A

RELATIONSHIP OF PL 480 TITLE I TO TITLES II AND III

Title I is a program in which the U.S. Government provides the Government of Egypt with concessional financing (long-term, low-interest loans) for purchases at U.S. market prices of U.S. agricultural commodities (wheat and wheat flour). The size of the program is decided annually in Washington. The Government of Egypt purchases the wheat and wheat flour in the U.S. market and sells it in the Egyptian marketplace at local prices. Receipts of such sales are to be used to fund mutually agreed upon agricultural development activities.

Title II activity in Egypt consists of direct bilateral food aid grants to U.S. voluntary agencies and is valued (as approved for FY 1982) at an estimated \$20 million (plus about \$8 million in related transport), together with \$5 to \$10 million in food donated to the World Food Programme (WFP) in support of its multilateral projects in Egypt.

Catholic Relief Services is scheduled to receive roughly \$17.5 million in donated food for distribution in support of maternal and child health (\$11 million in instant corn-soy milk, vegoil, and nonfat dry milk for 900,000 recipients); school feeding (\$5.8 million in wheat, flour, nonfat dry milk, and wheat-soy blend for 1.2 million recipients); and other child feeding programs (less than \$1 million for some 40,000 institutionalized or orphaned children).

CARE activities are currently focused on maternal and child health and a Sinai feeding program, with a total U.S. food donation of \$2.6 million, divided equally between the two activities for 290,000 recipients.

Multilaterally, the United States supports World Food Programme projects in Egypt through donations of wheat flour, edible oil, dry skim milk, and pulses. The level of such U.S. participation varies from year to year and currently varies between \$5 and \$10 million annually. The WFP contributes the U.S.-supplied food in support of GOE-World Bank projects such as agricultural training institutes, tile drainage, land development and settlement, Suez Canal-zone rehabilitation, and agricultural development in the Northwest coastal zone.

Title III, a variation of Title I, offers a multiyear food aid commitment and the forgiveness of PL 480 debt in exchange for recipient Government actions promoting agricultural and rural development to increase the availability of food for the poor and to improve the quality of their lives. Once a Title III agreement is negotiated bilaterally, it is implemented via

a series of annual Title I (government-to-government) agreements. The United States has more demanding expectations concerning the actions of a recipient government under Title III (e.g., specific actions, projects, and policy orientation) than under Title I. Within Egypt's overall Title I allocation (which has been set at 1.5 Mmt of wheat and wheat flour in recent years), there has been a Title III agreement with an annual value of \$15 million in support of basic village services development. In FY 1982 this figure will constitute about 5 percent of the Title I program.

APPENDIX B

PL 480 TITLE I IN A MACROECONOMIC CONTEXT: THE
RELATIONSHIP BETWEEN FOOD AID AND ECONOMIC GROWTH

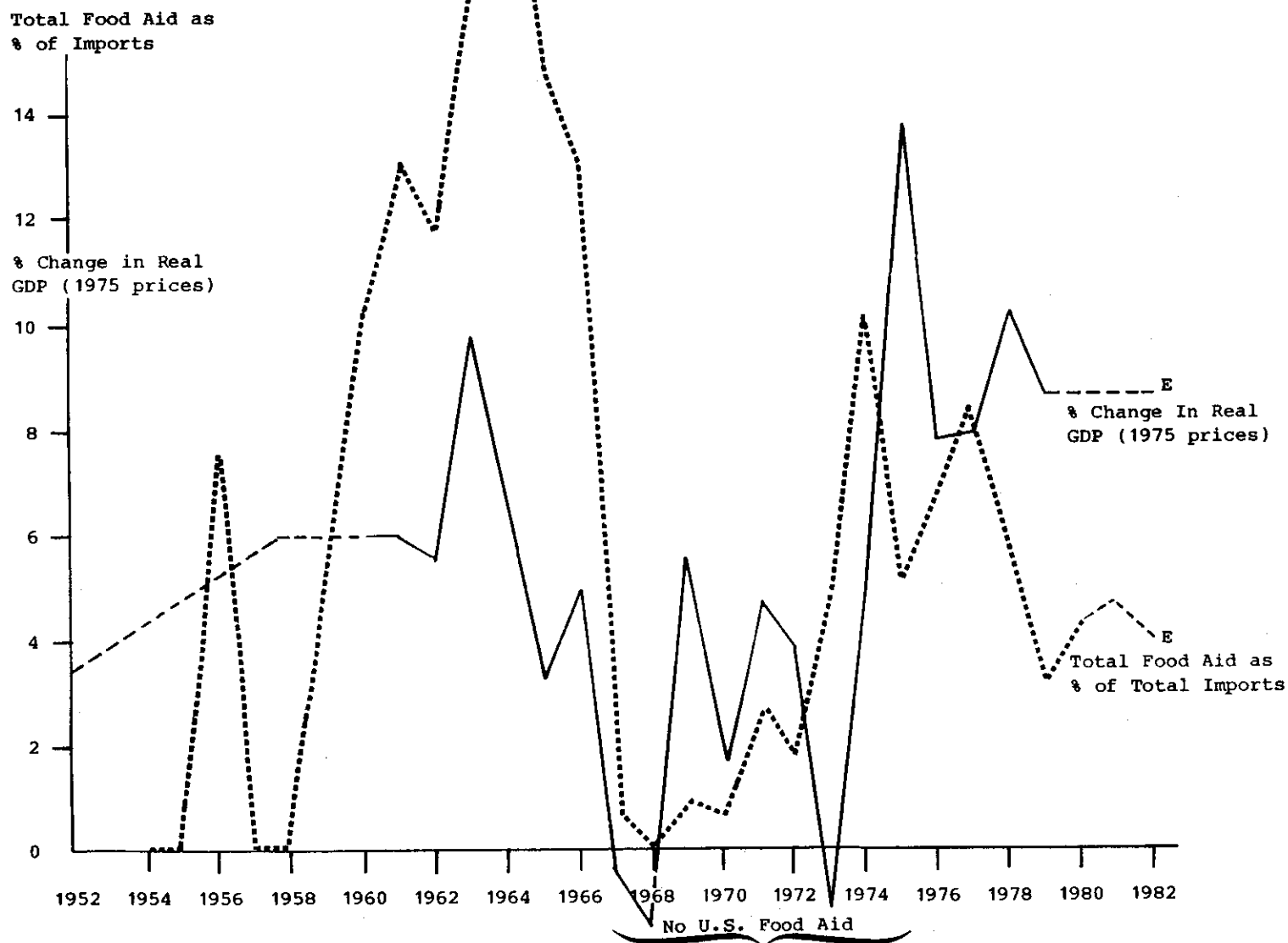
In a classic analysis, Chenery and Stout (1966) showed how foreign assistance could fill the gap between savings and investment in developing countries and thereby attain and sustain positive growth rates. It has generally been assumed that food aid such as PL 480 Title I could be used interchangeably with other forms of foreign assistance to reach higher than otherwise achievable rates of economic growth.

In Figure B-1, data are presented comparing the trends in real GDP growth in Egypt from the mid-1950s to 1981 with that of food aid. Food aid in the figure is expressed as a proportion of imports, which represents one way of presenting the role of foreign assistance in financing investment. It is fully recognized that the line of causality is not specified. Further, this analysis does not provide information required to determine the degree of fungibility of food aid in comparison with other types of foreign assistance. In addition, this analysis also cannot be used to determine the cost-effectiveness of one form of assistance, such as PL 480 Title I, compared with other forms. Nevertheless, the data presented in Figure B-1 support the hypothesis that any form of foreign assistance, including PL 480 Title I, can reduce a country's savings and foreign exchange constraints and thereby increase the supply of goods and services available to the population and contribute to a high rate of growth in economic activity.

In particular, from 1955 to 1966, the inflow of PL 480 Title I, along with other assistance, increased rapidly with the exception of 1957/1958. The heavy build-up in domestic production as represented by upward changes in real (constant price) GDP was preceded in 1962 by increased food assistance. Similarly, the low rates of growth in GDP which occurred in the 1967-1973 period parallel low levels of food aid during the same period.

It could be said that the fluctuations in food aid act as a bellwether of the availability of other foreign assistance, and that the true "engine of economic development," as measured by high rates of economic growth, is obtained by the inflow of those other resources. However, at least in Egypt, to the extent that food aid reduces the requirements for commercial imports, it provides a greater supply of the "wage good," i.e., bread and wheat flour. When the economy does not confront that constraint or the resulting food price increases, the number of

Figure B-1. Trends in Egypt's Annual Rate of GDP Growth and Food Aid as a Percentage of Imports, 1952-1981



Sources: Khalid Ikram, Egypt: Economic Management in a Period of Transition, (Baltimore, Md.: Johns Hopkins University Press, 1980); Grant Scobie, Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt, (Washington, D.C.: IFPRI, September 1981).

people employed rises, and, assuming a positive marginal productivity of those additionally employed, total output also increases.

As the structure of the Egyptian economy and food patterns change over time, the relative importance of food aid in the form of wheat may be altered as a fungible way of providing foreign assistance. Fully exploring these issues requires a more complete analysis than is intended at this point.

APPENDIX C

PL 480 TITLE I SELF-HELP AGREEMENT ASSESSMENTI. ASSESSMENT OF SELF-HELP AGREEMENTS

The self-help agreements signed by the Government of Egypt are generally consistent with the development objectives of PL 480. They focus on problems of agricultural and rural development, family planning, and health. It is not always clear why some items, such as marketing improvement, storage, water management, health, and family planning, enter and then drop out of these agreements.

Shifts in the content of self-help agreements may reflect changes in overall USAID and GOE issues during this period. Storage, ports, and distribution systems during Previous Page Blank probably reflected the impact of increasing im- and other commodities on the Egyptian import infrastructure. Also, a large number of projects were signed between USAID and the GOE in 1976-1977, and self-help agreements may have been used to focus GOE attention on the issues generated by these projects. In water management, for example, four projects totaling U.S.\$94.2 million were signed in 1976 and 1977. These deal with everything from manufacturing drainage pipe to irrigation management.

By 1979, USAID and GOE attention shifted dramatically to macroeconomic policy issues. From an early emphasis on infrastructure, both physical and institutional, attention turned to the rationalization of investment, pricing, and subsidy policies. These improvements in economic policy were needed if the build-up of physical and institutional infrastructure was to result in increased production. Also implicit in this shift was the problem of better integration of the private sector into an economy largely dominated by public sector activities.

It would be inaccurate to portray this evolution as a smooth process of change forced in some inevitable fashion by the dynamics of Egyptian development. As Egyptian development occurred over this period, the potential contradictions between social welfare objectives, e.g., subsidized food for consumers, and production objectives were masked by rising foreign exchange earnings derived from oil revenues, tourism, the reopening of the Suez Canal, and remittances. Overall growth of the economy outstripped population growth, which was nevertheless high and worrisome. By 1982, at the time of this writing (and perhaps beginning as early as 1979), the dynamics of major trends in Egyptian demographics, consumption patterns, and economic factors may have been forcing Egyptian policy-makers

to come to grips with those issues. It is to the credit of the MOA, the GOE generally, and USAID that a good deal of the intellectual groundwork for the current debate has been laid; this effort is reflected in the self-help agreements of the last few years.

We conclude, therefore, that the self-help agreements have, in the main, tended to reflect and reinforce the evolution of more general trends and issues in the GOE's development program, particularly as supported by A.I.D. From an early focus on physical and institutional infrastructure to a more recent concern with economic policy, self-help measures are consistent with the overall foreign assistance program. Whether self-help measures result in ministry actions that are additional to various reforms and developments embodied in development assistance effort and the overall Egyptian development program is discussed below.

II. MEASURING ACHIEVEMENT IN SELF-HELP AGREEMENTS

A recent guidance message to USAID Mission directors called for greater integration of food aid into the "overall country strategies and programs" and elaborated on ways in which food aid can be used to generate additional effort in agricultural and rural development. This emphasis on improving the development impact of food aid is by no means new. The essence of the self-help measures is to link food aid to development activities through the direct use of resources, as in Title II or Title III, or through the insistence that Title I imports be consistent with, conform to, and promote development. In 1976 and again in 1978, Congress and A.I.D./Washington encouraged closer attention to the content of self-help agreements and stressed more detailed reporting on actual achievements. This interest was reflected in October 1978 in an A.I.D. message to all Missions. The message said that Missions should emphasize the "quality of the reports" covering self-help agreements. In addition, Missions were to emphasize the "combined impact" of food aid and development assistance. This reiterated earlier expressions of concern about the linkage between PL 480 and development.

These messages reflect a growing concern on the part of both official and other observers that food aid contribute positively to a government's development efforts beyond providing balance of payments support.¹ These messages also reflect a certain degree of frustration in trying to disentangle the

¹See U.S. Department of State, Cable No. 14021, June 19, 1981.

effects of food aid from the more general impact of the development assistance program and the policies of the recipient government. Hence, a solution to the problem of measuring the accomplishments of self-help agreements is important if one is to reach satisfactory conclusions about the implementation of these agreements.

Our analysis of self-help progress reporting will focus on the timeliness of the reports and on the quality of the reporting. Particular emphasis will be given to whether self-help agreements are written in such a way that measurement of achievement is even possible. Finally, we will assess the extent to which reports portray verifiable progress.²

A. Timeliness of the Reports

PL 480 Title I requires the recipient government to issue an annual report on how self-help agreements have been addressed. These reports form the basis of an overall annual report to Congress. Typically, an annual message goes to the field in October-November calling for a report for that year to be produced by January 1. USAID then notifies the relevant ministries and assures Washington that such reports will arrive in a timely manner.

In the Egyptian case, the evidence shows that only in 1980 was the report forwarded to Washington before the end of the calendar year. The record also shows that beginning in 1979, USAID substantially increased its efforts to get early information concerning progress toward implementing self-help measures. The 1981 report, however, had not been received as of the date of this study (February 1982).

B. Quality of the Reports

There remain, however, several problems with the self-help reports: (1) their relevance, (2) concreteness, and (3) episodic nature.

With respect to relevance, it is useful to place the progress report in the context of reaching agreement on the level of the assistance flow to Egypt through PL 480. First is the determination of the dollar value of assistance. The overall assistance level to Egypt is about \$1 billion a year, of which

²See U.S. Department of State, Cable No. 14021, June 19, 1981.

