AGRICULTURAL DEVELOPMENT SYSTEMS
EGYPT PROJECT
UNIVERSITY OF CALIFORNIA, DAVIS

PROCEEDINGS OF THE THIRD ECONOMIC POLICY
WORKSHOP ON MIGRATION AND MECHANIZATION IN
EGYPTIAN AGRICULTURE
by
Alan Richards
University of California, Santa Cruz
Philip L. Martin
University of California, Davis
Hassan Khedr, Ministry of Agriculture
Hanna Kheir El-Din and Saad Nassar, University of Cairo

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I. Introduction

Recent discussion of Egyptian Agricultural policy has focused on three widely accepted "facts":

1. Perceptions of agricultural labour shortages;
2. Large scale emigration of labour from agriculture and from Egypt itself;
3. Rapidly increasing farm demand for, and to some extent, supply of agricultural mechanisation.

These phenomena, plus the work of the rural labour activity, promoted a group of Egyptians and Americans in the ADS Project to organise a two day workshop on the subject of "Migration and Mechanisation". This paper is the report of the proceedings committee for the workshop. As in the reports of other proceedings committees for previous policy workshops, we do not try to summarise every paper. Rather, we focus on the areas of consensus and disagreement on the principal policy issues which recurred during the course of the workshop. The workshop was held at the ADS facilities at the University of Cairo, Faculty of Agriculture. It was attended by over eighty scholars and observers of Egyptian agriculture. (Program attached.) Presentations were made by economists, sociologists, anthropologists, and agricultural engineers. Such a multi-disciplinary approach proved to be very helpful, given the great complexity of the problems of the Egyptian agricultural labour market.

Dr. Hindy welcomed the participants on behalf of the Ministry of
Agriculture and the ADS project, citing the importance of the issues of labour supply and mechanisation for Egypt's agricultural development. He indicated the importance, for policy, of understanding the interaction of migration and mechanisation. Dr. Child raised the possibility that the rate of emigration abroad of Egyptian workers may be decelerating. He wondered whether this might imply that some of the plans for Egyptian agricultural mechanisation were too capital intensive. It was noted that capital is heavily subsidised in the Egyptian agricultural sector.

The workshop focussed on four topics:
1. The nature of labour shortages in agriculture;
2. The role of migration in generating this shortage;
3. The demand for, and supply of, agricultural mechanisation;
4. Policy issues facing the Egyptian government.

The remainder of this report is organised around these four themes. First, we shall place these issues in the context of the rapid changes in the Egyptian agricultural sector during the last decade.

II. The Context

Dr. Ahmed Goulei provided the context for the principal issues considered by the workshop. He noted that the key difficulty of Egyptian agriculture was the food security problem. During the last decade, food consumption has grown more rapidly than production. This has created a serious "food gap", filled by ever increasing imports, which now comprise
some 50% of total consumption. He noted that six major constraints retard the growth of Egyptian agricultural production. These are:

1. Physical constraints such as soil, water, and drainage problems;
2. Capital constraints: agriculture receives a very low share (around 9%) of public investment. Private investment is also very low, with the exception of investment in livestock and poultry production. A commonly cited cause of this low investment is the third major constraint i.e.;
3. The disincentive effects of current price policies, which tax the agricultural sector as a whole, distort the allocation of resources, and redistribute income regressively from rural to urban areas and from smaller to larger farmers;
4. The fragmentation and dispersion of decision making;
5. The low rate of technological innovation, coupled with poor extension;

He mentioned that one of the constraints facing the whole economy was the shortage of skilled labour. Indeed President Mubarek has singled out this problem in his recent seven-point program for the economy.

Previous studies of Egypt have repeatedly emphasized disguised unemployment especially in the agricultural sector. Although Professor Bent Hansen raised considerable doubt about this hypothesis during the 1960s, the last decade constitutes an important break with past experience. Real wages in agriculture have accelerated since 1974, and farm wages have risen more rapidly than wages in other sectors. Shortages of labour are specific shortages however, especially occurring during the peak seasons.
of May-June and September-October. (This theme will be taken up in more detail below.)

