

COUNTRY DEVELOPMENT STRATEGY STATEMENT

ANNEX

AGRICULTURAL SECTOR ASSESSMENT

USAID MISSION TO ARAB REPUBLIC OF EGYPT

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AGRICULTURAL SECTOR ASSESSMENT

I. INTRODUCTION

A. Summary

Egyptian agriculture is at a critical juncture where the decisions that are made in the near term will be of major significance for the future of agriculture in particular and of the economy in general. Because of agriculture's importance as the largest employer, major export earner and largest contributor to GDP (25% in 1976), the low (2%) growth rates of the past 8 years must be raised or the sector will continue to act as a drag on overall growth and severely lessen the probability of achieving development targets. Further, unless better performance is achieved, a major proportion of the poorer population elements of society who are located on-farm or in rural areas will achieve only nominal participation in the benefits of growth and development.

The unsatisfactory situation of a low growth rate, rising food imports and unexploited opportunities stems from a combination of natural resource limitations and Government policies which have reduced production possibilities and incentives and discouraged needed private investment. The limited amounts of available land make per-unit yield increases necessary although, in view of the already high-yield levels, such gains will not be easily attained. [Administered pricing] aimed at generating Government revenues and maintaining low food prices, combined with inadequate mechanisms for providing necessary services have reduced incentives to the farmer, as well as his ability to increase production and have made returns so low that private investment has been discouraged. On the other hand, Government investment programs have been

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heavily directed toward land reclamation where payoffs have been delayed and small.

To allow the sector to make the contribution to overall economic development that judgment indicates is possible and realism indicates is necessary, our analysis concludes that changes are required in the three interrelated areas of policy, institutional development and technology development diffusion. With the proper modifications in these areas, a 4.0% growth rate is not unreasonable.

The USAID proposes to follow an employment-oriented growth strategy in encouraging and supporting the changes necessary to achieve the indicated growth rate. This recognizes that employment and equity must be major concerns of the strategy, but identifies production increases as the most feasible method of generating employment and equity. In carrying out the strategy, AID will support efforts aimed at policy change, institutional improvement and technology development. Current projects, already operational or proposed, will serve as the starting point from which to move increasingly toward direct production efforts with an employment orientation.

B. Methodology and Focus

In the preparation of this agricultural assessment major reliance has been placed on existing studies and information, particularly the GOE Five-Year Plan, World Bank studies and documents previously prepared by or for AID. Original data have not been generated or collected although new interpretations and conclusions have been drawn.

The assessment assumes that the reader possesses a basic knowledge of Egyptian agriculture and, consequently, provides only minimal background information. Anyone seeking greater depth and/or basic information about a particular topic should consult the various studies footnoted throughout the paper.

The focus of the assessment is on these elements which are judged most important to AID agricultural assistance efforts. Thus, the larger issue of rural development and the social infrastructure and employment questions inherent therein are only briefly and tangentially mentioned. This leads to an unbalanced presentation from a rural sector perspective but one which is quite precisely targeted and internally consistent from an agricultural view. We believe this is a reasonable approach and, given the strategy proposed, quite compatible with the most likely rural sector development plans. The issues section, the program options and the AID strategy are the heart of the document and, consequently, receive the most attention.

II. BACKGROUND

A. Agriculture in the National Setting

Agriculture is the largest sector in the Egyptian economy providing around 25% of the Gross Domestic Product (GDP), supplying over 50% of exports and employing about 40% of the labor force. Through the administered pricing system, which extracts an indirect tax of 30%-40% on major export and certain food crops, agriculture also provides resources to other sectors.

Growth in the value of sector production has been relatively slow, leading to a decline in agriculture's share of GDP, averaging about 3.0% per year during the 1960s, and only 2% since 1970.

Imports of basic foods have been rising since production has not kept pace with population growth and higher demand.

Since the mid-1960s, agriculture's share of public sector investment has been declining from around 25% to about 7% of the total in 1975. Adjusted for inflation there has been a drop in absolute accounts. Slightly higher levels are projected for the 1978 to 1982 period of the Five-Year Plan. The largest share of investments (50%-60%) have been going to the reclamation and development of "new lands", although "old lands" are scheduled to receive greater attention in the new plan. New private investment in the sector has been limited due to low returns and has been concentrated in very specific areas, i.e., fruit production, where prices have not been controlled.

In the future, the sector will face very sizable demands. The International Food Policy Research Institute estimates that a 5% production growth rate will be needed to feed the growing population, narrow the deficit in food supplies and provide raw materials and exports. The Five-Year Plan target is 3.3%, well above recent achievement levels. In addition, the sector will be expected to absorb additional quantities of labor and to continue to provide Government revenue.

B. Agroclimatic Background^{1/}

Egypt has roughly 6.2 million feddans under irrigated cultivation and ample water supplies for a larger area. Total annually

^{1/} Details on the Egyptian agricultural sector are available from several sources, so only a few highlights will be presented here. In particular, see H. A. El-Tobgy, Contemporary Egyptian Agriculture, Cairo, 1976.

cropped area amounts to almost 12 million feddans because of year-around production which permits double and triple-cropping. Holdings are generally very small with 95% of the farmers, holding over 57% of the total area, having less than 5 feddans divided into several small parcels. Soils are normally very productive, although during the past 100 years increased availability of water combined with unchanged age-old irrigation practices has seriously increased the problems of salinity and water-logging. Over 2 million feddans of additional desert lands have been identified for development during the 1978-87 period if financing is available. However, these new lands will not be immediately very productive and their output will not keep pace with population growth.

Turning to land use, cereals--wheat, maize, rice, millet, sorghum and minor cereals--occupy about 45% of the cropped area, cotton about 13%, clover about 25% and various other crops the remainder. Crop rotations on a 2-3 year cycle are fairly complex due to multiple cropping. Yields for most crops are high, even by developed-nation standards. Some changes in cropping patterns have been occurring as farmers have shifted to fruits, vegetables, clover and other crops where markets are available and returns are higher than for more traditional crops.

High, but less than optimum, levels of most non-farm inputs are employed in the production process. Fertilizers are allocated by crop, cotton having the highest priority, with uniform prices throughout the country. Usage is increasing rapidly, reaching an average of 69.2 Kg of N, 19.9 Kg of P and 0.36 Kg of K per feddan in 1974/75. Egypt expects to be self-sufficient in nitrogen and

phosphorous fertilizer production in the 1980s at nutrient levels of 750,000 tons of N and 98,000 tons of P.

Certified seed is produced and distributed for various crops. Sufficient seed for the cotton area is produced annually with much smaller amounts produced for the cereal crops (roughly enough to cover one-third of the area each year. Pesticide use is widespread with over 8 million feddans of crops treated annually. The number of knapsack sprayers in use in 1974 was about 85,000.

The amount of mechanized equipment being employed is significant and growing. Over 20,000 tractors are currently in use with approximately one-half of the primary tillage performed mechanically. Increasing numbers of mechanical threshers and water pumps are also being employed. Ownership is concentrated in the private sector, although cooperatives and Government farms have considerable numbers.

C. The Rural Social Setting

Egypt's population is growing at about 2.3% annually with an urban growth rate of roughly 3.0% and a rural rate of less than 2.0%. The difference in rural/urban rates reflects the rural/urban migration stemming from the absolute shortage of employment opportunities in the rural areas, the limited range of mostly low-prestige jobs that are available and the rural/urban disparity in the availability of amenities. The effect of the migration has been to reduce labor availability in the rural areas--GOE data indicate an absolute drop in agricultural employment between 1972 and 1976.

As indicated, rural areas suffer from a relative and sometimes absolute lack of amenities. A much lower percentage of rural than urban school-age children are found in school and parasitic diseases

such as bilharzia and anklestoma remain endemic in rural areas. The percentage of the rural population without electricity in the home ranges from 93.9% in Sohag Governorate to 47.3% in Damietta. The percentage of households without access to potable water varies from 69.6% in Ismailia to 3.0% in Damietta. Thus, within the general disadvantaged position of rural households, great inequities also exist among governorates.

Turning to incomes, not unexpectedly rural household incomes are substantially lower than urban incomes—LE 375 versus LE 556. Although the data are fragmentary it appears that in the rural areas the lowest 40% of population account for only about 25% of the total income for the sector. Using a poverty level of LE 270 per rural household, roughly 52% of the rural households or 11 million people are below that amount, primarily the landless (10 million) and very small farmers (1 million). On a governorate basis, wide disparities also appear to exist. There does not, however, appear to have been any noticeable deterioration over the past two decades probably reflecting the GOE efforts in land reform, taxation and employment.

D. Role of Government^{1/}

1. Summary

As suggested above, Government intervention and involvement in the agricultural sector is widespread and extensive. In addition to the control of various prices and the provision of services, the GOE closely regulates the supply of inputs, enforces certain

^{1/} Based largely on Annex 3.1 of World Bank Report 1815-EGT, Arab Republic of Egypt, Economic Management in a Period of Transition, Volume III, May 8, 1978.

production practices and requires that fixed quantities of certain crops pass through Government channels. State farms are also operated and wholly GOE-owned companies are engaged in land development and export marketing.

2. Overall Administration

The overall administration of the sector is the responsibility of the Ministry of Agriculture (MOA) with close connections on the input side with the Ministry of Irrigation and with the Ministry of Land Reclamation. Other ministries are involved in the supply and disposal of inputs and outputs, policy, and planning. For instances, the Ministry of Trade and Supply is responsible for the trade of sectoral inputs and outputs as well as the subsidy program for basic foods. The Ministry of Industry is involved in setting the procurement price for domestically processed products and the Ministry of Planning is concerned with sectoral investment plans and economy-wide priorities. The High Committee of Planning, which is composed of Ministers from the departments concerned, is responsible for initiation of policy changes as well as coordinating the views of the various ministries and allocating inputs and targets for output.