PL 480 contributes about one-fourth. Although discussion may continue about whether aid should be in dollars or commodity levels, or about the appropriate mix between Titles I, II, and III, the basic outcome will be the product of a budgetary and political process that begins in Washington. This process takes into particular account the overall commitment the United States has made to support Egypt's development efforts, and, more important, Egypt's key role in the Middle East peace process.

After the determination of aid level comes the formulation of new self-help agreements in the field and in Washington, with nearly all the decisions being made before the GOE prepares its progress report. By the time the GOE self-help progress report is in, usually in January, the agreements for the next year have already been signed. Although it can be argued that progress on self-help is a relevant factor in determining the level of commitment, this does not appear to be the case. The net result of this process is that the reports themselves appear to have little bearing on the decisions which are made with respect to future funding levels. Because the reports contain little that is not already known by USAID, they probably represent little more than a formality.

Because the agreements up to 1982 were written in rather ambiguous language, it is difficult to develop specific measures for determining progress. Thus, the self-help reports tend to be fairly cursory overviews of what has been happening in the Ministry of Agriculture during that year. More often than not, the language used is very general and of the "programs are underway" variety. For example, a 1976 Mission comment on the 1975 program report said that "Egypt has conducted strong programs for many years" (with respect to an agreement to emphasize food grain production) and "GOE programs in improvement of horticultural crops, livestock and poultry production and animal health ... are well staffed and have managed programs underway." Notwithstanding this positive appraisal, the following year the Mission signed projects with MOA to address serious problems in food grain and horticultural production.

One agreement which has appeared in almost every year's self-help agreement has to do with improving Egyptian agricultural data collection and analysis. We examined this agreement in some detail. In the 1977 report, the USAID comments included, as a sign of progress toward "strengthening systems for collection, computation, and analysis of agricultural data and information," a 1976 Ford Foundation survey of 850 farmers, as well as a University of California team report on improving agricultural economics studies. Both projects were cited again in 1978.

In August 1979, an internal Mission memorandum reported on discussions with MOA on the upcoming progress report. In that discussion, agricultural data collection progress was reviewed. The memorandum states: "A feasibility study was approved at the policy and planning board meeting for the recent Agricultural Development Systems Project. The Ministry of Agriculture and University of California are finalizing details (we have heard nothing on this yet)." The Government of Egypt's progress report for 1979 again mentioned both the Ford Foundation study, circa 1976, and the University of California study as follows:

In 1976, the Ministry of Agriculture, in cooperation with the Ford Foundation, conducted a ... farm management survey.... Finalized plans to further improve present GOE capacity for data collection were made in late 1979. A U.S. study team is presently in Egypt to analyze this serious problem.

Exactly the same wording was used to report on this issue in 1980 with regard to the 1976-1977 Ford Foundation survey. With respect to other efforts to improve agricultural data collection, the 1980 report states that the MOA, with USAID, "started the Data Collection and Analysis Project with the goal of improving the Ministry of Agriculture's capability to collect...."

It would be difficult to conclude from these reports from 1976 to 1980 that any significant progress had been made toward improving MOA's agriculture data collection and analysis system. Substantial progress may have been made, but the reporting system does not shed much light on the issue. The often cited Ford Foundation study is, apparently, still in the analysis of data stage. Studies have been done on a very wide range of subjects by the Agriculture Development Systems Project, but another USAID project was needed in 1980 to strengthen the agricultural data system of MOA. Observers in 1982 still qualify their analyses of Egyptian agriculture production with comments on the unreliability of data. It was determined by the Mission that since a bilateral project was now in place on this subject, the self-help agreement could be dropped.

Part of the problem with the reporting process is that it is episodic in nature. At the end of each calendar year someone in the MOA sits down and prepares the report. There does not appear to be any effort to systematically develop a monitoring process which would contain verifiable indicators to capture actual progress toward implementation, nor does it appear that the MOA engages in a discussion with the Ministry of Supply or Ministry of Economy on these issues pursuant to the report's preparation. We suspect that the reason for this is

rooted in the relevance issue discussed earlier. The consequences of not implementing an agreement are unknown, but probably minimal.

We conclude that from 1975 to 1981, neither the self-help measures nor the reporting system has been conducive to demonstrating a measurable pattern of implementation of the agreements. It should be noted that this does not mean that considerable progress and effort have not been made in Egyptian agriculture. Most of this effort, however, is more a product of the evolution of the USAID and other donor programs through specific projects, rather than any additional activities stimulated by the self-help agreements. Indeed, most of the agreements are written in such a way as to conform to bilateral and multilateral projects underway or in the planning stage. It is not surprising that these plans, feasibility studies, and projects are cited in the self-help progress reports. The implementation progress of the self-help agreements is, in the main, the record of planning, negotiating, and implementing various projects. If the projects are in difficulty--as in the early days of the Agricultural Development Systems Project (0041)--then the self-help agreement is in difficulty. If the projects seem to be moving with reasonable speed, then the self-help measure is dropped.

C. Improvements in 1981

As discussed earlier, both USAID and the GOE began in 1979 and 1980 to see the self-help agreements as an opportunity to reinforce and focus the policy debate about agricultural prices, input policies, and investment. Whereas the practice had been for only the Ministry of Supply (MOS) to sign the annual agreement, it is now signed by the Deputy Prime Minister. This change was first proposed by MOA. More important, the minutes of actual understandings are now initialed by representatives of the Ministry of Supply, the Ministry of Economy (MOE), and the Ministry of Agriculture. The general policy issues discussed are then reinforced by a letter from the U.S. Ambassador to the Deputy Minister.

These are significant changes in that they elevate the level of agreement and bring together the MOA, which is responsible for agricultural development; the MOS, which is responsible for grain procurement; and the MOE, which is responsible for price policy. It is too early to tell exactly how much effect this will have, but U.S. officials in Egypt feel that these changes are important for improving coordination and expanding the debate about agricultural policy. There is no doubt that the new system has improved the ability of MOA to state its case in favor of agriculture. As a result, several important changes were made in the 1982 agreements.

The most important change is that the GOE agreed to submit the annual self-help report in September 1981 "prior to the consideration of a Title I agreement for U.S. fiscal year 1983."³ This would imply that the substance of the self-help report would have some bearing on the next agreement, a complete reversal of present practice. Second, it was agreed that the self-help report would be accompanied by the "receipt and expenditure report certified by the appropriate GOE audit authority." This seems to indicate that for the first time, it will be possible to determine how much local currency was actually generated and for what purpose it was used.

Finally, with regard to the substantive measures agreed to for 1982, it is interesting to note that while much of the language remained the same as for 1981, there has been a move toward greater concreteness. This would permit quantitative and qualitative measurement of achievements by September 1981. For example, one measure states, "The GOE will take the following steps to permit private importers to import 400,000 mt of fertilizer" and goes on to specify the steps. Another new agreement states, "The GOE will continue the procurement of wheat and will establish a program for the procurement of corn. The procurement price will be set with the objective of reducing the differences between the domestic and world prices of wheat and corn." This wording contrasts favorably with previous agreements couched in terms like "will undertake to develop" and "continue to reassess." Moreover, both agreements indicate actions which can be undertaken by the GOE independently of specific bilateral projects. Irrespective of the merits of the agreements cited, they reflect a great improvement in the concreteness and verifiability of U.S.-GOE self-help agreements. Combined with the improved timing of self-help reporting and better information on receipts and expenditures, we anticipate that a greatly improved quality of reporting will have taken place during 1982.

D. Management of PL 480 in Egypt

In Egypt the primary responsibility for annual negotiation of PL 480 Title I agreements rests with the agricultural attache. However, coordination does occur at the technical level between USAID, the Embassy Economic Counselor, and USDA. To the extent that policy issues are involved in annual discussions, the USAID Mission Director and the U.S. Ambassador play key roles.

³Agreed minutes.

USAID's concern with PL 480 Title I is in the generation of self-help agreements, a process usually occurring late in the calendar year, and in receiving and commenting on annual GOE progress reports. Up to 1981, there was little coordination among the Egyptian ministries concerned with food aid and its uses. The Ministry of Supply has been the principal organization involved in these agreements and is responsible for compliance reporting to the U.S. Government through the agricultural attache. This relationship between the agricultural attache and MOS seems close and is effectively oriented toward efficient movement of commodities. There is no evidence to indicate that the relationship between USAID and MOA, MOI, or other line ministries was reflected in a GOE coordinating body between these ministries and the Ministry of Supply. This changed in 1981 at the suggestion of MOA.

Although senior USAID officers expressed their support for PL 480 as a device for keeping the policy dialogue open, there does not appear to be much effort to program--however loosely--PL 480 resources for development purposes. For a variety of reasons, PL 480 does not fit well into USAID's overall program-mable resource package, and the Mission has been more than busy with its project agenda. Although this appears to be changing, USAID's past involvement in PL 480 may be characterized as one of "benign neglect." PL 480 has been largely viewed as a USDA issue. This neglect is reflected in the fact that current USAID officers seem somewhat confused as to which office within the Mission has responsibility for monitoring development agreements or generating new ones. Agriculture takes the lead sometimes, while the program office gets involved at others. Who does what appears to be a function of who is least busy. It should be added that these observations apply mostly to Title I. Other programs under PL 480 receive much greater attention.

APPENDIX D

SUMMARY OF SELF-HELP MEASURES, 1976-1981

A. Budget Allocations

1. If self-help agreements had been acted upon, a shift should have occurred after 1976 in budget allocations in favor of the Ministries of Agriculture, Irrigation, Supply, and Health (including family planning). These ministries' budgets should be increasing faster than those of other ministries, and should increase at a rate above the rate that would be required to finance A.I.D. projects.
2. Specific allocation increases should appear for these ministries in the following capital and recurrent accounts:
 - a. Ministry of Agriculture
 - 1) Agricultural data collection (by 1977)
 - 2) Agricultural research
 - 3) Crop production (specifically food)
 - 4) Agricultural mechanization
 - b. Ministry of Irrigation
 - 1) Works (canals and drainage)
 - 2) Training
 - c. Ministry of Supply
 - 1) Purchases
 - 2) Works (ports, storage, transport)
 - d. Ministry of Health
 - 1) Rural health
 - 2) Training
 - 3) Supply and maintenance
 - 4) Family planning

B. Institutional Capacity

1. If self-help agreements had been acted upon, there should have been improved institutional performance capability in the Ministries of Agriculture,

Irrigation, Health, and Supply. There should be evidence of

- a. Increased number of trained personnel
 - b. Improved management procedures
 - c. Improved communication and reporting
2. Agricultural data with reference to specific ministries
 - a. Reorganized agricultural data collection and analysis system
 - b. More personnel with higher qualifications
 - c. More frequent analysis by department
 - d. Data processing systems upgraded for rapid turnaround
 3. Ministry of Agriculture, agricultural research
 - a. Greater orientation toward applied research
 - b. Research facilities refurbished and working
 - c. Evidence of close attention to field conditions
 - d. Personnel reorientation and improved training
 4. Ministry of Agriculture, crop production
 - a. Improved input supply, including credit
 5. Agricultural extension
 - a. Procedures development for outreach program, 1982
 6. Ministry of Irrigation
 - a. More and better trained technicians
 - b. Improved water management procedures
 7. Ministry of Health
 - a. Increased supply of trained health workers/family planning workers in rural areas
 - b. Increased number of clinics operating in rural areas

C. Reports, Analyses, and Plans

1. If self-help agreements had been implemented, there should have been an observable increase in the quantity and quality of analyses in relevant sectors of Agriculture, Irrigation, Health, and Supply.

2. The specific reports required or implicitly recognized include the following:
 - a. Ministry of Supply, a 1977 national plan for storage improvement (by 1980?)
 - b. Government of Egypt paper(s) on price policy for agricultural inputs and outputs (1979)
 - c. Agricultural sector investment studies (1979)
 - d. An agricultural mechanization study (1979)
 - e. Report on agricultural research and extension production
 - f. Animal production national plan

APPENDIX E

SELF-HELP AGREEMENTS AND IDENTIFIABLE ACTIONS, 1976-1981

Agreement	Identifiable Action
<u>1976</u>	
1. Give high priority to Agricultural Development Budget, emphasizing production of food grains	1. Increase in capital budget beginning 1977 2. Increase in food grain production by 1979
2. Previous Page Blank Internal agricultural distribution to assure adequate supplies to all parts of the country	1. Improved procedures for marketing and distribution 2. No shortfalls in food supply, by region by 1978
3. Accelerate applied research and disseminate findings	1. Increase in research budget by 1977 2. Research outputs in food crops field tested by 1980 3. Evidence of farmers shifting to new varieties, agronomic practices, inputs
4. Strengthen systems for collection, computation, and analysis of agricultural statistics	1. Improved accuracy and timeliness of reports 2. Evidence of improved procedures 3. Increase in budget

SELF-HELP AGREEMENTS AND IDENTIFIABLE ACTIONS, 1976-1981

Agreement	Identifiable Action
<u>1977 and 1978 (no change)</u>	
1. Expand and improve water management; particular emphasis on installing drainage facilities, training field technicians, and performing pilot demonstration projects	1. Hectarage with improved drainage, 1976-1981 2. Number of technicians trained 3. Number of pilot projects 4. Reduction in hectarage classified as saline or waterlogged 5. Reduction in estimates of water loss 6. Increase in Budget
2. Undertake major improvement in processing, marketing, and distribution systems to serve rapidly expanding urban population, increase farm incomes, effectively compete on export markets	1. Increase in urban food grain consumption 2. Increase in farm income 3. Increase in Egypt's food exports
3. Strengthen systems for agricultural data (same as 1976)	
4. Strengthen national program for dissemination of family planning information and delivery of social services, health, nutrition, family welfare	1. Increase in budgets of relevant ministries 2. Evidence of increased information 3. Improved health facilities in rural areas

SELF-HELP AGREEMENTS AND IDENTIFIABLE ACTIONS, 1976-1981

Agreement	Identifiable Action
<u>1977 and 1978 (no change) (cont.)</u>	
5. Develop and implement specific programs for storage improvement; set specific targets for port, inland terminals, market towns, farm storage	1. Increase in budget for port improvement 2. Increase in budget for storage 3. Specific plan prepared with quantifiable targets by 1980
<u>1979</u>	
1. Carry out program that would strengthen self-sufficient private sector organizations; emphasis on training in O/M/P (new)	1. Program in place for private sector agricultural by 1981 2. Training program in place for O/P/M in private sector
2. Continue review of pricing policies for agricultural inputs and outputs to provide basis for <u>possible</u> changes	1. Evidence of reviews underway (research grants, official studies)
3. Expand and improve GOE capacity within agricultural sector for data collection, analysis, and use (same as 1976, 1977, 1978)	
4. Continue reassessment of agricultural sector investment, focus on land use, alternative cropping patterns, intensification on old lands, pilot projects on new lands	1. Evidence of land use/resource allocation studies 2. Establishment of pilot projects on new (marginal) lands

SELF-HELP AGREEMENTS AND IDENTIFIABLE ACTIONS, 1976-1981

Agreement	Identifiable Action
<u>1979 (cont.)</u>	
5. Formulate national agricultural mechanization policy using results of <u>Agricultural Mechanization Study</u> on training of mechanics and drivers and establishing maintenance and spares system	1. Agricultural mechanization policy formulated by 1980 2. Policy consistent with findings in <u>Agricultural Mechanization Study</u> 3. Training program in place by 1982 4. Maintenance and spares system in place by 1982
6. Undertake second-stage review of food subsidies to gradually rationalize policy	1. Review produced by 1982
7. Continue analysis of family planning program; develop strategy by 1979/1980	1. Family planning strategy published by 1979/1980
8. Examine agricultural research relating to increased production through extension services	1. Examination (report) completed by end of 1981
<u>1980-1981 (no change)</u>	
1. Formulate agricultural mechanization policy (same as 1979, Item 5)	1. An agricultural mechanization policy in place by 1981
2. Assess agricultural investment (same as 1979, Item 4)	1. Research reports published

SELF-HELP AGREEMENTS AND IDENTIFIABLE ACTIONS, 1976-1981

Agreement	Identifiable Action
<u>1980-1981 (no change) (cont.)</u>	
Agricultural Research and Extension	
3. Examine agricultural research (1979, Item 8) with emphasis on identifying constraints; determining linkages; and developing procedures to provide services, create incentives, and demonstrate results	1. Examination complete by 1981 2. Procedures to provide services, incentives, results by 1982
4. Carry out program to strengthen self-sufficient private sector agriculture (same as 1979, Item 1), as well as program to use mass media and group instruction to inform farmers	1. Increase in private sector agribusiness organizations 2. Increase in private sector share of agricultural business 3. Media program in place by 1981
Policy Formulation and Rural Planning	
5. Analyze and develop national plan for animal production	1. Analysis produced by 1982 2. Plan developed by 1982
6. Continue review of pricing policy (same as 1979, Item 2)	1. Analyses produced 2. Evidence of Government change of price policy

SELF-HELP AGREEMENTS AND IDENTIFIABLE ACTIONS, 1976-1981

Agreement	Identifiable Action
<u>1977 and 1978 (no change) (cont.)</u>	
7. Review food subsidies (same as 1979, Item 6)	1. Evidence of review and change in food prices for consumers

APPENDIX F

USAID PROJECTS IN AGRICULTURE, RURAL DEVELOPMENT, AND
HEALTH RELATED TO SELF-HELP AGREEMENTS, 1976-1981

Table F-1. USAID Projects in Agriculture, Rural Development,
And Health Related to Self-Help Agreements, 1976-1981

Project	Self-Help Agreement Activity	U.S.\$ Amount (millions)	Year Obligated
1. Improve Agricultural Data Collection/Analysis	1976-1981		
A. 0041	Agricultural Development Systems	15.0 (evaluated 1980)	1977
	Focus on horticulture and agricultural economics research. (Contractor: University of California (UC), Davis, lead contract)		
B. 0042	Agricultural Data Collection and Analysis	5.0	1980
	Assist agricultural economics research unit, MOA, to improve data collection activities, analysis. (Contractor: USDA and private firm)		
2. Improve Agricultural Research, Extension	1976, 1979-1981		
A. 0041	Agricultural Development Systems (see above)	15.0	1977
	Technology transfer in horticulture, citrus, development of research lab; some extension. (Contractor: UC, Davis)		

Table F-1. USAID Projects in Agriculture, Rural Development,
And Health Related To Self-Help Agreements, 1976-1981 (cont.)

Project	Self-Help Agreement Activity	U.S.\$ Amount (millions)	Year Obligated
B. 0027	Rice Research Center Establish multipurpose Rice Research Institute at Sakha; includes training, extension, machinery. (Contractor: UC, Davis)	21.8	1977
C. 0070	Major Cereals Develop research facilities, programs, and capabilities in cereals (excluding rice). Research stations at Sakha, Sids, Shandawal, and Gemmeisa.	47.0	1979
3. Marketing Improvement	1976, 1977, 1978		
A. 0041	Agricultural Development Systems (see above) Some work on processing and marketing research. Research for horticultural exports. (Contractor: UC, Davis)	15.0	1977
4. Storage, Ports, Distribution	1977-1978		
A. 0014	Cargo Handling, Alexandria Cargo handling, transport equipment, spares and maintenance; includes training. (Contractor: PRC Harris)	31.0	1976 (complete)

Table F-1. USAID Projects in Agriculture, Rural Development,
And Health Related to Self-Help Agreements, 1976-1981 (cont.)

Project	Self-Help Agreement Activity	U.S.\$ Amount (millions)	Year Obligated
B. 0028	Grain Storage Facilities Two 100,000 mt silos at Alexandria and Cairo. Quay extension at Alexandria. (Contractor: de Laurel Construction)	44.3	1975 (completed 1982)
C. 0047	Suez Port Development Rehabilitate and modernize Suez port to increase capacity from 644 mt to 1,615 mt.; initial report finished. (Contractor: Port Suez Engineering Group)	30.0	1978
D. 0037	Grain Storage, Tallow, Fats Mainly construction of storage facilities. Includes grain silo (50,000 mt) at Safaga on Red Sea and temporary grain handling facility at Alexandria.	42.0	1977
5. Water/Irrigation Management and Land Improvement	1977-1978		
A. 0017	Water Use Management Develop and test irrigation and water management programs at Mansuriya and Kafr el Sheikh in Delta, Minya in Upper Egypt. (Contractor: C.I.D.)	13.0	1976 (extended; evaluated 1980)

Table F-1. USAID Projects in Agriculture, Rural Development, And Health Related to Self-Help Agreements, 1976-1981 (cont.)

Project	Self-Help Agreement Activity	U.S.\$ Amount (millions)	Year Obligated
B. 0019	PVC Pipe Drainage	31.0	1976
	Establish facilities to produce pipe for drainage project (World Bank) at Quena, Assiut, Beni Suef. Plants are operational.		
C. 0035	Canal Dredging Equipment	31.2 (26.0)	1977
	Provide equipment for Main Canal dredging and repair for 26,000 miles of canals. (Contractor: Louis Berger International. Equipment is in place.)	(5.2)	
D. 0040	Irrigation Equipment	19.0 (11.0)	1977
	Buy electric pumps for 37 stations covering 128,000 feddan. MOI work is progressing.	(8.0)	
E. 0132	Irrigation Management Systems	38.0	1981
	Strengthen planning, operations, capital support for equipment for MOI. Institution-building and capital with MOI.		
6. Family Planning	1977, 1978, 1979		
A. 0029	Family Planning	45.0	1977 (evaluated 1979)
	Improve administration, supply, and outreach of family planning program. Works with MOH, American University, Cairo, and State Information Services.		

Table F-1. USAID Projects in Agriculture, Rural Development,
And Health Related to Self-Help Agreements, 1976-1981 (cont.)

Project	Self-Help Agreement Activity	U.S.\$ Amount (millions)	Year Obligated
7. Rural Social Service (Health/Nutrition)	1977-1979		
A. 0015	Rural Health Delivery Improve health services, test approaches, train medical per- sonnel in Dakahliya, Fayoum Beheira, and Assiut. (Contractor: Westinghouse Health Services)	7.8	1976 (evaluated 1981)
B. 0020	Integrated Social Work Training Centers Ministry of Social Affairs helped to build training center in Tanta (Delta) and Assiut (Upper Egypt).	4.0	1977 (evaluated 1980)
C. 0137	Control of Diarrheal Disease Spinoff from 015; will focus on reducing infant mortality by making oral rehydration services widely available.	26.0	1981
8. Agricultural Price Policy Review and Analysis	1979-1982 No "project," but Agricultural Development Systems Project has produced papers.		
9. Food Subsidy Policy Review and Analysis	1979-1981 No "project," but centrally funded study and others.		
10. Agricultural Investment Policy Review and Analysis	1979-1981 No "project."		

Table F-1. USAID Projects in Agriculture, Rural Development,
And Health Related to Self-Help Agreements, 1976-1981 (cont.)

Project	Self-Help Agreement Activity	U.S.\$ Amount (millions)	Year Obligated
11. Agricultural Private Sector Development	1979-1981		
A. 0095	Agricultural Cooperative Development Strengthen cooperative management and improve export marketing of fruits and vegetables. (Contractor: CLUSA)	5.0	1979
12. Farm Mechanization	1979-1981		
A. 0031	Agricultural Mechanization Establish agricultural mechanization group to work on planning and evaluation, training, soil improvement, machinery management exten- sion, service center devel- opment, and equipment research and development. Project planning complete? (Contractor: Berger International)	40.0	1978
B. 0096	Small-Scale Agricultural Activities Technical and administrative assistance to small equipment development.	1.7	1979 (evaluation in draft 1981)

Table F-2. Major Self-Help Activities of Government of Egypt, 1976-1981

Self-Help Activity	Relevant AID-GOE Projects					
	1976	1977	1978	1979	1980	1981
1. Agricultural Data Collection and Analysis Improvement		(0041)			(0142)	
2. Agricultural Research, Extension Improvement		(0041) (0027)		(0070)		
3. Marketing Improvement		(0041)				
4. Storage, Ports, Distribution/Irrigation	(0014)	(0028) (0037)	(0047)			
5. Water/Irrigation Management and Land Improvement	(0017) (0019)	(0040) (0035)				(0132)
6. Family Planning		(0029)				
7. Rural Social Service (Health/Nutrition)	(0015)	(0020)				(0137)
8. Agricultural Price Policy Review and Analysis						
9. Food Subsidy Policy Review and Analysis						
10. Agricultural Investment Policy Review and Analysis						
11. Agricultural Private Sector Development				(0095)		
12. Farm Mechanization			(0031)	(0096)		

APPENDIX G

THE INCENTIVE STRUCTURE IN EGYPT'S WHEAT MARKET

In order to understand the implications of PL 480 Title I in Egypt, it is useful to review the actors involved and their respective incentives. The economic reality faced by some of the primary actors in 1981 is briefly defined below.

I. THE ACTORS

The number of actors in the Egyptian wheat market is greater than one would at first imagine. The list includes not only consumers, disaggregated as rural and urban according to residence and income, but also small, medium, and large domestic actors. The Government of Egypt Ministries of Agriculture, Previous Page Blank, and Finance; small- and large-scale millers; bakers; barge operators; the railway; at least four port authorities; and silo companies. Besides these domestic actors, there are a number of international actors as well. There are at least five major wheat exporting countries involved: Australia, Canada, France, Argentina, and the United States, each with its own set of production, consumption, transport, storage, milling, and foreign policy interests to consider. In the case of the United States, PL 480 Title I operates via an interagency working group which takes into consideration a variety of divergent interests embodied in such agencies as the U.S. Department of Agriculture, the U.S. Department of State, AID, the Office of Management and Budget, and the Treasury Department. Lobby groups from the U.S. wheat producers, shipping companies, cereal trading companies, and flour millers also seek to influence not only the U.S. Government actors, but also Egyptian Government decision-makers. Thus, the list of groups with an interest in the Egyptian wheat market is considerable.

II. THE EGYPTIAN FARMER

What is the economic situation facing the Egyptian farmer? Many of the approximately 3 million farm households in Egypt have holdings of around 3.5 feddans, which means they derive most of their annual income from the equivalent of 7 feddans (two crops per feddan per year). Often farmers do not make individual production decisions, but pool their land with relatives, e.g., father and sons, or brothers. A number of farmers rent their land from larger land holders despite the fact that there was a redistribution of land in 1952 following the

overthrow of King Farouk, which established maximum holdings of 150 feddans.

The farmer is faced with several externally imposed constraints on his decision-making. First, every 2 or 3 years he must plant a certain amount of his land in cotton, which he must sell to the Government cooperative banks for a set price (presently about 30 percent of the world market price). Second, he is strongly urged to plant a certain amount of land in his 2- or 3-year rotation in rice and wheat. Until recently he was required to sell to the Government a portion of the output of both of these crops; however, now he is required to sell only a portion of his rice. Both of these commodities have annually established Government procurement prices.

Third, the Government provides certain important inputs at subsidized prices to provide additional incentives for producing the desired commodity and yield level as viewed from the perspective of the country as a whole. These subsidized inputs include the following: (a) free water at certain specified times during the year, (b) fertilizer, and (c) credit facilities. To encourage the purchase and use of improved seeds, the Government, through its agricultural cooperative banks, also provides credit. In some areas, special Government extension activities are being undertaken to improve tilling and other agricultural practices as well.

Fourth, the Government has intervened by heavily subsidizing energy prices (for example, selling gasoline at about 40 percent of world prices), so that certain traditional labor or bullock-powered activities, e.g., pumping water, can be more economically mechanized. Finally, the Government controls the allocation and priority of various applied research activities in agriculture, so that the knowledge base is defined and expanded according to forces external to the farmer.

Another set of constraints faced by the farmer is determined by the productivity of the land and its potential for alternative uses. If the land is close to the city, urban development represents a major "opportunity cost" to farming. In addition, there is an increasing salinity and waterlogging problem in the Delta. As a consequence, yield increases are more difficult to obtain and maintain; at the same time, the price of bricks for construction is also rising. Thus, it may be increasingly rational for farmers to sell their land for use in brick-making and then to have it developed for urban purposes.

The farmer has control over a number of decisions, however. Perhaps one of the most important is the allocation of his and his household workers' scarce time. In addition to labor-time allocations, he has considerable latitude in

determining when he will plant, weed, water, and harvest each crop. Further, he has considerable leeway to decide how much of his fertilizer, acquired at subsidized prices for application on the Government-preferred commodities, will in fact be so used, rather than on such nonprice-regulated commodities as vegetables or berseem.

The farmer can also decide the extent to which the "by-products" of major commodity production enter into his decision to produce. For example, it is increasingly true that the primary motivation for growing wheat is to obtain the by-product of straw to be used as animal feed in the early summer, as matting in and around houses, and as a principal ingredient in bricks. Similarly, cotton is also grown for two by-products--the oil seeds and the bushes themselves, which have become the most commonly used cooking fuel in rural areas. Where there has been such an influx of imported wheat, the farmer now obtains a greater return per unit of weight from straw than from the grain itself. (Prices in February 1982 suggest that straw yields 10-11 pt./kg, whereas wheat is sold for around 7 pt/kg.) There are reports of rising grain content in local straw.