3. Agricultural Research

Most agricultural research is carried out through a semi-autonomous authority under the MOA, the Agricultural Research Center, which operates a central research station at Giza and 11 sub-stations throughout the country. In addition, research on selected topics is conducted by the Ministry of Irrigation, the National Research Center, and the universities. Plant breeding, particularly of cotton,

has been a major focus with the fields of plant protection, agronomic relationships, animal production, and agricultural economics also covered. Results have been very uneven. The development of the Nadha rice variety increased yields 33% and the new cotton varieties were major successes, but the failure to adapt high-yielding wheat varieties to local requirements led to their virtual rejection by farmers. In the agricultural economics area, many of the problems of pricing and anticipated farmer response illustrate a weak sectoral data base at the farm level, with a consequent inability of economics research to forecast likely responses. The fundamental problems with the research effort in general relate to the basic concepts of a research system, what its form and function should be, what its linkages to the farm and extension system should be, how to test its performance against international standards, how to equip the system properly, and what is an appropriate level of staffing. For a long time, many of the macro-economic policy goals, such as the need to maintain full employment, have hampered the provision of acceptable research support to agriculture. Research results are also limited because of the many uncommitted staff among the over 3,000 degree holders and 15,000 support staff that are employed. Furthermore, local research stations are restricted in adequately addressing local problems owing to a highly-centralized administration, which controls details of research programs and budgets. Because of a lack of promotion opportunities in local institutions, the best workers end up in Cairo, and this further dilutes local performance.

4. Agricultural Extension

Agricultural extension is organized through the Department of Agricultural Extension, and a High Advisory Council, with participation by research institutes and agricultural universities. Regional representation is through the Governorate Director of Agriculture along with provincial supervisors and district agents. Although the extension services have been instrumental in the widespread use of modern inputs, such as improved varieties and inorganic fertilizers, in recent years extension work seems to have declined in effectiveness. Budgetary allocations for the work have decreased, while urban-based staff have increased in numbers, resulting in weak farmer linkages. At the farm level the system has been inadequate until recently, with a ratio of one agent for about 1,500-2,000 farmers. This directly contrasts with the concentration of extension agents in Cairo, most of whom are without field experience. In general, the extension service is overstaffed and under-equipped but a more serious problem is the lack of staff motivation. Many of them do not have an agricultural background and lack a real commitment to agriculture. Agriculture enjoys a low status among the professions and generally the poorer performers in the school examinations are channeled into the field; again, the poorer performers among these tend to be channeled into the extension service.

5. Cooperatives

The cooperative system in Egypt is parastatal and falls under the Department of Cooperatives within the MOA. There are four national groupings: the General Society for Land Reclamation, the General Society for Agrarian Reform, multi-purpose societies within

the General Agricultural Cooperative Society, and specialized societies within the Cooperative Societies for Special Crops. As of November 1975, there were 133 land reclamation societies, 654 agrarian reform societies and 4,200 multi-purpose agricultural cooperatives at the village level. Independent lines of command flow from the national society level through governorate levels to joint cooperatives at district levels down to village cooperatives. The complex structure gives rise to overlapping functions, conflicting lines of authority and duplication of staff.

At the village level each cooperative is managed by an MOA agricultural graduate, assisted by an accountant from the Agricultural Bank and sundry other employees. Complementing this line of authority is an elected board, 80% of whose members must be small farmers. Their contribution to effective decision-making is necessarily weak because they have no say on policy matters or daily management of the society. In the past, the enforced membership in farm cooperatives theoretically provided a two-way delivery system of goods and services as well as a communication network. Aggregate output plans for the sector, together with the required inputs of fertilizer, seeds, and credit, filtered through the cooperative system to eventual farm level allocations. The cooperatives directly intervened in production through the pooling of fragmented holdings, by performing various cultural tasks such as plant protection for cotton and by providing tractor services and stationary threshers at harvest. All the cotton and various portions of other crops were requisitioned by the cooperatives acting as the Government's agent. In general, the cooperatives performed important functions but were somewhat unresponsive to farmer needs and their power was often resented and evaded.

For the future, the picture is unclear. A revision of the cooperative law is under consideration. Hopefully, this will clarify the role of the cooperatives vis-a-vis other organizations, such as those within the credit system, and clarify how the cooperatives fit between the farmers and the state. Reportedly, the revision will make membership voluntary, encourage the consolidation of cooperatives into a small number of viable units and make them truly service organizations rather than an arm of Government.

6. Agricultural Credit

Agricultural credit is exclusively provided by Government banks and agencies. Primary responsibility rests with the Principal Bank for Development and Agricultural Credit (PBDAC), established in 1976 with a wide range of functions, responsibilities and privileges. A smaller contribution to credit supplies is made by Egypt's four commercial banks, which are also state-owned. The major functions of the credit system are the provision of short- and medium-term loans to farmers and cooperatives, procurement and supply of agricultural inputs, and the marketing of crops. Previously, all farm credit had to go through the cooperatives. Now the credit banks can loan directly to farmers. The loans are predominantly short-term, generally for crop production. Each farmer is entitled to credit for full crop production costs, based on MOA staff calculations, according to a production plan prepared by the village cooperative. All inputs are provided in-kind with cash loans given only for machinery service charges and hired labor. No tangible security is obtained but the farmers undertake to sell their output through designated marketing agencies. Medium-term loans make up about 1% of total credit and are used mostly for orchard

establishment, purchase of farm machinery, and cattle. In 1977, the interest rate to farmers was 4% on short-term and 9% on long-term loans. The on-lending rate is lower than the average borrowing rate of the credit system by some 2%. Roughly 80% of loans made are collected. From time to time the Government, through the MOA, intervenes to write off debts for farms of certain categories and to reschedule debts of others.

In general, the problem of the credit system seems to be that it is not allowed to function according to normal commercial principles of banking. The Government has used, and probably will continue to use, the agricultural banking system to achieve other policy objectives than simply that of allocation of capital.

Another potential source of problems is the credit system's handling of non-credit activities, such as the distribution of feed and pesticides.

An independent audit of the PBDAC in 1977 carried out in connection with the World Bank's lending to the sector concluded that the system is, in effect, bankrupt. Accumulated losses totaled LE 60 million as of December 31, 1976, as against just over LE 2 million in capital and reserves.

7. Agricultural Marketing

The marketing of farm products is one of the major spheres of influence of the Government in the sector. Provision of inputs and credit is tied to compulsory sales of output to the PBDAC. Both the quantities and the procurement prices are set beforehand. The over-quota amounts can then be freely sold at local market prices. Generally, the requisition commodities are

either urban foods, such as wheat, sesame, sugar, broadbeans, lentils and rice, or export crops, such as cotton, rice, onions and groundnuts. Most of the compulsory minimum delivery quotas have been enforced throughout the 1960s and the early 1970s, although some changes were introduced in 1976 and 1977, allowing more freedom for disposal of the crops by the farmers. There are considerable price differences for the same commodity in different markets. These have ranged from 27% higher for wheat to 100% higher for rice in the free market over the Government prices. The marketing and pricing system is, in effect, a transfer mechanism to extract a certain surplus from the agricultural sector. From the banks, the products generally pass to Government processing, exporting and retailing companies. The banks are the purchasing agencies on behalf of the state and maintain storage on a regular basis. Private processing organizations usually offer higher prices than public companies although they are often penalized by various administrative controls.

8. Agricultural Universities

A major component of the sector as the supplier of trained manpower to agriculture is the university network. There are 11 agricultural colleges and 4 colleges of veterinary medicines with over 6,000 PhD-holding faculty members. A wide-range of agricultural training is provided to an enrollment of over 27,000. Annual output of degree-holders is about 6,500. Under the GOE's employment policy each of these graduates is guaranteed a position in the Government (if other employment cannot be found). The lack of other opportunities is the major reason for the surplus of degree-holding manpower relative to

support resources which plagues the governmental organizations in the sector. It should be noted the agricultural universities in Egypt have a responsibility only for agricultural education and have no official involvement in agricultural development as is the case in the US Land-Grant System.

9. Miscellaneous

Within the Ministries of Agriculture and Land Reclamation there are many autonomous or semi-autonomous authorities whose activities range from overseeing cooperative activities to directly producing goods for consumption. As public sector organizations, they compete directly with the Ministries for funds and skilled manpower. As producers they compete directly with GOE agencies and private individuals for sales without having to stand the test of profitability. The major enterprises affecting the sector in this way are the General Organizations for Cotton, Land Reclamation and Poultry Production. The Cotton Organization is the monopoly purchaser of the cotton crop and is responsible for policy administration affecting cotton. The Land Reclamation Organization implements that program and retains control over reclaimed lands. The Poultry Organization constructs and operates large-scale, capital-intensive broiler production units. The general remarks concerning most of the other Government organizations and their efficiency (or lack thereof) is also particularly relevant to the state enterprises.

E. The Five-Year Plan, 1978-1982

1. Introduction

The 1978-1982 development plan clearly articulates problems confronting the Egyptian economy and correctly, from an AID point of view,

proposes to accelerate development in growth terms with special efforts to benefit the poorer groups in the society. The target is an economy-wide growth rate of 9%-10% to be accomplished through a number of infrastructural changes and through substantially higher overall and specific sector investment levels. The plan also seeks to alter pricing and income policies and to correct the balance of payments problem while improving decision-making at the national and local level.

2. The Agricultural Sector

In the agricultural sector the plan calls for increased investment in agriculture, irrigation and food security amounting to LE 878.9 million or 8.6% of total plan investments and 22.8% of economic sector investments. The broad objectives to be achieved by these investment levels are steady, continuous development, expanded productivity, efficient use of reclaimed land, the improvement of all agricultural lands, adequate production to meet the needs of the people and changes in cropping patterns to take advantage of export opportunities. The value of agricultural production at constant prices is targeted to grow by 3.3% annually.

More specific targets of the plan are: (i) to increase exports through pricing, marketing and other incentives; (ii) to increase wheat production, to produce rice for local consumption and export and to achieve self-sufficiency in legumes, peanuts, sesame, sugar, vegetables and fruits; (iii) to produce quality seeds in the necessary quantities for various crops; (iv) to improve agricultural research through regulations and consolidation of various research bodies and technical institutes; (v) to expand mechanization, including service facilities and trained manpower, gradually to a target of one

tractor for each 100 feddans, one irrigation set for each 30 feddans and one threshing machine for each 75 feddans, thus releasing animals for meat and dairy production; (vi) to slow the migration of agricultural workers from the land which has caused agricultural wage rates to increase rapidly and has resulted in a shortage of labor; (vii) to expand the use of fertilizers, pesticides and fungicides; (viii) to train administrative, training and organization cadres; (ix) to offset land fragmentation by crop pooling and the formation of cooperatives; (x) to expand credit amounts available and to enforce collection procedures; (xi) to reduce storage losses; (xii) to utilize pricing policies to encourage crop production and shifts in acreages devoted to particular crops; (xiii) to reduce irrigation water wastage; (xiv) to improve drainage; (xv) to preserve and conserve existing land; (xvi) to optimally exploit previously reclaimed lands; (xvii) to reclaim 2.1 million feddans (during 1978-1987); (xviii) to substantially raise poultry production to realize domestic self-sufficiency; (xix) to raise meat and milk production; and (xx) to increase the fish catch from inland fisheries, including new fish farms, and from offshore areas.

Impediments to the achievement of increases in production and attainment of the indicated targets are identified as: (i) land fragmentation; (ii) use of agricultural land for forage crop production; (iii) non-enforcement and non-implementation of agricultural laws; (iv) loss of agricultural land to non-agricultural uses; (v) removal of top soil for brick-making; (vi) over-use of irrigation water; (vii) poor drainage; (viii) the loss of agricultural manpower to urban areas; (ix) the lack of an effective research policy and (x) a lack of new and improved varieties.

3. Brief Evaluation of the Plan with Particular Focus on Agriculture

The most striking feature of the plan is the low level of investment allocated to agriculture, the largest employer and the largest economic sector. If one looks more broadly at the rural sector, which is to receive 26% of investment, the picture is somewhat more positive. However, our judgment is that the absorptive capacity of the sector is adequate to handle additional investments and that a higher percentage of plan investment funds should have been allocated to agriculture.^{1/}

Within the agricultural sections of the plan, the strongest component is the discussion of the constraints and issues facing the sector, indicating an awareness by the GOE of the important issues. Pricing policy, farmer response to prices and the use of prices to direct production are particularly well articulated. The analysis underlying certain other conclusions, e.g., the need for mechanization, is less convincing, but still reflects considerable thought.

The major problems with the agricultural sections are the lack of identified priorities and the absence of a coordinated, integrated strategy which relates constraints, targets and investment levels. From the investment budget allocations certain priorities can be surmized, but the lack of any data on recurrent budget expenditures in the various areas makes any such conclusions only tentative. Based on the investment budget, it appears that drainage and new land reclamation are of the highest priority. In fact, investments in new land reclamation and development will exceed the combined investment

^{1/} See the subsequent issues section for a further discussion of investment levels.

amounts for plant, animal and fish production and storage construction. Since production from the new lands will be small, a major strategy question is whether the investment split between vertical and horizontal expansion is appropriate to the attainment of the plan targets. An implicit assumption seems to be that, if certain policy changes are made, the private sector will respond rapidly enough to achieve the desired growth levels. We doubt that policy changes alone will be sufficient.

An additional concern is the plan's lack of specificity on how programs reach the farmer. The links between research and extension and between extension and the farmer and how they may be strengthened are not well articulated. There is also an apparent belief that the current system does an adequate job of providing necessary inputs and credit despite strong indications of the desirability for certain modifications. Overall, the unstated expectations of the GOE must be that the small farmer will be able to overcome the built-in constraints of the system in order to achieve the necessary growth in production.

F. Other Donor Assistance

Until recently, GOE assistance policy in agriculture had seemed to be to allow any and all donors to provide any type of assistance in any geographic or functional area while consciously, or because of poor information flow, keeping donors unaware of each others interests or efforts. Consequently, Egyptian agriculture receives a bewildering array of assistance from a wide variety of donors, with duplication in many areas. Hopefully, the establishment by the MOA in August 1978 of an Agricultural Assistance Coordinating Committee,

will remedy the hit and miss approach by providing better guidance to donors while also facilitating information flow to and among donors.

Excluding the US, the largest donor to the sector in monetary terms is the World Bank with projects in the development of agriculture in two governorates, in drainage, in agro-industrial credit, in fisheries, in fruit and vegetable production, in processing of fruits and vegetables, and in mechanization and with plans for a sizable project in new lands development. Probably the second most significant donor is the UNDP/FAO with involvement in dairying, veterinary medicine, training of livestock personnel, extension communications, horticulture and grain storage. Holland is providing assistance in poultry, establishment of dairying, vegetable seed production, agricultural extension training, vegetable marketing and veterinary training. West Germany is involved in assistance to new lands development, a mechanization training center, a slaughter house, cold-store construction, a fruit and vegetable processing center, and livestock production. The European Investment Bank of the EEC is providing resources for new lands development and development of fish farms. Other donors include Canada, forage production and rural electrification; Romania, tractor maintenance, agro-industrial development of new lands, and rural electrification; the UK, aerial spraying and rural electrification; the International Fund for Agricultural Development, land development, vegetable grading and milk production; the African Development Bank, agricultural development; Norway, fisheries; World Food Program, farm rehabilitation; International Finance Corporation, sugar beet production; and Australia, cold-storage construction.

As is apparent, a large number of donors are involved in a multitude of areas emphasizing the need to ensure that care is taken to avoid duplication and for better coordination of efforts.

III. ISSUES IN AGRICULTURAL DEVELOPMENT

A. Introduction

The complexity of Egyptian agriculture and the availability of numerous alternatives for future development, given the current starting point, result in a multitude of issues confronting the sector and requiring resolution. In the following, what are judged to be the major issues are discussed. Not all the issues relate only to agriculture; some are broader but placed in an agricultural setting while other issues are quite specifically agricultural. For certain issues conclusions are difficult to draw and, consequently, while a position is taken in each case, a certain ambiguity may remain. Nevertheless, in the aggregate the analysis and conclusions point toward program alternatives, considerations and elements important in any development assistance strategy.

B. Decentralization of Decision-Making

The Government of Egypt, with a tradition of centralized Government stretching back to the Pharoahs, has recently begun to decentralize authority to the governorate and village levels. To date, decentralization has been pursued in somewhat different ways and at different speeds in each of the rural sector's four decision-making components above the level of the family: village government, the parties, the cooperatives, and the agricultural financial and marketing institutions (this list excludes the mosque, which is a critical component of rural society, but outside the scope of AID activities).

The rural government structure as represented by the Village Councils is increasingly being made responsible for planning and implementing village level activities, although still largely dependent on the Central Government for funds. By contrast, the Executive Committee in each village, which is composed of representatives of relevant Government ministries, continues to provide a central, perhaps dominant, management role for the national Government. The villages also continue to look to the Central Government to provide infrastructure and services, such as electricity.

The political parties remain highly-centralized, though decentralization is in progress. Because membership in the leading party is an important determinant of leadership, centralization of the Village Councils continues through the parties.

The role of the existing cooperatives has been reduced substantially to that of providing machinery services and other limited support for agriculture. These cooperatives are managed by Central Government representatives and, in the past, had a large role in ensuring farmer compliance with Government-determined cropping patterns and input use. Now, however, the cooperative sector is being reorganized with the goal of establishing farmer-managed cooperatives. The role of these new-style cooperatives remains undetermined.

The remaining institutions in the agricultural economy are at most partly decentralized. Provision of credit and material inputs through the Agricultural Bank remains under close central control.

Important aspects of the crop rotation, especially regarding cotton and grains, are centrally-determined. The individual farmer is thus

left with limited "degrees of freedom" in planning his cropping strategy. It remains to be seen whether the farmer will be given greater autonomy than at present.

Thus, overall, rural government is moving in the direction of greater local autonomy, but without a clear indication of how far and how rapidly it will proceed. On both philosophical and practical levels AID believes these efforts should be encouraged since local participation increases the probability that development efforts will reflect local priorities, will be directed at real needs and will be sustained. In Egypt, where central planning and control was all-pervasive in the recent past and remains strongly entrenched even at present, decentralization seems particularly necessary in order to bring about dynamic change in the rural sector. While this need has become more widely recognized in the Government, the supporters of decentralization efforts will require assistance and encouragement if they are to be successful, particularly since initial results inevitably will be less than dramatic.

Clearly, AID should provide support to decentralization efforts. However, in practice, there are difficulties due to the following:

1. The Need to Have a National Agency as the Grantee

AID policy requires that all grant and loan agreements be with some element of the national Government. Even where a project is designed to promote decentralization, as in Development Decentralization, activities are to be carried out through a national agency. In effect, a certain centralization of decentralization may be promoted.

2. The Limit on Direct Involvement by a Foreign Government in Egypt's Internal Management

AID is not able to bypass the national Government to deal directly with local officials. To do so would be a serious violation of protocol as well as a threat to close working relationships with the GOE. Thus, decentralization assistance can only be as comprehensive as allowed by Central Government officials.

3. The Emphasis on Planning and Coordination

We recognize that there may be a conflict between promoting decentralized decision-making and building a capacity for coordination and planning at the national level. AID has a number of project and sub-project activities that promote the latter. Thus, the impact of the AID program has been to favor centralized activities.