Farmers increasingly are growing nonregulated commodities including vegetables, beans, lentils, cattle, chickens, and fruit, as well as totally depreciating their land by selling it for urban use or allowing their land to be used to grow "bricks." The farmer also has another choice. As the wage rate rises relative to agricultural earnings, not only in urban areas of Egypt but also in other Middle East states, off-farm migration has increased and provides an important alternative to life in the agricultural sector.

At the moment, it is useful to review the major incentives facing the farmer, assuming he desires to maximize his income. Some of the basic facts are contained in Table G-1. Unfortunately, the table does not include some of the most remunerative activities, such as fruit growing and animal production, which yield commodities to the farmer and which have high income elasticities of demand. Nevertheless, the table shows several important points. First, the estimated gross margins, not including the return to labor, vary considerably from crop to crop. The prices of wheat, cotton, rice, and maize are those which the Government influences to a greater or lesser degree by establishing procurement prices and determining rates of procurement and area allotments. Among those crops which the Government influences, the greatest margin in 1979 was on cotton. Without straw as an important by-product from the production of wheat, the gross margin on wheat would have been negative, given prices, yields, and production costs. The gross margin on rice is very low as well.

What is of interest to the farmer, however, is the labor input required. When the information in column 6 of Table G-1 is incorporated, a different incentive structure emerges among the administered crops, particularly after adding in the straw "by-product" of wheat production. (It is probably true that the situation has gotten to the point where farmers consider wheat a "by-product" of straw production.) With straw, wheat is preferred over any of the other three administered crops. With about one-fourth the labor input, the farmer obtains a return per unit of time three times as big as for cotton (but only because of the straw). With this time saving, he could either be producing a high-margin crop such as tomatoes or onions, tending animals, or working off-farm for part of the year.

When referring to the entire set of options presented in Table G-1, it is not surprising to see so many fields planted in either short or long berseem. Not only are the gross margins double to quadruple those of wheat (including straw), but they also require less labor input, such that the return per unit of labor input is even greater (see column 7 of this table).

Given the kinds of options that the farmer faces from prices, yields, costs of production, and labor input requirements, it is not surprising to find considerable substitution for the four "major" crops, even when Government fiat requires that they be grown. Even with the Government subsidizing inputs such as free water and reduced fertilizer prices, the returns, relative to those crops that are unadministered, are so low that farmers reallocate their land and time to such commodities.

During 1982, the Minister of Agriculture of the Government of Egypt has been pushing for an increase in wheat prices to the international price, and for introduction of a new technology package that would provide about a 50-60 percent increase in yield with only about a 5-10 percent loss in straw production. In Table G-2, the gross margins and gross margin per person-day figures are presented under these alternative situations for wheat (including straw).

Assuming the figures in Table G-2 approximate reality, farmers will only accept a new technology package which is coupled with a substantial increase in prices. Without a price increase, the return to the farmer is negative, and only marginally positive when straw is included. When there is clear substitution of land for wheat and berseem production, with the 1979 returns as high as they were (and they have not declined as of 1982, according to field interviews), farmers do not produce the desired yield response.

Table G-1. Farm Management Options Facing the Egyptian Farmer, 1979

	Farm Prices 1979 (£E/ton) (1)	Average Yield 1979 (tons/fed.) (2)	Returns (1) x (2) (175) (£E/ton) (3)	Cost of Production (£E/fed.) (4)	Gross Margin (3-4) (5)	Labor Required (persondays) (6)	Gross Margin per Personday (£E/day) (7)
Wheat ¹	62	1.38	175 (w/straw) 85 (w/o straw)	108	67 (w/straw)	27	2.48
Cotton	294	0.92	270	187	83	100	0.83
Rice	66	2.28	150	131	19	48	0.40
Maize	74	1.58	117	124	-7	37	-0.19
Long Berseem	250 ²	1.25	312	30	282	16	14.84
Short Berseem	150 ²	0.75	151	25	126	17	7.41
Sorghum	71	1.59	113	130	-17	37	-0.46
Tomatoes	300	1.50	450	200	250	66	3.79
Broad Beans	137	0.96	131	90	41	60 ²	0.68

¹Not including straw. In 1979, straw had a market price of about \$90/ton.

²Estimate.

Sources: Cuddihy, Table IV.1, page 30; Macro Study, Table H.1, page 134; Field interviews, February 1982.

Table G-2. Alternative Returns to Wheat for Egyptian Farmers, 1981

	Price/Ton	Yield (ton/fed)	Return	Assume 25% Increase Over 1979 Cost	Gross Margin	Labor	Gross Margin per Person-day
Price Increase to World Prices	145	1.38	200 290 (w/straw)	135	65 155 (w/straw)	27	2.41 5.74 (w/straw)
Yield Increase of 50%	62	2.07	128 263 (w/straw)	155	-27 81 (w/straw)	27	-1.00 3.00 (w/straw)
Price and Yield Increase	145	2.07	300 435 (w/straw)	155	145 280 (w/straw)	27	5.37 10.37 (w/straw)

219

Sources: Cuddihy, 1981, and personal team interviews, February 1982

Often it is asked whether farmers respond to price changes. In Egypt, this issue has been empirically investigated at least three times.¹ Table G-3 summarizes these results. Unfortunately, the complete set of substitutions between administered and non-administered commodities has not been fully investigated. However, it is useful to review the findings as they pertain to the four major administered commodities.

The results are presented in the form of area planted and yield elasticities with respect to changes in Government procurement price. With respect to the direct supply responses, e.g., the response of wheat planting area or yield, to changes in the price of wheat, all of the estimates are positive as expected, with one exception. Such a positive relationship in both the area and yield responses provides evidence to support the view that increases in producer prices will lead to an increase in output via both yield and area planted responses.

Second, given knowledge about cropping patterns, Government planting requirements, and potential substitution decisions, the positive and negative signs obtained in the cross-price elasticity are readily interpretable. The findings suggest the conclusions shown in Table G-4.

In summary, given the environment facing the farmer in Egypt in 1982, and the role of PL 480 in contributing to an antithetical wheat price policy (from the point of view of domestic farmers), it is clear that domestic wheat production will remain low. Prospects for adopting new technologies will also remain low. Further, nonadministered agricultural commodities will remain the only growth subsector in agriculture as long as prices on administered commodities remain low. Clearly, farmers are economically rational. Output of wheat and other administered commodities could increase. However, for other economic reasons, the Government is not interested in expanding the local production of wheat.

¹Cuddihy, 1980; Von Braun, 1980; and Isfahani and Sarris, 1981.

Table G-3. Empirical Estimates of Egyptian Farmers' Supply Response^{1,2}

Area Planted Responses, Expressed as Area Supply Elasticities													
Crop	Wheat			Rice			Maize			Cotton			Index of Competing Crops Prices
Wheat	0.44,	0.22,	0.33 ³	-, ⁴	-	-0.16	-0.17,	-	-	-	-0.60,	-	
Rice	0.38,	-	-	0.20,	0.53,	0.53	-	-	-	-0.95,	-	-0.86	-0.27
Maize ⁵	0.31,	-	-	-	-	0.09	-0.19,	0.44,	0.23	0.21,	-0.75,	-	
Cotton	-0.65,	-	-0.11	0.88,	-	-0.01	-	-	-	-0.24,	0.77,	0.21	-1.43

Yield Responses, Expressed as Yield Supply Elasticities								
Crop	Wheat		Rice		Maize		Cotton	
Wheat	0.30,	0.32 ⁶	-	-0.24	-	-	-1.18,	
Rice	0.43,	-	0.19,	0.19	0.40,	-	-0.66,	-0.11
Maize	-	0.53	-0.48,	-0.03	0.39,	0.01	-0.93,	-0.31
Cotton	-0.72,	-0.28	-	-0.03	-	-0.16	0.28,	0.52

¹There are theoretical and empirical problems associated with each figure reported. See Esfahani and Sarris for a review of some of the problems. For example, there are no urban Watson statistics reported for any estimate acquired by using time series data. Similarly, all equations are misspecified to some degree. However, this is the best information available.

²Where available, the long-run elasticities are reported.

³The first figure is from Cuddihy's work, the second is from Von Braun, and the third is from Esfahani and Sarris.

⁴The line (-) in the tables designates either a statistically insignificant estimate or, most likely, that such a cross-price response was not included in the empirically estimated equations (errors of variables?).

⁵Von Braun has estimated that the meat/milk price changes are associated with maize area planted. (Elasticity estimated was 0.69.)

Sources: Cuddihy, page 40, Table IV.2.d.; Von Braun, page 42, (1980); Esfahani and Sarris, Tables 1 and 2, August 1981.

Table G-4. Conclusions Derived From Table G-3 About
Crop Complementarity

Crop	Price Changes in			
	Wheat	Rice	Maize	Cotton
Supply of Wheat		Substitute	Substitute	Substitute
Supply of Rice	Complement		Complement	Substitute
Response in Maize	Complement	Substitute		Substitute
Response in Cotton	Substitute	Unclear	Slight Substitute	

Figure G-1. Cropping Patterns in Egypt, 1952-1979

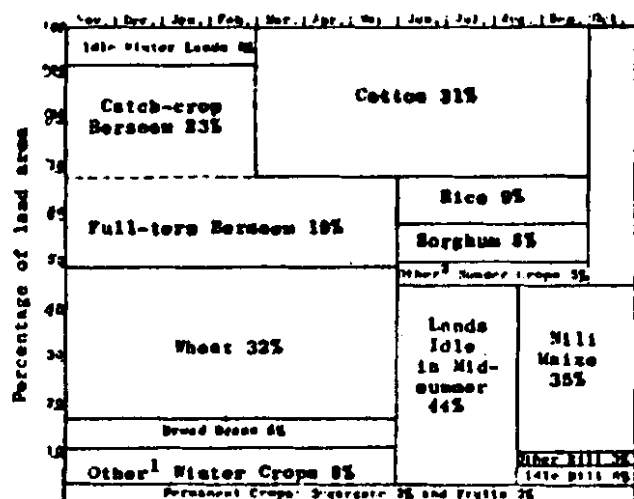


Figure 1.1a. The Cropping Pattern in 1952-54

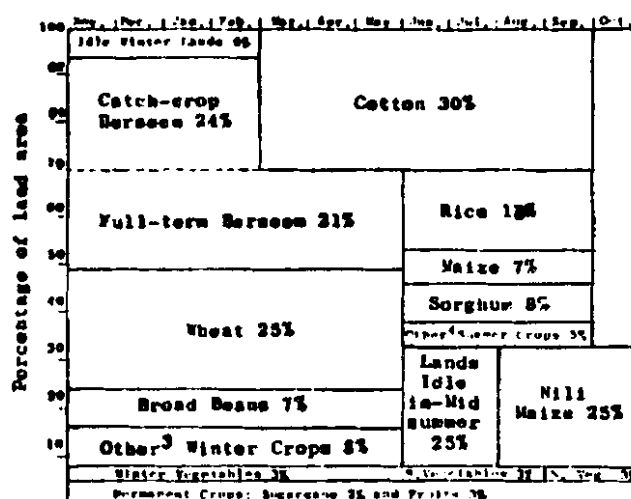


Figure 1.1b. The Cropping Pattern in 1962-64

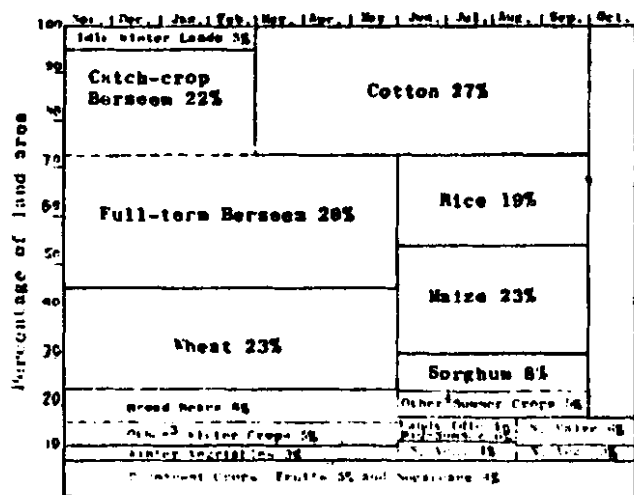


Figure 1.1c. The Cropping Pattern in 1972-74

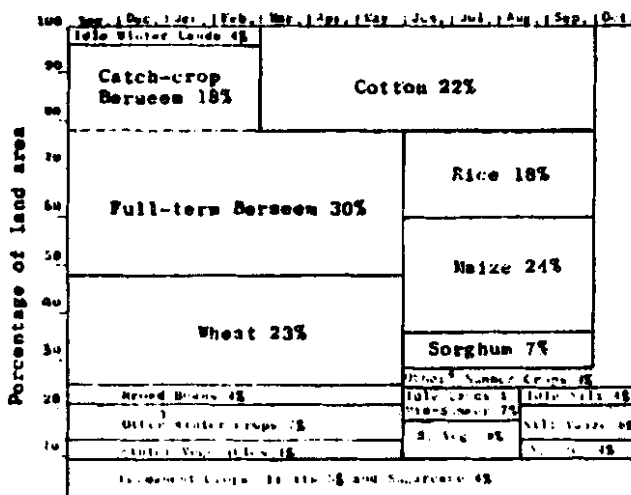


Figure 1.1d. The Cropping Pattern in 1977-79

*Represents lands which are temporarily idle between summer crops, e.g., cotton and rice, and winter crops, e.g., berseem.

¹Includes lentils, chick peas, fenugreek, flax, barley, and winter vegetables.

²Includes sesame, groundnuts, soybeans, and summer vegetables.

³Includes lentils, chick peas, fenugreek, flax, barley, and others.

⁴Includes sesame, groundnuts, soybeans, and others.

Source: Arab Republic of Egypt, Ministry of Agriculture, Egypt's Agricultural Cropping Pattern: A Review of the System by Which It Is Managed and the Relationship to Price Policy, Micro-Economic Study of the Egyptian Farm System, Project Research Paper No. 4, (Cairo: Institute for Agricultural Economic Research, 1980).