For the longer term, as AID seeks to move agricultural programs closer to the farmer, decentralization will undoubtedly assume greater importance. It would seem that the possible difficulties identified above can be resolved if the GOE so wishes. A geographic focus for one or more project activities might be an effective method of encouraging the decentralization process and moving activities down to a lower level.

C. Equity Versus Growth: Strategies for Reaching the Rural Poor

The existence of a trade-off between growth and equity in the rural sector has increasingly been called into question in recent years. This change in economic thought lies at the base of AID's growing emphasis on small farmers as the largest agricultural sub-sector and generally the one with the greatest potential for production gains. In the specific case of Egypt, it is frequently argued that there is no growth-equity trade-off because there are, in effect, no large farmers;

all Egyptian agriculture is small-farmer agriculture and thus the question does not arise.

However, the poorest segment of Egyptian rural society is not the small farmer, but rather the landless laborer, who accounts for roughly half of the rural population and a quarter of Egypt's total population. A small-farmer oriented strategy would not necessarily reach the majority of the landless, since farm families holding less than 5 feddans provide 75%-95% of their own labor requirements. Can a strategy, production-oriented or otherwise, be designed that would reach the landless?

Six alternative strategies in this regard can be identified: (i) further land reform, (ii) promotion of higher labor intensity in the old lands; (iii) expansion of new lands, (iv) rural industrialization, (v) rural public works, and (vi) "welfare"-type income transfers. A seventh alternative provides a sort of null hypothesis: do nothing and allow out-migration to remove the problem from the rural areas.

(i) Further land reform would not substantially alleviate the plight of the landless. If all holdings over 50 feddans were divided among the landless, each family would receive .4 feddans. Alternatively, 160,000 families could be provided with 5-feddan farms, leaving 1,840,000 still landless and worse off than before, due to the drop in demand for off-farm labor.

(ii) Greater intensity in old lands agriculture, in particular a shift to higher-value crops (generally fruits and vegetables) and away from low-labor using grains, would increase rural employment opportunities and thus materially assist the landless laborers.

Changes that promote this shift indirectly, ranging from better market channels and higher grain yields to reduced fodder needs due to mechanization, also aid the landless. However, the considerable scope for old lands intensification, nevertheless, is still insufficient to employ all of the landless.

(iii) Expansion of new lands, though a dramatic and visible approach to combining growth with equity, is simply too costly to provide a major contribution to solving the landless problem. A conservative estimate suggests that it would cost LE 10-20 billion to reclaim sufficient land to give each landless family 5 feddans. If all lands to be reclaimed in the current five-year plan were parceled out in five-feddan units, only 400,000 families out of the total two million could receive land. This would be a significant contribution, but clearly it would not solve the problem.

(iv) Rural industrialization (large or small-scale) offers a somewhat less expensive approach than new lands development. The current cost of a single new job in urban industry, LE 2,200, is well below the cost of LE 5,000-10,000 to provide 5 feddans of new land per family. In rural areas, and with a stronger emphasis on labor-intensive techniques, it should be possible to lower this cost substantially. Jobs for all of the landless (assuming for the sake of argument that all need a job outside of agriculture and that 2 million jobs could be created, compared to the increase in off-farm employment of 1.5 million in the 1966-76 period) would thus cost LE 4.4 billion. Rural industrialization is thus a more promising alternative than new lands development.

(v) Rural public works ranging from social infrastructural investment such as public sanitation to productive investments such as canal cleaning and road building, have a place in a program to achieve growth with equity and reach the rural poor. However, as a source of substantial employment opportunities, public works are only a stop-gap solution. For the longer-term other, less costly, solutions will be necessary.

(vi) A production-oriented program emphasizing employment will not reach all of the rural poor. It would take several years to mount an effective program to benefit even a fraction of the 10 million landless. Even over the long-term, groups of unidentified size will remain beyond the reach of growth-oriented programs, no matter how carefully designed. These include the elderly, the chronically ill and the disabled. A welfare approach offers the only alternative for reaching these people.

Should a welfare program then be part of an overall rural development strategy? Or should it be included in the national health and nutrition strategy or handled separately? To date, AID's agricultural strategy has implicitly assumed that welfare aspects would be handled apart from activities in this sector. While this appears operationally clear-cut, more attention needs to be directed to coordinating production-oriented activities with programs that directly improve rural welfare.

To conclude, it appears that growth with equity, through the combination of elements from the various alternatives, should be the target. None of the alternatives should be dismissed out of hand as each can fit into an employment strategy.

D. Private Versus Government

The balance between public and private activity in the rural sector, which had been skewed to the public side during the Nasser period, has moved gradually but consistently back towards the center under Sadat. Large public enterprises continue (with only moderate improvements in efficiency), but new initiatives to encourage the private sector have been undertaken.

In the rural areas outside of agriculture exceptions to the private sector handling of all economic functions are the following: (i) Government provision of a wide range of social services; (ii) Government-subsidized food sales of several basic commodities (as they are in the urban areas); and (iii) Government construction and maintenance of infrastructure. In general most of the activities listed are functions of Government even where Government activity is reduced to the minimum. Only in some areas, such as health care, does Government activity appear to interfere with the development of the private sector. ??

In agriculture, Government intervention is much more pervasive. There, Government enterprises and, more importantly, extensive regulation of private activity have constrained sector growth. Large Government enterprises, particularly mechanized farms in the new lands and poultry and livestock operations, have absorbed a substantial portion of the limited resources available for investment in agriculture. Overall, these ventures have been less than an unqualified success and have thus constituted a drain on resources for the rural area. Other Government efforts in agricultural processing, such as the network of sugar mills, have been notably more successful.

On the input side, the Government controls the distribution and even the application of important agricultural inputs. Fertilizer, which is sold legally only through the agricultural banks, is the most prominent example, but improved seeds, pesticides and livestock feed supplements are also marketed through the Government.

By far the most significant Government intervention is in the area of controls on prices and acreage. This activity has such a large impact on agriculture that it is discussed separately in the following section.

The identification of the appropriate role for Government in rural development has wide-ranging implications for GOE policy and activity in the sector. It is not, however, an area where US policy is directly involved. To date, AID has encouraged a greater role for the private sector in its discussions with the GOE. Private activities are emphasized to the greatest degree possible in production activities. However, AID's policy leverage is limited by the shared knowledge that aid levels are largely inflexible. Where strong cultural values and GOE policy prescribe Government control of an activity, AID must accept the GOE decision or forfeit the opportunity to contribute in this area, at least over the short range. Rural credit institutions are an example of an area where a greater role for the private sector is unlikely to emerge in the near future. Dialogue among the GOE, AID and other donors is a continuing process, and AID's influence is continually brought to bear to encourage the GOE to move further in the direction of reliance on private sector development.

E. Pricing Policies

Prices in the food and agricultural sectors of the Egyptian economy are seriously distorted away from free market prices by a

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complex system of controls, Government purchases, subsidies and black markets, to the extent that it is not possible to determine what free market prices will be. While the avowed goals of price controls are a fair return to the farmer and affordable food supplies for the urban poor, in practice the system distorts farmer decision-making and subsidizes the middle and upper classes, as well as the poor. Although this aspect is rarely discussed by the Government, the system also taxes agriculture in favor of the urban sectors and particularly the national treasury.

Subsidization or price controls affect the price of all major inputs, with the exception of labor. Fertilizer, pest control, tractor services, and fodder receive direct subsidies, while Government credit and land rents are subject to price controls. Irrigation water is provided to the farm free of direct charge. In addition to these basic subsidies, the agricultural sector also derives some benefit from regular Government services provided through the Ministries of Irrigation and Agriculture and other sector investments.

Controlled prices for outputs affect only selected major crops, of which cotton and certain major food crops (rice, wheat, broad beans, and onion) are the most important. Controlled prices affect only the predetermined portion of the crop that is sold to the Government (100% for cotton, less for the other crops). Output is further taxed by applying the higher-valued exchange rate to agricultural transactions.

While estimates of the net effect of Government intervention in the agricultural price system differ substantially,

there is general agreement that on balance there is a net transfer out of agriculture. The World Bank estimates the value of this flow at LE 32 million in 1976 (2% of gross production value), exclusive of the LE 15 million land tax. Including the land tax and excluding the value of Central Government investment and operations, the transfer out amounted to roughly LE 150 million (10% of gross sector product). Other estimates place the implicit net tax burden as high as 30% in 1975.

The effect of the prevailing system of distorted prices is to skew both the cropping pattern and the mix of resources applied to produce it. Between 1950 and the present, the area planted to cotton and wheat has been reduced by nearly 700,000 feddans in favor of crops that are more profitable to the farmer, including vegetables, fruits and, in particular, long-season clover.

The impact on input use is more difficult to determine. The rapid pace of mechanization in the face of an overall labor surplus suggests, however, that the subsidization of capital through credit and exchange rate policies has distorted the farmer's choice of a capital/labor mix. The zero price for water delivered to the farm gate is also reflected in a nationwide pattern of over-irrigation, leading increasingly to drainage and salinization problems.

To date, AID's policy has been one of opposition to agricultural price controls and subsidies as a policy tool. The implementation of this policy, however, has been limited to mild "jaw-boning" with GOE counterparts. By and large, this is ineffective since GOE agricultural leadership already recognizes the desirability of moving away from price controls. Their actions are constrained by

strong pressures from within the Government and from the public (witness the January 1977 riots) as well as by the fact that output purchases and much of the input supply market are handled by the Ministry of Supply, rather than the Ministry of Agriculture.

One possible role for AID in assisting the GOE to make the transition to a freer price structure consists of increasing visible pressure on the GOE to provide a "scapegoat" for unpopular policy changes. The obvious price of such a policy is its negative impact on the US image in Egypt.

A second possible role is to assist the GOE in analyzing the economy-wide ramifications of a transition to freer prices and to assist the GOE in alleviating possible negative impacts of such changes on certain groups as well as the economy in general.