APPENDIX H

A GRAPHICAL ANALYSIS OF THE IMPACT OF PL 480 TITLE I
ON EGYPTIAN WHEAT PRODUCTION AND GOVERNMENT OF EGYPT
POLICY OPTIONS

Possibly the most recurrent criticism of concessional sales of wheat and wheat flour to Egypt is that by providing inexpensive wheat, the United States is indirectly supporting the Egyptian Government's policy of subsidizing domestic wheat consumption, thereby providing a disincentive to Egypt's own producers. This criticism is supported by price data which show that Egypt's domestic wheat price is significantly below international prices, and by production data which indicate a decline since the resumption of food aid in 1975 (Table H-1).

Table H-1. A Comparison of Wheat Imports,
Production, and Prices, 1974-1980

Year	Imports			Production (Mmt)	Prices	
	Total (Mmt)	PL 480 (Mmt)	Percentage		Domestic (£E/mt)	International (£E/mt)
1974	3.49	---	0.0	1.88	46.93	103.40
1975	3.80	0.44	11.6	2.03	51.33	79.50
1976	3.88	1.33	34.3	1.96	47.13	65.10
1977	4.34	1.64	37.8	1.70	54.13	53.20
1978	5.12	1.31	25.6	1.93	61.67	56.50
1979	4.91	1.43	29.1	1.86	64.00	77.40
1980	5.42	1.49	27.5	1.80	76.70	133.00

Sources: U.S. Department of Agriculture, Foreign Agriculture Service, Egypt Annual Agricultural Situation Report, Various Issues; Scobie, Grant M., Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt, IFPRI, Washington, D.C., September 1981.

One problem with this assertion is that it suggests that Egypt would not be able to finance its food subsidies without PL 480. Furthermore, it assumes that the existence of consumer subsidies necessarily implies that the Government cannot support domestic prices at international levels. On the first point, empirical evidence suggests that the Egyptian Government would continue to sustain its cheap food policy by importing wheat commercially, whether or not the United States were to provide PL 480. This view is confirmed by Egyptian Government officials and appears plausible given the relatively small size of the wheat subsidy in relation to total Government subsidies on food and energy, and in relation to Egypt's total import bill.¹

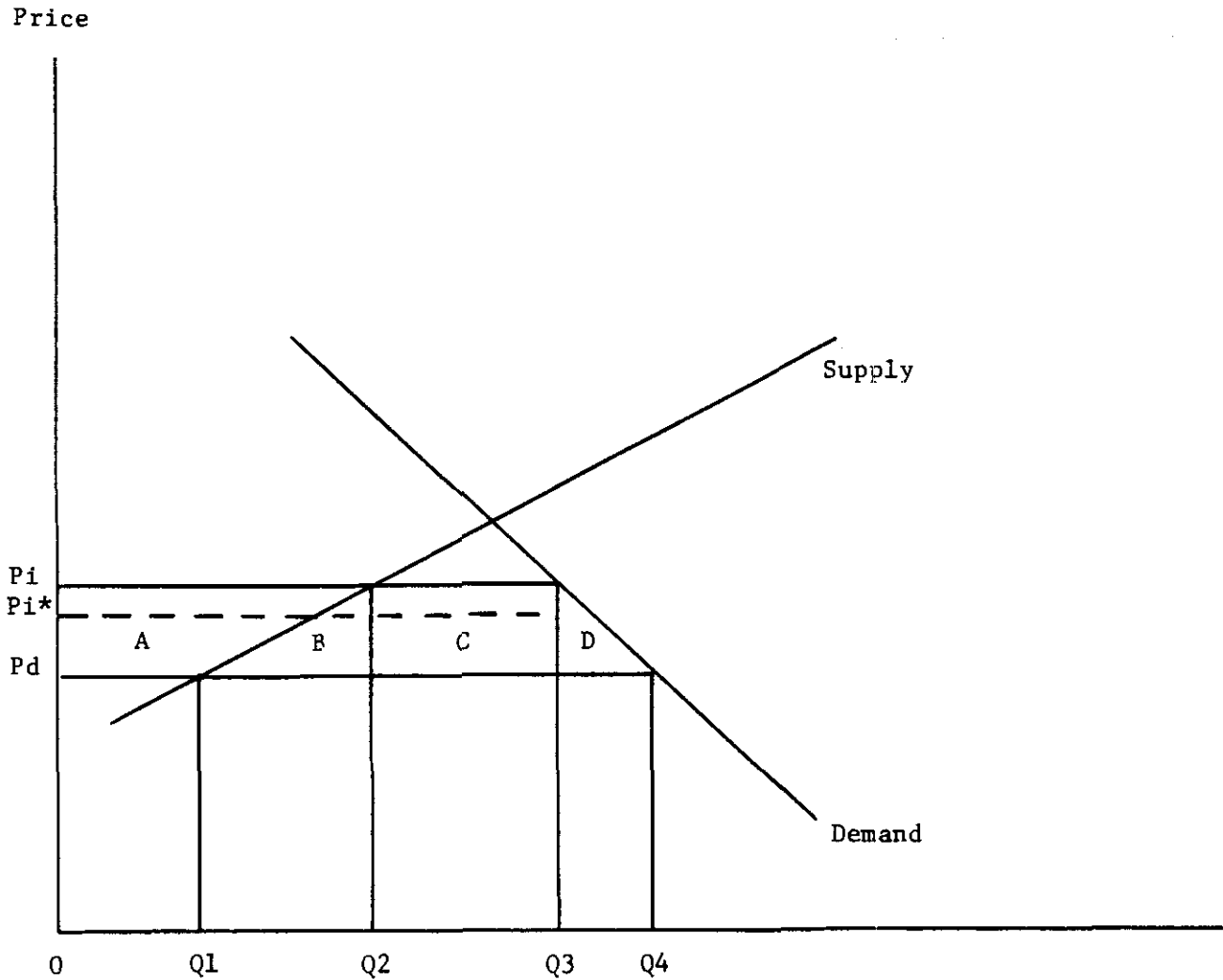
On the second point, while Egypt has the financial resources to maintain domestic wheat prices at international levels and to continue its consumer subsidy on wheat, thus far it has not been willing to do so. In part, this is a reflection of Egypt's overall policy of taxing the agricultural sector to promote industrial growth.²

Figure H-1 presents a graphic description of how PL 480 affects Egyptian wheat production and the policy alternatives available to the Government. Currently, Egypt's domestic producers' price (P_d) is two-thirds that of the international price (P_i). Thus, Egyptian consumers are being subsidized in an amount roughly equivalent to the areas $A+B+C+D$. Area A is financed through an implicit tax on domestic producers, while areas $B+C+D$ are being financed out of the general treasury. Out of the total amount consumed, Q_4 , up to Q_1 is being supplied by domestic producers and the difference, Q_1 to Q_4 , is imported. The effect of the concessional imports can be represented for simplicity by P_i^* , which reflects the implicit import price faced by the Egyptian Government. The fact that P_i^* is less than P_i permits the Egyptian Government to defray foreign exchange outlays.

¹Alderman, Harold et al., Egypt's Food Subsidy and Rationing System: A Description, IFPRI Working Draft, August 15, 1981; and Scobie, Grant M., Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt, IFPRI, Washington, D.C., September 1981.

²Cuddihy, William, Agricultural Price Management in Egypt, World Bank Staff Working Paper No. 388, April 1980.

Figure H-1. Supply and Demand for Wheat in Egypt



P_i - International price for wheat (\$156/metric ton)

P_i^* - Implicit price when weighted commercial market price and concessional sales price are combined

P_d - Current price to domestic producers (\$90/metric ton)

0 to Q_1 - Current level of domestic production

Q_1 to Q_4 - Current level of imports

Q_1 to Q_2 - Production increase due to price change

Q_3 to Q_4 - Decline in consumption when consumer subsidy is removed

APPENDIX I

STATISTICAL TABLES AND FIGURESTable I-1. Government of Egypt Food Subsidies,
1970/1971-1980/1981

Previous Page Blank	Total Agricultural Subsidies as % of Total Gov't Expenditure	Food Subsidy as % of Total Gov't Expenditure	Food Subsidy as % of Public Expenditure	Food Subsidy as % of GDP at Market Price
1970/1971	0.5	0.5	0.2	0.1
1972	1.5	1.5	0.8	0.3
1973	11.6	11.6	5.5	2.3
1974	45.6	37.0	14.8	7.6
1975	47.9	37.8	13.4	9.4
1976	26.0	19.3	8.1	4.8
1977	39.9	19.2	6.9	3.8
1978	44.7	22.4	7.6	4.7
1979	57.7	37.1	12.9	8.1
1980	36.5	26.9	12.1	3.6
1980/1981	41.8	29.6	12.4	NA

Source: Derived from Alderman, et al., 1981.

Table I-2. Combined Ministry of Irrigation/Ministry of Agriculture Recurrent and Capital Budgets, 1975-1981

Year	Combined Expenditure Recurrent	Capital (million £E)	Total
1975	0.2	90.1	267.3
1976	145.3	47.5	192.8
1977	136.4	69.3	205.7
1978	176.6	137.0	313.6
1979	228.6	190.3	418.9
1980	192.1	258.0	450.1
1981	252.8	358.8	611.6
			2,460.0

Source: Government of Egypt, Annual Budget, various years.

Table I-3. Recurrent and Capital Budgets, Ministry of Health, 1974-1981

Year	Recurrent (million £E)	Capital (million £E)
1974	85.8	6.5
1975	90.2	13.3
1976	31.4	8.2
1977	26.5	18.8
1978	47.8	18.9
1979	56.3	38.8
1980	98.5	50.8
1981	101.6	65.8

Source: Government of Egypt, Annual Budget, various years.

Table I-4. Consumption of Wheat by Rural and Urban Expenditure Groups in 1979-1980

Expenditure Group	% Total Consumption			Share of	Ratio of Total Wheat	Ratio of	Ratio of
	Wheat	Bread	Flour	Population	Consumption to	Bread to	Flour to
					Population	Population	Population
					Share	Share	Share
Rural							
Low	14.0	9.0	21.8	21.5	64.8	41.7	100.0
Middle	16.9	6.5	33.0	29.8	56.7	21.8	110.7
High	2.9	1.9	4.5	5.2	55.8	36.5	36.5
Total	33.8	17.4	59.3	56.6	59.7	30.7	104.8
Urban							
Low	13.0	16.5	7.5	8.2	158.5	201.2	91.5
Middle	40.5	49.2	27.1	26.4	153.4	186.4	102.7
High	12.6	16.9	6.0	8.8	143.2	158.0	68.2
Total	66.1	82.6	40.6	43.4	152.3	190.3	93.5

Sources: Table 2, Joachim von Braun, "Equity Implications of Food Policies for the Rural Population in Egypt." Paper prepared for the IAAE conference in Jakarta, Indonesia, August 24-September 2, 1982, 10 pp. mimeo.

Table I-5. Trends in Consumer Price of Cereals Relative to All Food and Beverage Items and All Items

Year	Price of Cereals Relative to All Food and Beverage Items		Price of Cereals Relative to All Consumer Items	
	Rural	Urban	Rural	Urban
1970/1971	92.9	84.5	94.7	87.1
1973	91.9	80.2	96.8	85.7
1975	81.8	70.7	90.3	81.5
1977	74.1	58.7	85.0	71.1
1979	66.8	48.4	79.0	57.5

¹ 1966/1967 = 100.

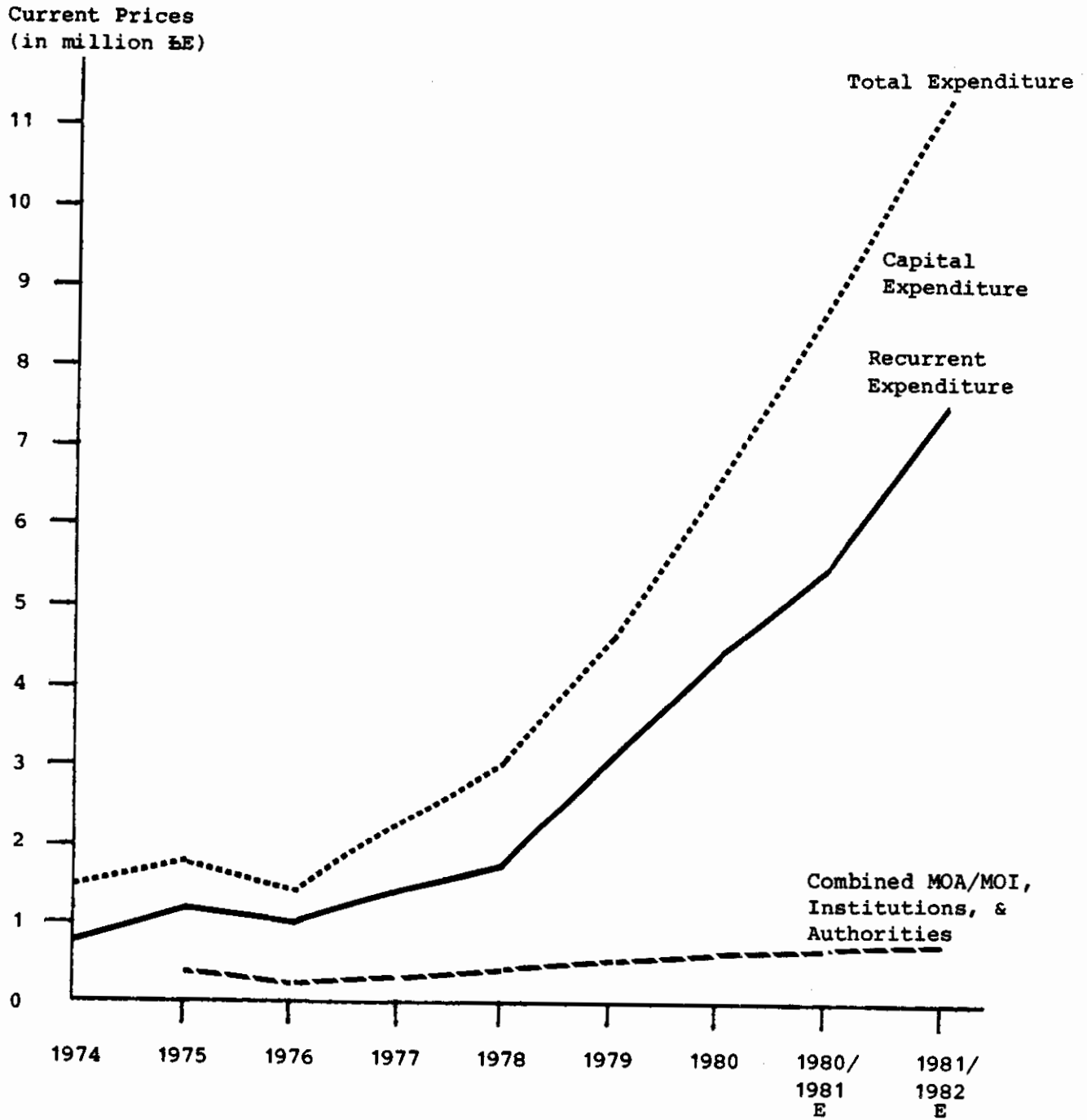
Source: Alderman et al., 1981 Tables 4.19 and 4.20, pages 172 and 1973

Table I-6. Egyptian Imports of Wheat and Wheat Flour, 1973/1974 to 1980/1981

Year	Metric Tons of Wheat and Wheat Flour Imported		
	Commercial	Concessional	5-Year Average
1973/1974	2,492,990	142,403	
1974/1975	2,952,446	477,240	
1975/1976	3,028,892	736,459	
1976/1977	2,102,388	1,955,002	
1977/1978	3,173,104	1,222,180	2,749,964
1978/1979	3,350,328	1,571,022	2,921,432
1979/1980	3,688,319	1,467,563	3,068,606
1980/1981	5,455,500	1,294,243	3,553,928

Source: International Wheat Council, Egypt: Imports of Wheat and Wheat Flour

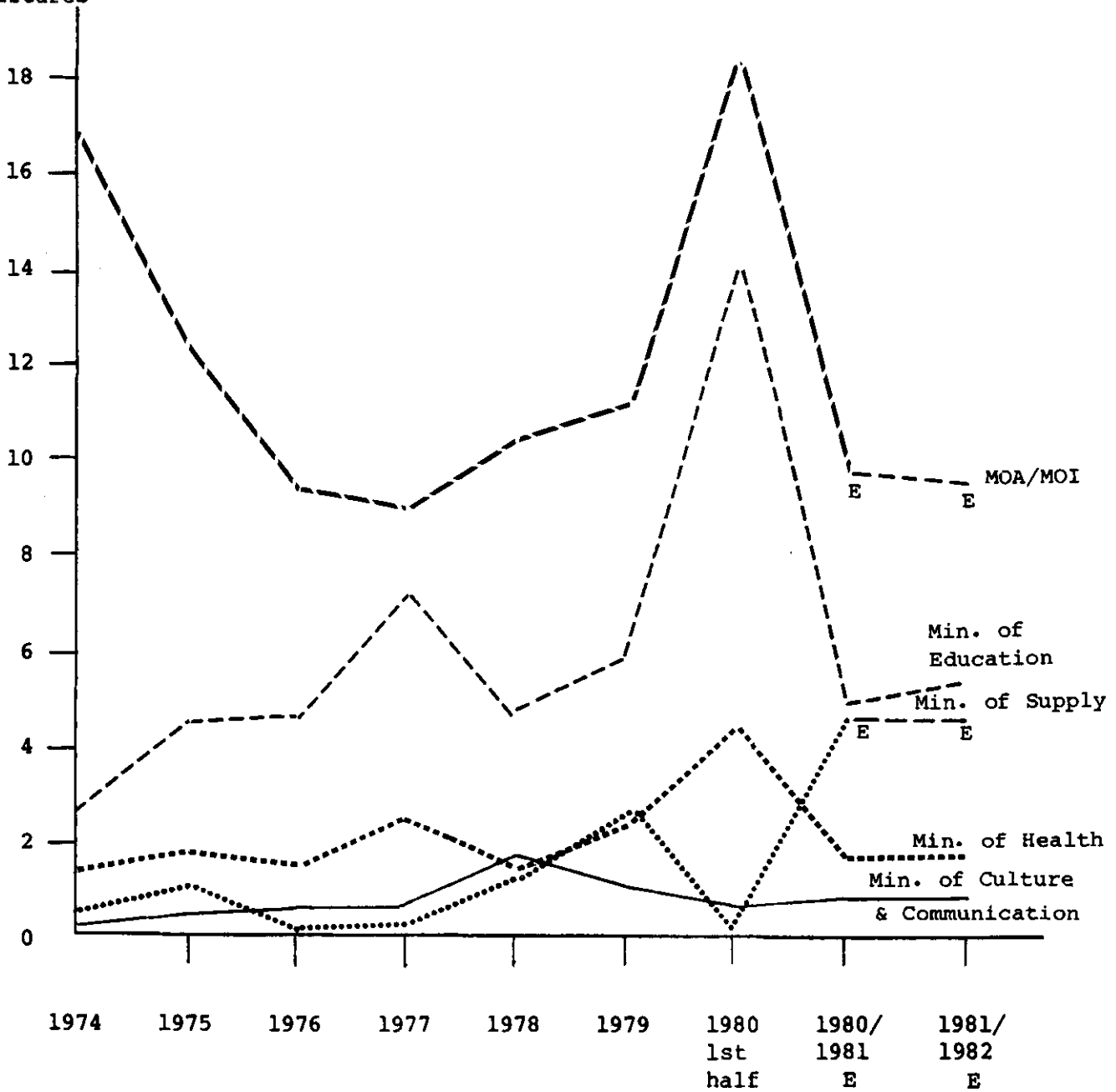
Figure I-1. Government of Egypt Total Expenditures and Combined Ministry of Agriculture/Ministry of Irrigation Expenditures, 1974-1981/1982



Source: Government of Egypt, Annual Budget, various years.

Figure I-2. Percentage Share of Total Capital Budget Received by Ministry of Agriculture (MOA)/Ministry of Irrigation (MOI) and Selected Ministries, 1974-1981/1982

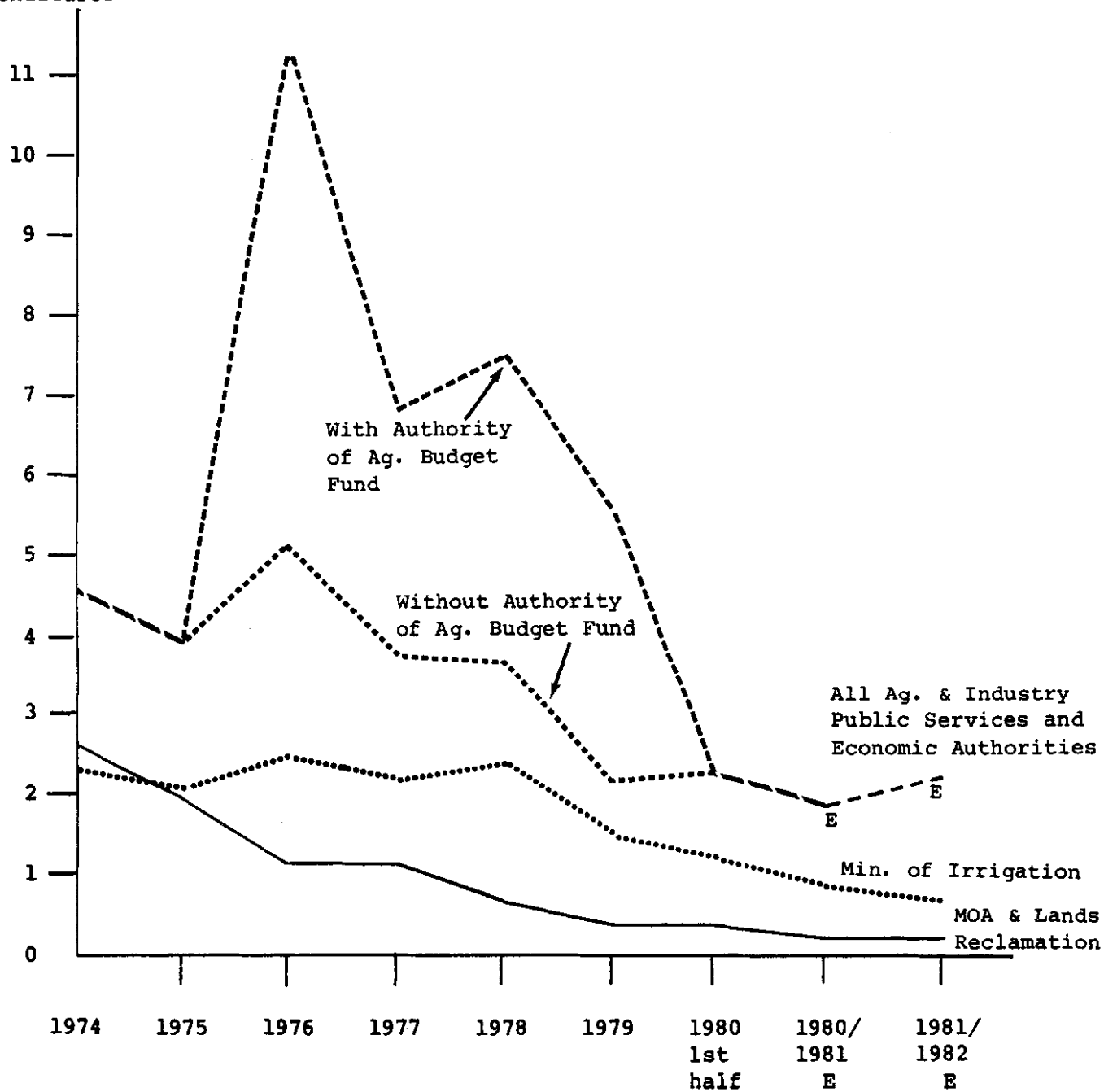
% of Central Government Capital Expenditures



Source: Government of Egypt, Annual Report, various years.

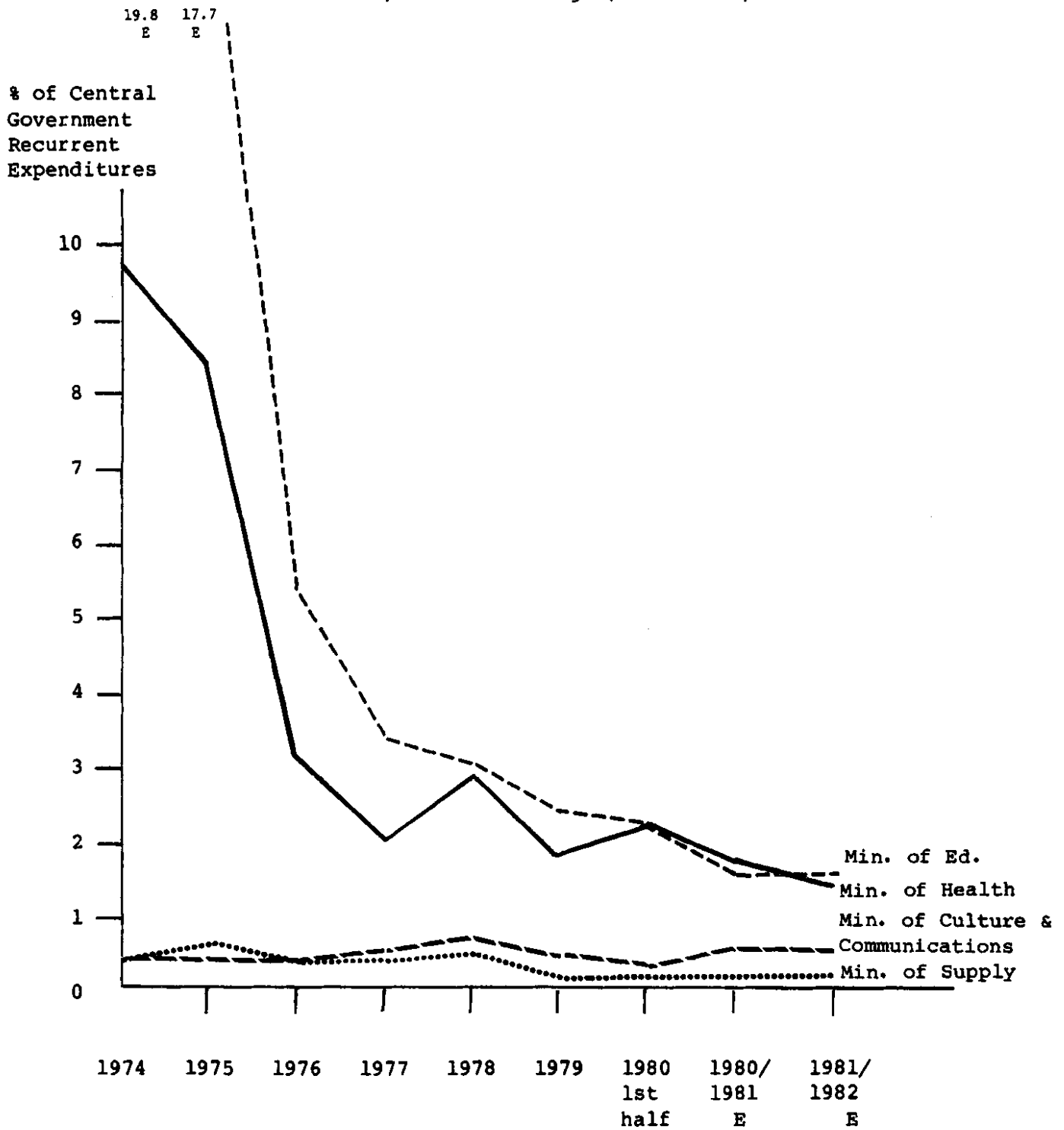
Figure I-3: Percentage Share of Total Recurrent Budget Received by Ministry of Agriculture (MOA)/Ministry of Irrigation (MOI) Plus Institutions, and Authorities, 1974-1981/1982