This would seem to be a feasible role although the costs might ultimately prove to be unacceptably high. Nevertheless, the US should clearly embark on the first phase of analysis to provide the information on which to make a judgment regarding the second or funding phase.

A related issue is whether it is appropriate for AID to use its admittedly limited "bargaining chips" in this area or whether they should be used to press for other policy changes, such as an increased emphasis on old lands rather than new lands. This decision rests on the relative importance of price changes vis-a-vis other policy change and the ability of AID to influence change in each area. There is little argument against the view that the distorted price system has restricted agricultural growth by fostering a misallocation of resources. Without price controls, farmers' profit would be higher, because of higher output, lower cost, or both.

The potential gain has not been estimated reliably to date, but several studies now underway will provide better information on this point. AID's ability to bring about change in this policy area is not clear, however. There is no assurance, furthermore, that removing price controls in one crop or input would move the whole system closer to the free-price situation than it is now. Consequently, it appears desirable that AID not concentrate exclusively on price changes or make any assistance conditional on changes in the area. Rather, pressure for price reform should be part of the overall package of policy change, particularly until better information is available.

F. Production Mix

At the farm level, the current rotation is the resultant of several conflicting forces. The farmer attempts to provide food for his animals, ensure at least a portion of his family's food requirements, comply with governmental requirements and, with any remaining land, generate cash income. With a typical farm size of two-three feddans, maximization of such a complex objective function is no easy task. The farmer must select an optimal cropping pattern in the face of limited availabilities of important inputs, including labor, and tight agronomic restrictions. Certain crops, such as short-season berseem, occupy a place in the rotation for which no attractive alternative has been identified. Moreover, farmers have not fully adjusted to the new opportunities created by the High Dam.

At the national level, the GOE's objectives generally parallel those of the individual farmer: provide food security,

meet foreign exchange needs, and generate a surplus for investment in agriculture and other sectors. With the severe limitations on land, all of these objectives cannot be met. In particular, food self-sufficiency in grains appears to be an unreasonable goal. Further intensification, increasing the acreage in high-value crops, offers a more productive alternative for best utilizing Egypt's near-ideal year-around growing conditions. The basic choice may be stated as one between import substitution (increased grain production) and export-led growth (increased fruit and vegetable production and greater focus on export markets). The choice in each agricultural sub-sector may be summarized as follows:

Grains: Egypt's comparative advantage clearly does not lie in grains, which presently occupy some 45% of the land but require relatively low inputs per unit area and yield a correspondingly low total value. However, considerable scope remains for producing more grain on the same or even a reduced area, through increasing yields. Maize yields, in particular, may be raised by as much as 50% over current levels. Wheat and other grains, which at present place the heaviest burden on foreign exchange, have a lower but still significant capacity for further gains. Yield increases in the farmer's staple food crops are, in fact, likely to be a prerequisite for increasing the output of non-grain crops, unless another means can be found of ensuring the farmer's own "food security".

Fruits and Vegetables: Egypt's capacity to produce fruits, now grown on about 10% of the cropped area, is virtually unlimited. Her capacity to market these products, thus assuring the farmer's

income is at present, however, severely limited. Egypt generally meets its own needs for fruits and vegetables, but it has slipped from self-sufficiency in the production of beans and lentils, a staple of the national diet, with imports climbing from \$1.4 million in 1971 to \$129.6 million in 1976. Increased income and population may be expected to lead to rapidly rising demand in this area over the next decade. Both to meet these needs and to earn foreign exchange, the production of fruits and vegetables needs to be encouraged. Room remains for varietal improvement and other agronomic changes, but the greatest gains will probably come from better marketing systems capable of supporting an increased acreage.

Cotton and Sugar Cane: The principal factor restricting cotton production is the low price to the farmer. A higher output could definitely be obtained simply by raising the price closer to the true market value. Aside from the potential drain on the GOE Treasury, increased cotton production poses some danger of a drop in price since Egypt is the principal producer of high-quality, long-staple cotton. At present, cotton appears to be a profitable crop for Egypt, despite its long growing season, but a substantial expansion of output beyond the present 13%-15% of the total area seems unwarranted. Sugar cane, which is grown in areas where alternative crops are not available, also seems to be an appropriate choice.

Livestock and Fodder: Fodder crops, primarily berseem clover, occupy at least a quarter of Egypt's land. Fodder supports the farmer's work animals, but it is also a valuable cash crop, either sold directly for animals kept in or near the cities or used to produce meat and milk on the farm. Land presently used for fodder could become more

productive if the fodder requirement were reduced through mechanization or if the fodder itself were made more productive by devoting it to meat and milk production rather than feed for draft animals. Imports of meat products have increased tenfold in five years, leading to a high GOE priority on increasing meat production. Given the land-intensity of meat production, however, it does not appear to be an appropriate use of Egypt's scarce land resources.

The central issue in selecting a production mix is whether Egypt should aim for food "self-sufficiency" or a self-supporting agriculture. The GOE's present goal of self-sufficiency in all crops except wheat can more easily be justified on political or national security grounds than on economic ones. A strategy of "self-support", i.e., a policy of increasing agricultural exports to cover the cost of agricultural imports, would be more conducive to maximizing growth and incomes in the rural sector. AID, in its discussions with the Government, will continue to encourage adoption of this more reasonable approach to selecting a crop rotation pattern.

G. Mechanization and Employment

Mechanization is viewed by top Egyptian officials as a primary means of modernizing agriculture and increasing production. Experience elsewhere raises serious fears that it may instead increase rural unemployment and push more peasants into urban areas that are not ready to absorb them. The two issues of mechanization and employment are thus clearly linked.

Employment: Despite considerable study of Egyptian agriculture, including several studies supported by AID, the critical question of the level of rural unemployment and under-employment remains an issue. The

bare figures—four million agricultural families on six million feddans--suggest a high degree of unemployment. Many sources, however, including the farmers themselves, cite a severe labor shortage. Officials in Upper Egypt cite the labor shortage as a prime cause of falling sugar cane yields. Evidence is strong that wage rates are climbing rapidly, at least during peak periods, doubling or even tripling over the last two-year period. Prior to 1974, the agricultural wage bill was fairly stable and the real wage bill registered a decline in the 1970-1975 period.

Various efforts to determine a labor balance have produced differing results, due in part to unclear definitions of the work-day and the role of women. All of the estimates, however, support the view that unemployment is considerably above the official figure of 1% in 1972. Labor availability (adult male only) is roughly 1,200 million man-days annually, compared to a total annual requirement of 720 million man-equivalent days according to one recent estimate, implying a 40% under-employment rate. Estimates based on the wage bill and the daily wage suggest a 60% underemployment rate among wage laborers. Over the year, unemployment varies, but an ILO estimate suggests a 28% unemployment rate at the peak season for adult males, with rate as high as 37% during off-peak periods.^{1/} The same author finds the shortage of female and child labor to be far more constraining than the supply of adult male labor, although other studies do not necessarily support this conclusion.

1/ Manpower and Employment in Arab Countries: Some Critical Issues,
International Labor Office, Geneva, 1976.

All of the studies have methodological problems, including the failure to address illness and off-farm employment. However, the evidence clearly supports the thesis that Egypt is a labor-surplus country with a large and growing unemployment problem.

Faced with this reality, what solutions can we identify? As argued above, land reform, rural industrialization and new lands expansion will not solve the problem, though each can make a contribution. Intensification of the cropping cycle cannot bring full employment either. If every faddan in the old lands were triple-cropped with vegetables, 10% of the male labor force would remain unemployed. This level of intensity, furthermore, is clearly unrealistic. A more attainable goal of transferring perhaps one-half of the grain acreage to vegetables would create a demand for an additional 272 million man-days of labor, the equivalent of 900,000 jobs. In addition, provided markets could be found and developed, intensification would spread labor demand more evenly over the year. Thus, expansion of fruit and vegetable production deserves strong consideration in any strategy for agricultural development, together with measures to achieve increased grain yields which are a prerequisite to large-scale intensification.

Mechanization: The employment issue is intimately linked with the choice of technology for agriculture and, particularly, with mechanization. The above estimate of labor demand and unemployment are predicated on the current level of mechanization. If, as the rural labor force continues to grow, jobs are eliminated through mechanization, the political and social stability of the rural sector will be seriously threatened. The issue may be restated as two issues: (i) What is the price of mechanization in terms of jobs eliminated?; and

(ii) Is mechanization worth the price, i.e., will it permit production increases or reductions in total cost that justify it despite the expected job loss, if any?

The answers to these questions depend on the type of mechanization envisaged and, equally importantly, the way it is carried out. On one extreme, world experience indicates that tractors displace labor without necessarily producing increased output. Whether this would be the outcome in Egypt is still under study. At the other extreme, small, hand-operated equipment can have a significant impact on yields in an intensive agricultural system, while displacing relatively little labor. Specific types of mechanization suited to Egypt's unusual conditions, such as mechanization of on-farm water lifting, may reduce costs while displacing primarily the labor of farm-family children. The impact of this type of change in labor demand is clearly different from that of a reduction in demand for temporary adult workers.

The policy implications of these issues for AID cannot be divorced from the dynamics of change occurring at present in the agricultural sector. In particular, the rapid pace with which mechanization, and specifically tractorization, is already proceeding suggests that some of these questions are, in effect, moot. The issue is not whether to mechanize, but how to mechanize, how to restructure the existing institutions to maximize the economic benefits, while holding employment losses and concentration of income to acceptable levels.

H. Old Versus New Lands

Analyses of the relative return to prospective investments in the old and new lands consistently conclude that the old lands provide a higher potential return than further new lands development at this time. This conclusion, which is generally based on professional

judgment rather than hard cost comparisons, rests on the potential for further increases in yields as well as crop value per feddan (not necessarily the same, given shifts in cropping patterns) in old lands agriculture.