% of Central Government Recurrent Expenditures



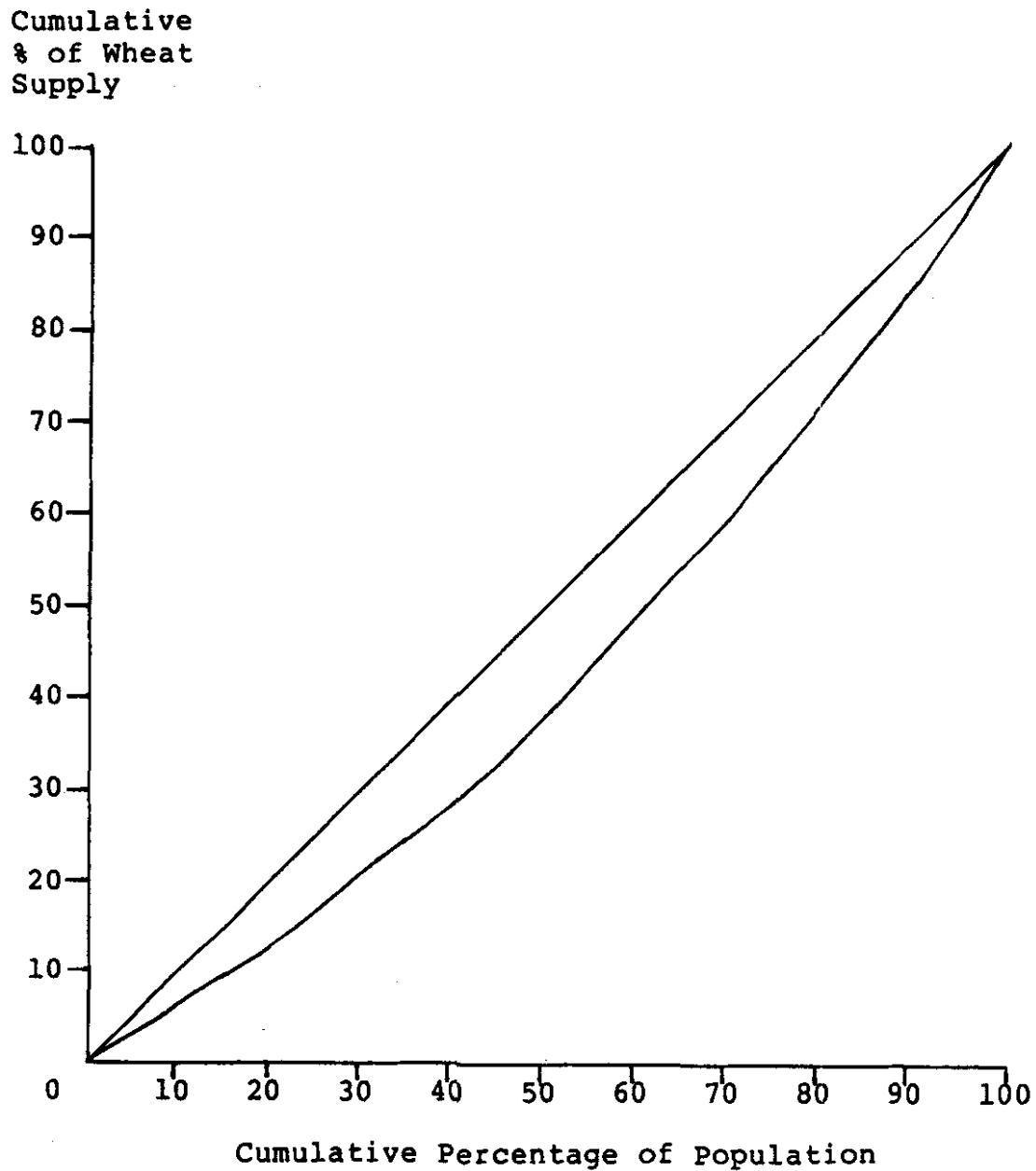
Source: Government of Egypt, Annual Report, various years.

Figure I-4. Percentage Shares of Selected Social Service Ministries, Recurrent Budget, 1974-1981/1982



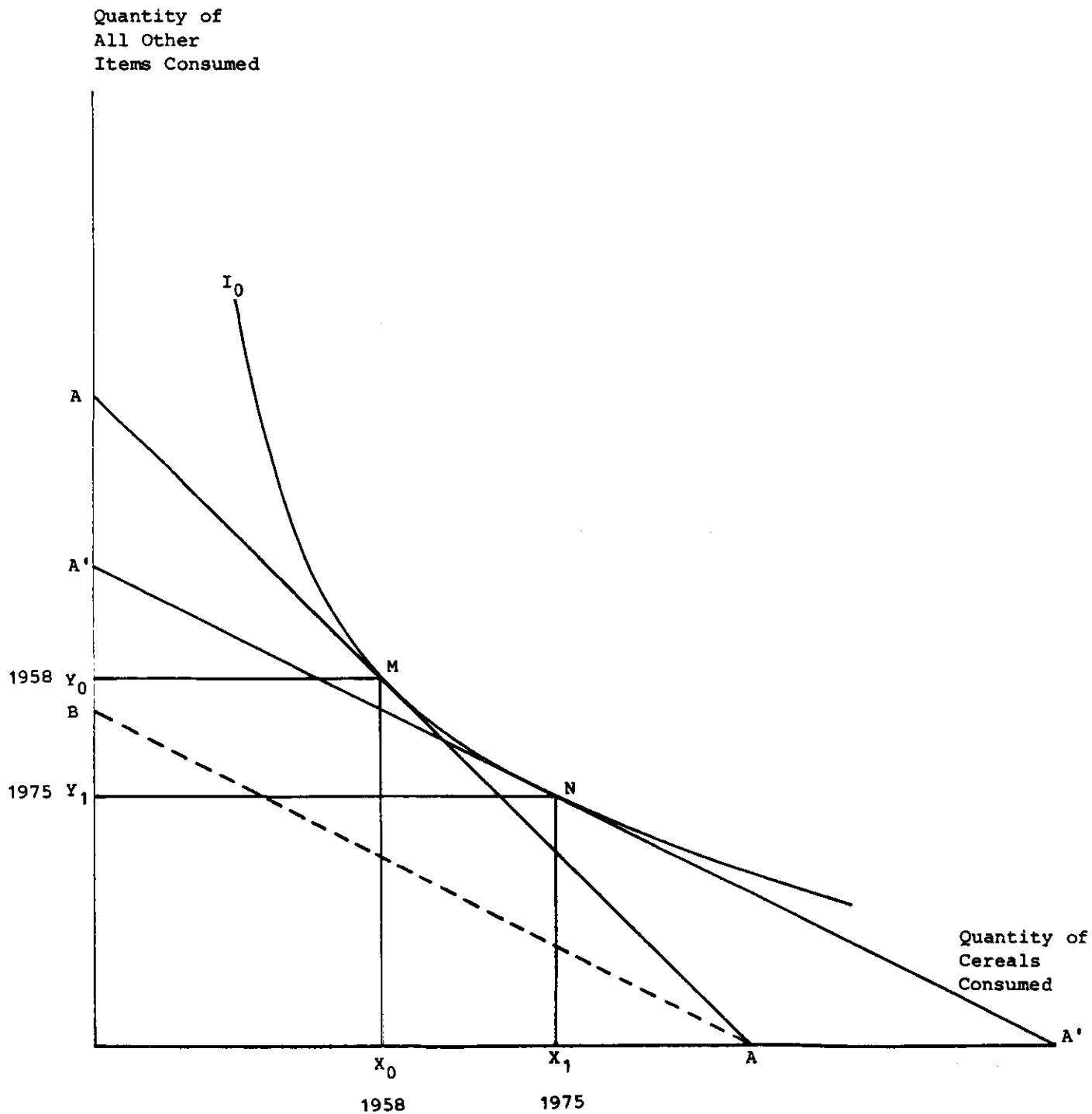
Source: Government of Egypt, Annual Report, various years.

Figure I-5: Lorenz Curve Analysis of Wheat Distribution
in Egypt, 1980/1981



Sources: Alderman, et al., 1981, Table 2.4, pg. 34;
Table 4.1, pg. 102; and Table 4.2, pg. 105

Figure I-6. Impact of Changes in Relative Food Prices on Dietary Patterns



BIBLIOGRAPHY

1. Alderman, Harold et al., Egypt's Food Subsidy and Rationing System: A Description, IFPRI Working Draft, August 15, 1981.
2. Cuddihy, William, Agricultural Price Management in Egypt, World Bank Staff Working Paper No. 388, April 1980.
3. Esfahani, Hadi and Alexander Sarris, Agricultural Supply Response for the Main Crops in Egypt, Economics Working Paper No. 35, Agricultural Development Systems Project (Cairo, August 1981) (mimeo).
4. Scobie, Grant M., Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt (Washington, D.C.: IFPRI, September 1981).
5. U.S. Department of Agriculture, Foreign Agriculture Service, Egypt Annual Agricultural Situation Report, January 31, 1981.
6. Arab Republic of Egypt, Ministry of Health, "Mid-Project Program Review, Strengthening Rural Health Services Delivery (SRHD)," December 1980.
7. Arab Republic of Egypt, Ministry of Agriculture, "The Broad Lines of the Agricultural Policy," Paper Prepared for Delivery by the Minister of Agriculture, February 1, 1982.
8. Central Agency for Public Mobilization and Statistics, Assembled Results of Four Rounds Household Budget Sample Survey in the Arab Republic of Egypt, 1974-1975, September 1978.
9. Central Agency for Public Mobilization and Statistics, Statistical Yearbook, Arab Republic of Egypt, 1952-1979 (Cairo: Government Printer, July 1980).
10. Chenery, Hollis, and Alan Strout, "Foreign Assistance and Economic Development," American Economic Review, 56, 4, part 1 (September 1966):679-733.
11. Consortium for International Development, "Quarterly Report, April 1, 1981-June 30, 1980," EAACIP Publication No. 30 (Cairo, August 1981).
12. Cuddihy, William, Agricultural Price Management in Egypt, World Bank Staff Working Paper No. 388, April 1980.

13. Department of Health, Education, and Welfare and the Food and Agriculture Organization, Food Composition Table For Use in Africa (Bethesda, Maryland: DHEW, National Center for Chronic Disease Control, 1968).
14. Esfahani, Hadi, and Alexander Sarris, "Agricultural Supply Response for the Main Crops in Egypt," Economics Working Paper No. 35, Agricultural Development Systems Project (Cairo, August 1981) (mimeo).
15. Field, John, and George Ropes, "Infant Mortality, The Birth Rate, and Development in Egypt," MIT-Cairo University Health Care Delivery Systems Project, May 1980.
16. Fraenkel, Richard, A Review of a Recent Body of Literature Concerning the Egyptian Agricultural Price Policy and Crop Procurement Program (Washington, D.C.: USAID/Cairo, December 2, 1980).
17. Fraenkel, Richard, "Agricultural Prices and Policies in Egypt (1974-81)," 1984 CDSS Annex (Cairo: USAID, January 25, 1982).
18. Habashy, Nabil, and James Fitch, Egypt's Agricultural Cropping Pattern: A Review of the System by which it is Managed and the Relationship to Price Policy, Micro-Economic Study of the Egyptian Farm System Project Research Paper No. 4 (Cairo: Ministry of Agriculture, 1980).
19. International Bank for Reconstruction and Development, "Arab Republic of Egypt Agricultural Price Policies Study," Draft Report (Washington D.C.: World Bank, July 1981) (mimeo).
20. IBRD, Arab Republic of Egypt-Domestic Resource Mobilization and Growth Prospects for the 1980's (Washington, D.C.: World Bank, March/April, 1980).
21. IBRD, Arab Republic of Egypt Recent Economic Development and External Capital Requirements (Washington, D.C.: World Bank, December 19, 1980).
22. IBRD, Some Issues in Population and Human Resource Development in Egypt (Washington D.C.: World Bank, May 12, 1981).
23. IBRD, The Egyptian Economy in 1974: Its Position and Prospects, Report No. 491a (Washington, D.C.: World Bank, September 24, 1974).

24. Ikram, Khalid, Egypt: Economic Management in a Period of Transition (Baltimore, Md.: Johns Hopkins University Press for World Bank, 1980).
25. International Monetary Fund, Arab Republic of Egypt--Recent Economic Developments, January 23, 1981.
26. International Monetary Fund, Balance of Payments Statistics, Vol. 32, part 1, 1981.
27. International Monetary Fund, Direction of Trade Statistics, 1981.
28. International Monetary Fund, Government Finance Statistics Yearbook Vol. 5, 1981.
29. International Monetary Fund, International Financial Statistics, 1981.
30. The Nutrition Institute, Arab Republic of Egypt Nutrition Status Survey, 1978 (Cairo: Ministry of Health and USAID, 1979).
31. Rashad, Hoda, "Evaluation of the Completeness of Mortality Registration in Egypt," Paper prepared for the Population Council, August 1981.
32. Rhoda, Richard, and Sandra Callier, USAID/Cairo PL 480 Title II Program Review (Washington D.C.: Agency for International Development, June 1981).
33. Sarris, Alexander, "Agricultural Crop Pattern and Egyptian Food Security: Some Preliminary Results," Draft Working Paper No. 49, Agricultural Development Systems Project (Cairo, October 1981) (mimeo).
34. Scobie, Grant M., Government Policy and Food Imports in Developing Countries: The Case of Wheat in Egypt (Washington, D.C.: International Food Policy Research Institute, September 1981).
35. USAID, Egypt's Food and Energy Subsidies in 1979, Background Paper for Country Development Strategy Statement (Washington, D.C.: U.S. Agency for International Development, 1982).
36. USAID/Cairo, "Status Report of Activities Financed by U.S. Economic Assistance to Egypt for Fiscal Years 1975-1981" (Washington, D.C.: USAID/Cairo, November 15, 1981).

37. Von Braun, Joachim, Agricultural Sector Analysis and Food Supply in Egypt, Draft Interim Report on the Joint Project of the Institute of National Planning (INP) Cairo and the Institute of Agricultural Economics (IAE) of the University of Gottingen/Federal Republic of Germany (Gottingen, February 1980) (mimeo).
38. Von Braun, Joachim, "Equity Implications of Food Policies for the Rural Population in Egypt," paper prepared for the IAAE Conference on "Growth and Equity in Agricultural Development," in Jakarta, August 24-September 2, 1982.
39. Von Braun, Joachim, "Wirkungen von Nahrungsmittelhilfe in Empfängerländern-Vergleichende Untersuchung für Ägypten und Bangladesch," Quarterly Journal of International Agriculture 19, 4 (October-December 1980).
40. Workshop on Nutrition and Health in Egypt, With Special Reference to Mothers and Children, Cairo, October 20-22, 1979 (Washington, D.C.: Agency for International Development, 1980).

NOTES ON AUTHORS

Richard Blue is currently Associate Assistant Administrator of the Office of Evaluation in the Bureau for Policy and Program Coordinations of A.I.D. He was previously Chief of the Studies Division in that office. Before joining the Office of Evaluation, he was Director of the Development Studies Program, a mid-career training program for AID officers. He holds a Ph.D. in government and international relations from the Claremont Graduate School and taught political development and comparative politics at the University of Minnesota before joining A.I.D. in 1975. He is the author of a number of articles and co-author of several books on political development, with special reference to South Asia.