The critical criterion for selecting an investment strategy is that of maximizing total returns which usually requires maximizing the productivity of the scarcest resources. In Egyptian agriculture this generally means applying relatively plentiful labor and water to limited land and capital. Since yields of major crops are already quite high by world standards, it can be argued that real sector growth gains will only come from either a shift in the cropping pattern to higher-value crops, or from investments in the development of "new" lands. While there is some validity in this argument, it should also be recognized that even relatively small percentage increases in per-unit production from existing lands can be significant. For example, a 5% increase in average maize yields would enable farmers to produce the same quantity as at present while releasing almost 50,000 feddans for other purposes.

Since yields have not yet reached the genetic maximum for most crops, further increases in yield can be realized. There is also considerable potential for increasing the marketable surplus by reducing post-harvest and storage losses and other related measures. Furthermore, over time it is extremely logical for Egypt to move toward crops of greater value that maximize use of abundant resources--fruits and vegetables are the obvious crops to utilize more labor, the year-around growing seasons, and abundant water. Nevertheless, such shifts on the production side require a multitude of concomitant changes in the input-supply and marketing systems as well. Consequently, dramatic and rapid changes in cropping patterns

are probably impossible and certainly ill-advised. Rather, a gradual movement dictated by market forces and the development of necessary infrastructure seems appropriate.

On the question of new lands, the basic question is one of return on investment. At the moment the evidence is that vertical expansion from existing lands provides a greater return than horizontal expansion of new lands. Given current reclamation costs and cropping intensities, for example, it would cost LE 50-100 million to reclaim the land saved by the 5% maize yield increase suggested above. Nevertheless, at some point in the future these relative rates of return will change as productivity approaches biological limits on old lands or as relative land development costs decline. Therefore, in anticipation of such possible shifts and in recognition of the need to increase absolute production, certain new lands development efforts are warranted as models for expansion and sources of information on problems and feasible methods for new lands development.

To date, AID has emphasized efforts to increase old lands productivity despite the potential for long-range gains and political visibility from new lands investments. Thus, there has been an increasing gulf between the emphasis of the AID-supported program and the GOE's stated priorities. While AID's old lands program may well provide a desirable counter-balance to over-emphasis by the GOE on new lands, GOE interest in AID involvement in land reclamation remains strong. In response to the GOE's priorities and with a long-run view, it seems appropriate for AID to undertake new lands activities that are carefully designed to serve as a test of efficient and effective methods of developing new areas. In this regard, particular attention should be given to maximizing employment rather than only production.

I. Investment Levels

By any criterion, agriculture receives a disproportionately low share of public investment. Only 7% of GOE investment in 1975 was directed to agriculture, which produces 25% of GDP and provides nearly one-half the employment. The Five-Year Plan would increase this amount only slightly, to 8.6%.

Within agriculture, the pattern is also one of a disproportionate lack of emphasis on the sub-sectors responsible for most of the production, i.e., the old lands field and vegetable crops. New lands and livestock project will absorb most of the investment in irrigation and drainage.

The absolute level of investment in agriculture, which reached LE 42 million and 99 million in 1975 and 1976, respectively, will increase to an annual average of LE 176 million over the Five-Year Plan period. This level of public investment represents only 6% of total sector product, compared to a 20% investment rate in the economy as a whole. Furthermore, private investment in agriculture, according to official figures, has been minimal. Information on investment in rural development aside from agriculture is unavailable.

Planned AID activities would substantially increase the level of investment in agriculture. AID investment proposed for FY 1980 in agriculture itself (not including rural development, infrastructure such as grain storage, or agriculture-related industry such as PVC pipe manufacture) totals \$110 million (LE 77 million). This raises the question of absorptive capacity, that is, whether the Egyptian economy and the Egyptian Government will be able to utilize this level of assistance effectively.

There is little doubt that the rural economy as a whole can absorb more investment resources productively. Rural infrastructure and rural industry both are in need of large investments beyond those foreseen by the Plan.

The absorptive capacity of the implementing agencies, particularly the GOE bureaucracies, however, is somewhat more open to question. Egypt does not suffer from a lack of trained manpower (if anything, it would seem at times that there is a surplus of individuals with formal training). However, the organization of this manpower into efficient organizations and the establishment of incentive systems to promote change and innovation have lagged behind the growth of needs to be served. For this reason, many of AID's programs need to be oriented toward building up the institutions active in the rural areas in order to transform them into a more effective conduit for reaching the rural poor. If this can be accomplished, absorption of the proposed investments will not pose a problem.

IV. STRATEGY OPTIONS

A. Introduction

In certain respects formulating an assistance strategy for the Egyptian agricultural sector seems relatively straightforward. The limited land resources, the small average size of land holdings, a growing population, a rapidly increasing food deficit, and the continued economic importance of the agricultural sector as an employer, export earner and supplier of raw materials as well as food strongly point to a strategy emphasizing growth. Also, without a higher agricultural growth rate than recently achieved, overall development targets are not likely to be met.

However, there are serious questions whether current GOE policies such as commodity pricing to generate Government revenues or maintain low urban food prices, mandatory public sector employment of college graduates, subsidies on major food items and low levels of investment in the sector will allow a very high level of agricultural growth. There is also uncertainty regarding the capability of the existing institutional structure to meet the needs of a dynamic sector. Further, the existence of large numbers of landless laborers, sizable differences in incomes and levels of living among groups in the sector and variations in the incidence of costs and benefits among activities, also indicate that equity considerations cannot be disregarded.

Finally, the activities of other donors, the capability of the sector, or sub-sectors within the sector, to absorb resources effectively and GOE priorities and plans must be considered. Thus, in spite of apparent simplicity, any rational assistance strategy for the Egyptian rural sector will need to answer a range of questions and include elements dealing with a variety of constraints.

In light of the factors and situation mentioned above, we are proposing to follow an employment-oriented growth strategy. In basic terms this strategy, detailed in the following section of this paper, seeks to accelerate agricultural sector growth via, and as a means of, optimal labor utilization. The action elements will address policy questions, institutional weaknesses and technology requirements within a framework of equity considerations and efficient resource use. The starting point will be the current core of projects from which a second generation of activities will be developed.

In arriving at this complex strategy a number of relatively simpler options were considered and rejected as inadequate. Nevertheless, we believe a brief discussion of the most reasonable of these strategies is useful, including perceived positive and negative features, in order to clarify the choice finally made.

B. Production Focus

The first, more narrow, option considered was a production strategy. As indicated above, Egypt has opportunities and needs to increase agricultural output. The US has proven expertise in achieving high production levels. AID could tap this expertise and directly assist in increasing production, either geographically through integrated area development programs that would include social services, small-scale industries, etc., or on a crop basis through comprehensive programs encompassing research, extension, credit, input supply, marketing, etc. The major advantages for AID for such a strategy would be the quantification of effects in production terms, the offsetting of claims that AID is having little visible effect in the agricultural sector, the opportunity to concentrate resources in order to have a significant impact and a probability that "new directions" could be closely followed through a focus on well-identified target populations. Projects on a geographic basis could also strengthen GOE decentralization efforts.

But while the option has advantages it is based on certain assumptions and contains several possible disadvantages. The strategy assumes that constraints are solvable on a crop or area basis. For many problems this may be true but larger problems, e.g., national pricing and administrative policies, are also

important and can only be treated at a larger level. It also assumes the existence of sufficient and accurate data on which to formulate detailed plans. Experience indicates this is not the case and that a rather lengthy data collection phase would probably be necessary. There are the implicit assumptions that required national infrastructure is in place and working or that it is not needed. Again, there is evidence to the contrary implying a need for additional types of assistance. Finally, the alternative assumes a distribution of benefits that may not occur with an emphasis only on production.

There are also problems of cost, if implementing the strategy means existing projects would need to be abandoned or substantially modified, and of the time required to plan complex production efforts. Finally, such an option might require an immediately unattainable degree of GOE restructuring since many functions that would be involved are currently not administered on a geographic or a commodity basis.

C. Infrastructure and Institutional Option

At almost the other extreme from a direct production focus would be a physical and institutional infrastructure strategy. The rationale for such an option would be that a basic infrastructure must be in place to allow agricultural growth to occur. If the support structure does not provide the farmer with necessary information, off-farm inputs, marketing channels and other services, production gains cannot be expected. In Egypt, despite large numbers of organizations and personnel and considerable physical infrastructure, it is clear that the rural population is often not well supplied with needed services.

The institutional and physical infrastructure has serious physical, organization and operational gaps.

Activities to ameliorate these problems are a prerequisite to sustained development and hold the promise of significant long-run returns. Until these problems are solved, or at least reduced in magnitude, the more production-oriented or other development efforts may be difficult to successfully implement.

A significant problem for a purely infrastructure approach is that of demonstrating the effect of improvements on the rural poor or small farmers. The beneficiary population will largely be members of the infrastructure system with only secondary benefits for the rural populations. There is also an assumption that the physical presence of institutions and infrastructure is a necessary and adequate condition for development and production growth. Obviously, this is not always the case since existing infrastructure is not working in all instances. Finally, the institutional problems may be of such a magnitude and persistence that meaningful changes over a wide front in the available time frame are not possible.

Advantages of an infrastructure option are its tangibility, AID experience with institutional development and GOE interest. Also, rather large sums could probably be expended with little difficulty.

D. Beneficiary Focus

A third alternative strategy for agricultural development would be a beneficiary focus or starting from the target population

and working up to projects rather than vice versa. Obviously, all AID projects are concerned with who the beneficiaries are, but there remains a tendency to emphasize activities rather than the incidence of benefits. Thus, projects may exacerbate inequities to a greater extent than necessary, or fail to reach expected beneficiaries, recognizing that in most projects it is difficult to ensure that all benefits accrue to the particular target group.

The necessary first step in this option would be to precisely identify the target population. Given AID concerns and directives, this would be landless laborers, smaller farmers and the rural poor. However, identifying and isolating these groups to the extent that they can be worked with could not be easily accomplished. For the landless laborers it is doubtful if any agricultural development programs can raise their level of living, as a group, to that enjoyed by landed farmers.

Obvious advantages of this alternative are the adherence to "new direction" mandate, the promotion of social equity and the direct impact on people. Problems could arise in planning and implementing development programs of any sizable magnitude, in focusing GOE efforts in this direction and in having a measurable impact within the given time frame. A geographic focus would almost certainly be required from an administrative and monitoring perspective.

V. PROPOSED ASSISTANCE STRATEGY FOR THE EGYPTIAN AGRICULTURAL SECTOR

A. Strategy Description and Rationale

Based on our analysis of the issues, of what is desirable and feasible in the agricultural sector, and the judgment that a

broad approach is necessary, we propose to follow an employment-oriented growth strategy. More precisely, we will pursue a strategy that supports the optimum utilization of labor in the acceleration of growth of the value of agricultural sector production. Underlying the strategy are the two basic tenets of more efficiently using available resources, particularly labor, for agricultural and off-farm rural growth and of seeking to improve the equity position of currently disadvantaged rural groups.

The strategy does not aim at making Egypt self-sufficient in food production nor does it necessarily seek to reduce the food deficit. The emphasis is on efficient use of resources which, given Egypt's geographic location and resource endowment, probably means a gradual shift to higher-value crops produced with additional quantities of labor. Over time, if relative prices so indicate, Egypt may import a growing quantity of foodstuffs but with the expectation that this would be offset by larger sales abroad of traditional or new export crops. Nevertheless, given the vagaries of international food markets and an Egyptian desire to grow a certain minimal quantity of basic foodstuffs, increasing the productivity of land units under food crops in order for the same or higher production levels to be achieved from fewer feddans with land released for other purposes will be a strategy component. A key element in making the gradual transition to higher-value crops will be the availability of necessary infrastructure.

The rationale for this strategy follows from the almost classical development situation encountered in Egypt. The limited land and capital resources, low sector growth rates, the pool of unemployed or underemployed labor and the improbability

that the urban sector will be able to provide employment opportunities for both rural and urban sector increases in the labor force indicate a need for growth in the rural sector if rural sector residents are to attain higher living standards. Agriculture, as the major employer, producer of raw materials and consumer of off-farm inputs, must be a driving force behind rural sector as well as national growth. However, since Egyptian agriculture, even under the most optimistic assumptions regarding labor use, cannot productively absorb available labor except at certain periods, there is also a need to stimulate off-farm rural employment, probably starting with agricultural product marketing and processing and manufacture of off-farm inputs for use in agricultural production activities.

Fortunately, what appears reasonable and feasible for the agricultural sector in terms of resource-use efficiency, appropriate production mix and target growth levels, also seems desirable from the social equity perspective. As indicated in the issues section, there is not necessarily a trade off between growth and equity. In Egypt, agricultural growth can come from the small land-holdings owned by small farmers, and necessarily must, since nearly all farms are small. Without growth, we believe there is little likelihood of an increase in employment or equity in agriculture due to the small holdings and low existing income levels. With growth, we believe opportunities will exist.

A final consideration from an equity perspective is the potential of the proposed strategy to positively affect significant numbers of people. Production increases in food crops per se may have only limited impact on rural and urban consumers because of

the extensive food subsidy programs already in operation, utilizing domestic and imported food supplies. People are not severely mal- or undernourished. Producers, however, who are able to grow additional crops on land released from food production or to market additional quantities of food will benefit. Since virtually all farm operators in Egypt are already beyond subsistence production, this means a potential direct effect on upwards of ten million farm-family members. For landless laborers the major direct impact will be through higher incomes from additional employment opportunities. A reasonable target is 15% of the landless laborers, in the coming five-year period, benefitting from additional employment and obtaining higher incomes. Of course, in addition to the above direct effects there should be numerous multiplier and secondary effects as additional money from increased production flows through the rural areas.

Three potential and interrelated barriers to the feasibility of additional labor use are the availability of labor to perform certain operations during the optimal time period, the price of labor and the GOE's willingness to allow prices to reflect real scarcity and return situations. On the first issue, there is limited evidence that at peak seasonal demand periods a labor shortage exists (at least at the price offered). But for most of the year, labor supplies appear to exceed demand. The obvious solution is to apply labor-extending techniques at peak periods while trying to even out and increase overall labor utilization. Very selective application of additional energy and shifts to more labor-intensive crops or crops having different seasonal labor requirements are indicated. Altering production practices and

raising the production of more traditional crops might also have a positive effect on employment, e.g., additional weeding might be a factor or additional labor might be required for harvest or post-harvest handling of a larger crop.

Closely related to labor supplies and the increased utilization of labor is the cost relative to productivity. While the marginal productivity of labor appears to be positive, it is less clear as to the extent that marginal output exceeds marginal costs. Some data seem to show that the rising wage rates have seriously reduced labor use. This would indicate a need to increase labor productivity if labor wage rates are to be raised and if labor is to be a cost-effective production input. It is also unlikely that technological improvements alone can provide the growth judged desirable in the sector (roughly 4% annually). Productivity must be raised. Under free factor market conditions it could be expected that part of any additional productivity would be returned to labor in the form of higher wages. In sum, there are production, employment and equity reasons to seek greater labor productivity.

On the third potential barrier, that of Government price controls, subsidies and allocations of certain inputs to certain crops distort relative returns and may encourage the substitution of certain inputs for labor. While there are obviously broad considerations in the removal of controls, and there is no guarantee that complete removal would provide optimum social-welfare benefits, a selective, if not complete, removal of these controls, which as indicated earlier, extract a surplus from agriculture, should be considered. Without modifications or removal, it is clear that encouraging the use of additional labor faces additional constraint.

B. Tactics

But what does the strategy mean for US assistance? What is required to generate growth in production, in labor productivity, in output per unit of scarce resources and in employment? On a general level we believe implementing the strategy requires simultaneous efforts on agricultural technology, agricultural policy and institutional development. The advances or level of effort in each area do not need to be exactly parallel but to achieve significant effects a certain degree of synchronization is necessary, i.e., technology requires a suitable policy framework for adoption just as sound policies need technology to produce results.

We believe the strategy also indicates that AID cannot and should not attempt to address all technology, policy and institutional problems and all constraints at all levels. The tactic must be to focus on selected problem areas and on relieving important agricultural constraints in those areas. The tactic must also acknowledge that not all constraints to growth are immediately amenable to solution, many are too large to address without better information or can only be addressed sequentially, etc. Therefore, a selective, phased approach over time with shifts in relative emphasis is indicated. More specifically, certain pre-conditions must exist before much growth or employment can be expected. Necessary infrastructure must be in place and operating, information and technology must be available, the policy environment must be favorable. Consequently, our short-term tactics will largely concentrate on establishing the base for follow-on activities which

will be more narrowly and precisely directed at generating growth and employment. That is not to say that current activities will not directly impact on growth and employment, but the degree will be less than can be expected in subsequent activities to be started four-five years from now. But even at that point, attention will still need to be given to policy, technology and infrastructure to ensure that the environment continues to be suitable for the growth/employment strategy.

In terms of the functional areas described in the AID Agricultural Policy Paper of June 1978, our tactics presently concentrate on planning and policy analysis and development and diffusion of new technology.^{1/} However, each of the other areas is also addressed either by smaller elements in current projects or will be in proposed projects. As we move to new activities we expect to put increasing emphasis on asset distribution and access and on the broad area of marketing, storage, rural industry and credit as the GOE develops capacity to handle the other areas.

Turning to agricultural policy, the first of the necessary bases in our strategy, we propose multiple efforts carried out in a sequential manner. The first thrust will be ongoing direct talks and discussions with key Government officials on critical policy issues. The PL480 self-help measures plus our overall assistance program will serve as springboards for these discussions. However, since we do not have firm answers on precisely what the changes in

^{1/} The five functional areas are: (1) Asset Distribution and Access, (2) Planning and Policy Analysis, (3) Development and Diffusion of New Technology, (4) Rural Infrastructure, and (5) Marketing and Storage, Input Supply, Rural Industry and Credit.

policy should be in many areas nor are we in a position to insist on changes, we will first seek to have certain policies reviewed by the GOE, and necessary studies conducted to allow adequate assessments and formulations of policies more supportive of production growth and employment. We will be prepared to provide funding for the studies. The first policy area we propose for examination is input and output pricing followed by that of GOE investment levels in the sector. Subsequently, over the next two years, we will seek to focus attention on credit policy, mechanization policy, livestock production policy and export crop policy. Beyond these areas, we are reluctant at this time to identify additional specific policy areas for discussion since world markets and conditions will be very important factors, but we will seek a continuing dialogue on major policy problems at appropriate Government levels.

The second thrust of our planned strategy to influence policy is through the assistance projects that are undertaken. Nearly all ongoing or planned projects will generate information of potential value in decision-making on policy issues. Some projects will seek to develop information directly focused on particular issues while other projects will provide information less directly relevant to policy formulation. Nevertheless, since ongoing and proposed projects cover a wide-range of important areas, the opportunity will exist for continuous engagement in policy discussions with key individuals from concerned ministries. While many of these policy questions may be project-specific and narrowly-focused, we believe they will often provide an entrée for large issues. As we start to

evaluate projects additional opportunities to discuss and influence policy will arise and will be utilized.