David W. Dunlop is presently a Senior Economist with the Evaluation Office of the Bureau for Policy and Program Coordination of A.I.D. on loan from the Department of Community and Family Medicine, Dartmouth Medical School, Hanover, New Hampshire. He also holds an academic appointment at the University of North Carolina School of Public Health. He is health economics Senior Editor for Social Science and Medicine. He has a Ph.D. in economics from Michigan State University and obtained his undergraduate degree from the University of California, Berkeley, in business administration and economics. He has edited and authored numerous books and articles in health economics and economic development, including Health: What Is It Worth?, and has consulted with many organizations including WHO, PAHO, DHHS, The Ford Foundation, and Milbank and lectured at many universities. He has primary field experience in Africa and has worked in Asia and Latin America.

Michael H. Goldman has been a U.S. Foreign Service Officer since 1970. He has served overseas as Commercial Attache in Tokyo and Economic Counselor in Santo Domingo. In Washington, he has held several positions in the Bureau of Economic and Business Affairs of the State Department and is currently chief of that Bureau's Food Programs Division, with responsibility for the foreign policy aspects of PL 480. He graduated from Ithaca College with a bachelor's degree in economics, and later attended the Maxwell Graduate School of Citizenship and Public Affairs at Syracuse University.

Lloyd S. Harbert is employed by the U.S. Department of Agriculture, Foreign Agricultural Service. He received an M.S. in Agricultural Economics from Cornell University, and prior to coming to USDA worked for the World Bank in the Agriculture and Rural Development Department. He has traveled extensively in South Asia and has participated in the design of a nutrition and health project in India and two separate evaluations of the Bangladesh PL 480 food aid program. He has written articles on such topics as food distribution and nutrition, export instability, and trade adjustment assistance.

A.I.D. EVALUATION PUBLICATIONS

The following reports have been issued in the A.I.D. Evaluation Publication series. Those documents with an identification code (e.g., PN-AAG-585) may be ordered in microfiche and paper copy. Please direct inquiries regarding orders to:

Editor of ARDA, S&T/DIU/DI
Bureau for Science and Technology
Agency for International Development
Washington, D.C. 20523
U.S.A.

CROSS REFERENCE LIST BY SECTOR

AGRICULTURAL RESEARCH

Discussion Paper:

No. 13: AID Experience in Agricultural Research: A Review of Project Evaluations (May 1982) PN-AAJ-611

Impact Evaluations:

- No. 2: Kitale Maize: The Limits of Success (May 1980)
PN-AAH-723
- No. 14: Central America: Small Farmer Cropping Systems
(December 1980) PN-AAH-977
- No. 27: Korean Agricultural Research: The Integration of
Research and Extension (January 1982) PN-AAJ-606
- No. 30: Guatemala: Development of ICTA and Its Impact on
Agricultural Research and Farm Productivity (February
1982) PN-AAJ-178
- No. 33: Food Grain Technology: Agricultural Research in Nepal
(May 1982) PN-AAJ-614
- No. 34: Agricultural Research in Northeastern Thailand (May
1982) PN-AAJ-615
- No. 44: West Africa Rice Research and Development (May 1983)
PN-AAL-012

EDUCATION

Impact Evaluations:

- No. 19: U.S. Aid to Education in Nepal: A 20-Year Beginning
(May 1981) PN-AAJ-168
- No. 23: Northern Nigeria Teacher Educational Project (Sept.
1981) PN-AAJ-176
- No. 25: Thailand: Rural NonFormal Education - The Mobile
Trade Training Schools (October 1981) PN-AAJ-171
- No. 37: Radio Correspondence Education in Kenya (August 1982)
PN-AAJ-620
- No. 38: A Low-Cost Alternative For Universal Primary Education
In The Philippines (September 1982) PN-AAL-001

CROSS REFERENCE LIST BY SECTOR

EDUCATION (con't)

Impact Evaluations:

No. 46: U.S. Aid to Education in Paraguay: The Rural Education Development Project (June 1983) PN-AAL-017

Special Study:

No. 5: Korean Elementary - Middle School Pilot Project (October 1981) PN-AAJ-169

ENERGY [Rural Electrification]

Discussion Paper:

No. 3: Rural Electrification: Linkages and Justifications (April 1979) PN-AAG-671

Impact Evaluations:

No. 15: The Philippines: Rural Electrification (December 1980) PN-AAH-975

No. 16: Bolivia: Rural Electrification (December 1980) PN-AAH-978

No. 21: Ecuador: Rural Electrification (June 1981) PN-AAH-979

No. 22: The Product is Progress: Rural Electrification in Costa Rica (October 1981) PN-AAJ-175

[Fuelwood]

Special Study:

No. 1: The Socio-Economic Context of Fuelwood Use in Small Rural Communities (August 1980) PN-AAH-747

EVALUATION METHODOLOGY/EVALUATION ISSUES

Manager's Guide to Data Collection (November 1979) PN-AAH-434

Discussion Papers:

No. 8: Assessing the Impact of Development Projects on Women (May 1980) PN-AAH-725

No. 9: The Impact of Irrigation on Development: Issues for a Comprehensive Evaluation Study (October 1980)

No. 10: A Review of Issues in Nutrition Program Evaluation (July 1981) PN-AAJ-174

No. 12: Turning Private Voluntary Organizations Into Development Agencies; Questions for Evaluation (April 1982) PN-AAJ-612

Special Study:

No. 8: Toward A Health Project Evaluation Framework (June 1982) PN-AAJ-619

CROSS REFERENCE LIST BY SECTOR

FOOD AID

Program Evaluation:

- No. 6: PL 480 Title II: A Study of the Impact of A Food Assistance Program in the Philippines (August 1982)
PN-AAJ-622

Discussion Paper

- No. 15: Food Aid and Development: The Impact and Effectiveness of Bilateral PL 480 Title I-Type Assistance (December 1982) PN-AAL-003

Impact Evaluations:

- No. 8: Morocco: Food Aid and Nutrition Education (August 1980) PN-AAH-851
No. 39: Sri Lanka: The Impact Of PL 480 Title I Food Assistance PN-AAJ-623
No. 45: PL 480 Title I: The Egyptian Case (June 1983)
PN-AAL-015

HEALTH/NUTRITION

Discussion Papers:

- No. 1: Reaching the Rural Poor: Indigenous Health Practitioners Are There Already (March 1979) PN-AAG-685
No. 10: A Review of Issues in Nutrition Program Evaluation (July 1981) PN-AAJ-174

Impact Evaluations:

- No. 8: Morocco: Food Aid and Nutrition Education (August 1980) PN-AAH-851
No. 9: Senegal: The Sine Saloum Rural Health Care Project (October 1980) PN-AAJ-008
No. 36: Korea Health Demonstration Project (July 1982)
PN-AAJ-621

Special Studies:

- No. 2: Water Supply and Diarrhea: Guatemala Revisited (August 1980) PN-AAJ-007
No. 8: Toward A Health Project Evaluation Framework (June 1982) PN-AAJ-619

INSTITUTION BUILDING

Discussion Paper:

- No. 11: Effective Institution Building: a Guide for Project Designers and Project Managers Based on Lessons Learned From the AID Portfolio (March 1982) PN-AAJ-611

CROSS REFERENCE LIST BY SECTOR

INTEGRATED RURAL DEVELOPMENT

Impact Evaluations:

- No. 28: Philippines: Bicol Integrated Area Development
(January 1982) PN-AAJ-179
- No. 43: Egypt: The Egyptian American Rural Improvement
Service, A Point Four Project, 1952-63 (April 1983)
PN-AAL-011

Special Study:

- No. 7: The Vicos Experiment: A Study Of The Impacts Of The
Cornell-Peru Project In A Highland Community (April 1982)
PN-AAJ-616

IRRIGATION

Discussion Paper:

- No. 9: The Impact of Irrigation on Development: Issues for a
Comprehensive Evaluation Study (October 1980)

Impact Evaluations:

- No. 4: Philippine Small Scale Irrigation (May 1980) PN-AAH-749
- No. 12: Korean Irrigation (December 1980)
- No. 29: Sederhana: Indonesia Small-Scale Irrigation (February
1982) PN-AAJ-608
- No. 31: Sudan: The Rahad Irrigation Project (March 1982)
PN-AAJ-610
- No. 35: The On-Farm Water Management Project in Pakistan (June
1982) PN-AAJ-617
- No. 42: Bangladesh Small-Scale Irrigation (April 1983)
PN-AAL-010
- No. 43: Egypt: The Egyptian American Rural Improvement
Service, A Point Four Project, 1952-63 (April 1983)
PN-AAL-011

LIVESTOCK DEVELOPMENT

Discussion Paper:

- No. 6: The Sociology of Pastoralism and African Livestock
Development (May 1979) PN-AAG-922

Program Evaluation:

- No. 4: The Workshop on Pastoralism and African Livestock
Development (June 1980) PN-AAH-238

CROSS REFERENCE LIST BY SECTOR

POPULATION/FAMILY PLANNING

Discussion Paper:

No. 5: Study of Family Planning Program Effectiveness (April 1979) PN-AAG-672

Program Evaluations:

- No. 1: Family Planning Program Effectiveness: Report of a Workshop (December 1979)
- No. 2: A.I.D.'s Role in Indonesian Family Planning: A Case Study with General Lessons for Foreign Assistance (December 1979) PN-AAH-425
- No. 3: Third Evaluation of the Thailand National Family Planning Program (February 1980) PN-AAH-006

PRIVATE SECTOR

Impact Evaluation:

No. 41: Impact Evaluation of Housing Guaranty Programs In Panama (March 1983) PN-AAL-008

Discussion Papers:

- No. 14: Private Sector: Ideas and Opportunities: A Review of Basic Concepts and Selected Experience (June 1982) PN-AAJ-618
- No. 16: The Private Sector, The Public Sector, And Donor Assistance In Economic Development: An Interpretive Essay (March 1983) PN-AAL-007

Special Studies:

- No. 4: The Social Impact of Agribusiness: A Case Study of ALCOSA in Guatemala (July 1981) PN-AAJ-172
- No. 6: The Economic Development of Korea: Sui Generis or Generic? (January 1982) PN-AAJ-177
- No. 9: Private Sector: Costa Rica (March 1983) PN-AAL-005
- No. 10: Private Sector: The Tortoise Walk: Public Policy And Private Activity In The Economic Development of Cameroon (March 1983) PN-AAL-004
- No. 11: The Private Sector And The Economic Development Of Malawi (March 1983) PN-AAL-006
- No. 12: Ventures In The Informal Sector, And How They Worked Out In Brazil (March 1983) PN-AAL-009
- No. 14: The Private Sector: The Regulation Of Rural Markets In Africa (June 1983) PN-AAL-014
- No. 15: The Private Sector: Ethnicity, Individual Initiative, And Economic Growth In An African Plural Society: The Bamileke of Cameroon (June 1983) PN-AAL-016
- No. 16: Private Sector Evaluation: The Dominican Republic (June 1983) PN-AAL-0

CROSS REFERENCE LIST BY SECTOR

PRIVATE VOLUNTARY ORGANIZATIONS

Discussion Paper:

No. 12: Turning Private Voluntary Organizations Into Development Agencies; Questions for Evaluation (April 1982) PN-AAJ-612

Impact Evaluations:

No. 7: Effectiveness and Impact of the CARE/Sierra Leone Rural Penetration Roads Projects (June 1980) PN-AAH-751

No. 10: Tunisia: CARE Water Projects (October 1980)

No. 24: Peru: CARE OPG Water Health Services Project (October 1981) PN-AAJ-176

Special Study:

No. 12: Ventures In the Informal Sector, And How They Worked Out In Brazil (March 1983) PN-AAL-009

ROADS

Discussion Papers:

No. 2: New Directions Rural Roads (March 1979) PN-AGG-670

No. 7: Socio-Economic and Environmental Impacts of Low-Volume Rural Roads -- A Review of the Literature (February 1980) PN-AAJ-135

Program Evaluation:

No. 5: Rural Roads Evaluation Summary Report (March 1982) PN-AAJ-607

Impact Evaluations:

No. 1: Colombia: Small Farmer Market Access (December 1979) PN-AAH-768

No. 6: Impact of Rural Roads in Liberia (June 1980) PN-AAH-750

No. 7: Effectiveness and Impact of the CARE/Sierra Leone Rural Penetration Roads Projects (June 1980) PN-AAH-751

No. 11: Jamaica Feeder Roads: An Evaluation (November 1980)

No. 13: Rural Roads in Thailand (December 1980) PN-AAH-970

No. 17: Honduras Rural Roads: Old Directions and New (January 1981) PN-AAH-971

No. 18: Philippines Rural Roads I and II (March 1981) PN-AAH-973

No. 26: Kenya: Rural Roads (January 1982) PN-AAH-972

CROSS REFERENCE LIST BY SECTOR

SMALL-SCALE ENTERPRISE

Impact Evaluation:

No. 40: Assisting Small Business In Francophone Africa -- The Entente Fund African Enterprises Program (December 1982) PN-AAL-002

Special Study:

No. 13: The Evaluation of Small Enterprise Programs And Projects: Issues in Business And Community Development (June 1983) PN-AAL-013

WATER

Discussion Paper:

No. 4: Policy Directions for Rural Water Supply in Developing Countries (April 1979) PN-AAG-691

Program Evaluation:

No. 7: Community Water Supply in Developing Countries: Lessons from Experience (September 1982) PN-AAJ-624

Impact Evaluations:

- No. 3: The Potable Water Project in Rural Thailand (May 1980) PN-AAH-850
- No. 5: Kenya Rural Water Supply: Program, Progress, Prospects (June 1980) PN-AAH-724
- No. 10: Tunisia: CARE Water Projects (October 1980)
- No. 20: Korean Potable Water System Project: Lessons from Experience (May 1981) PN-AAJ-170
- No. 24: Peru: CARE OPG Water Health Services Project (October 1981) PN-AAJ-176
- No. 32: Panama: Rural Water (May 1982) PN-AAJ-609

Special Studies:

- No. 2: Water Supply and Diarrhea: Guatemala Revisited (August 1980) PN-AAH-747
- No. 3: Rural Water Projects in Tanzania: Technical, Social, and Administrative Issues (November 1980) PN-AAH-974

WOMEN IN DEVELOPMENT

Discussion Paper:

No. 8: Assessing the Impact of Development Projects on Women (May 1980) PN-AAH-725