It is apparent that influencing agricultural policy will not be easy, and that rapid dramatic results cannot be expected. In almost every instance, there are myriad factors to be considered, extending well beyond the agricultural sector, before a decision is reached. Our hope, however, is that movement toward policies providing greater production incentives to private farmers, and which relax Government intervention in the sector, will be apparent within the next three years. We also expect, in areas such as mechanization and livestock where no clearly articulated policy now exists, that more clear-cut objectives will be set forward within five years.

In the second basic area, that of developing or adapting new agricultural technology, where we believe the problems are somewhat simpler and more directly amenable to US influence, our almost exclusive thrust will be via specific projects. We are already, or shortly will be, providing assistance in a large number of important agricultural constraint areas. Adapted technology for immediate use by farmers is an expected output of several projects. The project designs generally reflect expert judgment that the assistance inputs can be expected to produce the technological advances. While the level of advances cannot be precisely predicted for specific crops, we are confident that the projects, once underway, will result in measurable and significant changes within a five-year period. As indicated above, in land-short Egypt, even small changes in per-unit yields can

release sizable acreages for other crops or uses. The focus of our efforts is on technology development for the major crops including the establishment of links with international research centers in order to maintain a flow of technology in the post-project period. With the existing availability of Egyptian scientists and of reasonably successful research programs, inputs in these areas can be expected to provide significant returns.

After two to three years, once currently planned activities are underway, AID may also wish to consider research assistance for certain non-major food crops, e.g., vegetables or fruits for domestic consumption and export. But for the moment, the opportunities and returns seem likely to be highest from the major crops.

The third area of concern, infrastructure, consists of both institutional and physical elements and is and will be a major component of all efforts currently underway or planned. The main emphasis will be on institutional elements such as operating procedures, trained staff, a set of organizational objectives, etc., but new or renovated physical structures will be needed in certain instances. Fortunately, Egypt has a core of personnel and facilities on which to build. The task is that of revitalizing and adapting the system to meet the needs of small farmers. For each organization, the exact problems and the complexity differ, but, generally, improved efficiency and better links within the bureaucracy and between the bureaucracy and farmers are needed. Specific problems are those of poor information flow to and from the farmers, low salaries, an excess of personnel and a lack of planning. We cannot affect salaries

and staff numbers except through policy discussions, but information flow and planning can and will be addressed. The method proposed is a vertical crop approach which includes attention to both research and extension and the establishment of institutional links between research and extension. The lack of this particular linkage has been identified in the past as a severe problem and a constraint to information flows. As indicated, we propose to help overcome that problem, initially on a crop basis where we feel it is more manageable, and perhaps in the long-term (four to five years) on a more aggregate or horizontal level. We will also seek to ensure close coordination between different crop projects, in areas such as extension, to lay the groundwork for possible later horizontal efforts dealing with more general research and extension problems. By the end of the five-year period we believe that significant experience will have been gained and the necessary rudiments of an effective organizational structure will be in place to permit refinement and expansion via follow-on activities.

Similarly, several activities will deal with the institutionalization of data collection and data-based planning capability. We will seek to increase overall MOA capabilities in these areas as well as the ability of specific MOA and other Ministry divisions to collect and utilize sub-sector data. Without this sorely lacking capability, improved information flow means little. Within three years we expect to see major improvements in this area, enabling much better policy and project planning.

C. Ongoing or Proposed Projects

Before examining the particular projects to be used as the primary vehicles for implementing the strategy, previous general

comments on phasing need to be reiterated and expanded. The current group of projects might be viewed as a basic core of activities establishing a minimum set of necessary conditions. From this core we will move in the direction of specific growth and production activities which emphasize employment and equity. However, changes in project type will not be immediately apparent. Two years from now, the agricultural program will look largely as it does today, except that the current plans should be reflected in identified projects under preliminary design which will more directly affect employment through production efforts and which will build on the initial years of experience in a number of areas. Within two years we do expect that certain policy issues will have been resolved, resulting in a more positive policy environment. We also expect the Ministries of Agriculture, Land Reclamation and Irrigation to increasingly evidence a capability to plan for the future. The Ministry of Agriculture's Committee for Foreign Assistance is already aware of the need to better coordinate assistance and of the need to provide a better overall framework into which to fit assistance. Five years from now, we expect to find ourselves able to serve more as a financing organization with the Egyptians assuming more of the planning and implementation responsibility. But we will want to retain adequate flexibility to seize on targets of opportunity that may arise within our general strategy, i.e., agro-industry projects, introduction of a particular new crop, etc., and which still require policy, technology or infrastructure assistance in a production context.

Comparing the strategy and tactics with ongoing USAID-supported activities reveals a good deal of consistency with no need of major modification. The projects in Rice Research and Training and Major Cereals seek to develop, for extension to farmers the varieties and technology necessary for production increases. Similarly, the Water Use and Management project, through a research and development effort, addresses the question vital to production of how to use irrigation water efficiently on the farm. Management systems developed by the project could and should affect the production of almost all crops. Small Farmer Production is focused on developing a system whereby small farmers can obtain the inputs they need to raise production of all crops grown. Aquaculture Development and Poultry Improvement have both production and research components with an important concern in amassing the data necessary to plan an expansion of small farmer production capabilities for fish, eggs and poultry. Agricultural Development Systems proposes to use research-generated data on selected topics as a basis for pilot programs to develop Ministry skills in policy-related research and as an input into the decision and policy-making process. Possible production and employment effects will be major criteria in determining which research to undertake. The Agricultural Mechanization project will focus on efficient resource use, research and production while maintaining a concern for minimizing any labor displacement in attaining production gains. Small-Scale Agricultural Activities seeks to introduce and adapt appropriate technology items that will positively influence production,

marketing or processing practices. Cooperative Marketing aims to develop a replicable model that will provide more lucrative and expanded marketing opportunities for small cooperative producers of fruits and vegetables, thus stimulating production. Finally, Agricultural Management Development seeks to provide GOE personnel with management training that will enable them to more effectively carry out their administrative functions. All the projects contain institutional development elements.

For the immediate future the strategy is to continue existing projects which, the evidence indicates, are correctly targeted, promise significant direct returns, and will serve as a base for follow-on activities. In addition, and still with a direct or a facilitating production with employment focus, we propose to develop a New Lands project. This project will seek to develop a new lands area while maximizing the number of viable settlement units, to raise an existing reclaimed area to a profitable level, to provide services to a third area and, in achieving these objectives, to serve as a demonstration of what is possible with the use of effective methods.

Further in the future several other areas will be considered for assistance with decisions based on other donor activities, Government actions, results of earlier projects and potential significance. The first of these areas is in the livestock sub-sector. To date, we have been reluctant to become involved because of uncertainty over Government policy, other donor activities and uncertainty over the role that livestock production should play in this land-short country. As a

labor-intensive undertaking livestock production may have possible beneficial employment effects. However, unless forage production has a role in the cropping cycle that cannot be adequately filled by other crops, it may be more resource-efficient to produce other food or export crops. As Government policy is clarified, and we expect the mechanization study to add to the clarification process, we will be in a better position to reach a decision about possible areas of livestock involvement.

A second area of probable assistance is oilseeds. Egypt is currently importing significant quantities of vegetable oils. Acreage under soybeans in particular is increasing rapidly. There may be a future need for assistance in research, production or processing of soybeans or other oilseed crops. An oilseeds team now in the field should provide much of the information on which to base a decision.

It is also probable that in the future we will develop one or more production activities based on the research results and experience flowing from current projects. Whether this will be on a geographic basis, utilizing an integrated approach, or on a commodity basis across the country remains to be determined. The critical difference from current projects will be the almost exclusive focus on production and employment. These projects will seek to keep costs per beneficiary low, not utilize unreplicable amounts of skilled manpower and may be directed at only a particular segment of the population. As indicated, these projects will build on the experience gained from existing projects.

Finally, it may be that opportunities and requirements will flow from the analyses to be provided from the Agricultural Development Systems project. These as yet cannot be specifically identified, but we will wish to retain a fair degree of flexibility to meet new requirements. In particular, we will be interested in projects which hold the possibility of policy influence.

Not included in the above discussion are three other concerns which may be elements of individual projects but which we feel also merit special concern and attention. The first of these is appropriate or adaptive technology. While a small project is being developed specifically in this area, AID intent is to emphasize appropriate technology in all projects. Additional funding for the manufacture of appropriate technology items may be an attractive possibility.

The second special concern is agribusiness. AID believes US investors are uniquely equipped in certain areas to contribute to Egyptian development, particularly in food processing, production for export and export marketing. Land reclamation and development may be an additional requirement. AID will seek to facilitate and encourage US private sector investments in agribusiness through feasibility studies and financial assistance.

The final special concern is women in development. Women in the rural sector play such a multitude of roles it is necessary to evaluate the effects of change on a case-by-case basis. Nevertheless, within the existing socio-cultural constraints AID will seek to maximize the involvement of women in the development

process and make additional efforts where necessary to ensure their active involvement. This may require special projects focused entirely on women.

D. Funding and Implementation

While exact funding levels necessary to implement the strategy cannot be identified due to the uncertainties over other donor activities, progress in existing projects, etc., a probable range can be. We believe an input of \$30-\$50 million annually in the agricultural sector is the minimum necessary to have a measurable impact, is well within the absorptive capacity of Egypt and is within the management capability of the projected US staff. Less than these levels will reduce any possible policy leverage, be insignificant relative to the size of the problems and not fulfill US commitments.

To implement the indicated package of 10-15 projects totaling \$30+ million annually, the Mission proposes to rely, to the maximum extent possible, on host country contracts. While the Mission will consequently have relatively little direct technical responsibility for project implementation, it will be absolutely essential to retain technical expertise via direct-hire staff in order to provide technical guidance to the projects as well as the necessary administrative monitoring. A staff of 11-12 with expertise in agricultural engineering, irrigation, agronomy, livestock, agricultural credit, marketing, agricultural economics and agribusiness is indicated which might require an increase of only one or two positions beyond the current staff level.