Professor Goueli then outlined some of the major changes in the economy which have affected the agricultural sector. There have been important changes in the cropping pattern, which have raised the demand for labour. Internal migration from rural to urban areas has been stimulated by large wage differentials, by government centralism, greater educational opportunities in the cities, poor rural infrastructure and amenities, and the urban food subsidies (some 40% of total food subsidies are spent in Cairo). Further, temporary emigration abroad for employment has increased dramatically. Unfortunately, there are no accurate figures on this phenomenon, but it is likely that the number of Egyptians working abroad has risen from less than 100,000 before the October war to perhaps one and a half million today. The remittances of these workers are a mainstay of Egypt's balance of payments; and they most certainly have micro effects too. Unfortunately, little research has been done on the latter phenomenon. A critical policy issue is the channelling of these remittances into investment to increase production and employment for the future. Migration has also important impacts on the social structure, since it is largely the men who migrate abroad. These forces, as well as growing off-farm rural employment activities have changed the composition of the agricultural labour force.

Such changes have stimulated a fairly rapid spread of farm mechanisation. However, two principal problems occur here. First, farmers are responding to a distorted set of price signals for both inputs and outputs. There is little reason to suppose that the resulting pattern of farm technical change is economically rational. Second, there are numerous technical problems in mechanising Egyptian agriculture; in Egypt
the bulk of the farms are very small by international standards.

In summary, the rapidly changing labour market and system of price signals has stimulated agricultural mechanisation.

Many important policy issues arise with respect to the interaction of labour and mechanisation. However, the lack of adequate data makes assessment of current and alternative policy packages extremely difficult. Available data on the agricultural labour force are often inconsistent, even within one source, while different definitions and collection procedures used by different data collection agencies render such data incomparable. In certain areas, data are altogether lacking (e.g. labour migration from rural areas, recent estimates of labour requirements, etc.). Part of the difficulty stems from the overlapping of the responsibilities for the collection of the data on the agricultural labour force. The Ministry of Labour, the Ministry of Agriculture, the Ministry of Planning, the Ministry of Social Affairs, and CAPMAS, all collect such data. Further, the concepts underlying such data collection efforts are often poorly defined. The "labour force" for example, is too aggregate a concept to be of much help to policy makers. It is essential that steps be taken to remedy this problem. Planning without facts is an exercise in futility.

III. The Nature of Labour Shortage in Egyptian Agriculture

In view of these very serious weaknesses in the data, it is very difficult to specify precisely the nature of the labour shortage in
Egyptian agriculture. Probably, the best data are those for agricultural wages. Since we have also relatively adequate data (although weaker) on the rural cost of living, the agricultural real wage rate is probably the best available indicator of a labour shortage. This has clearly risen at a historically unprecedented rate since 1974. Although agricultural real wages drifted upward from 1948 to 1974, this change was gradual and erratic. For some years, the real wages actually fell. From 1974 to 1978, however, wages rose sharply at an average annual rate of 11% per year. They continued to rise in 1979, but data for 1980 show a decline. It is too early to tell whether this is an aberration or a reversal of trend. On the whole, agricultural wages rose more rapidly than wages in public industry and construction, but they rose at roughly the same rate as wages in private industry. It should be noted, however, that wages for unskilled construction workers (e.g. haulers) have increased even more rapidly than farm wages. Agricultural wages, however, are still well below wages in these sectors and only about one-third of the levels of wages in those other sectors.

Some other indicators of a hired labour shortage are also available. The definition of the "working day" has changed. Whereas formerly workers laboured from sunrise to sunset, now they often work from 8.00 a.m. to 2.00 p.m. This seems to vary regionally and by crop operation. In some areas, such as Menufiya and Sohag where the World Bank is conducting its mechanisation program, horticultural workers only labour for three hours per day. Further, workers now often demand and receive such fringe benefits as tea, meals, and cigarettes from their employers. Piece rates for harvest labour have also increased.
There was a consensus that labour shortage in Egyptian agriculture is not general but specific. It appears to be specific by sex, crop operation, season and region. In particular, there is a seasonal shortage of hired male labour. The wage rate indicator used above is an indicator of such hired labour shortage. Much evidence suggests that the hired labour force is drawn from landless agricultural workers and from those farmers holding less than one feddan of land. Larger farmers and non-agricultural rural social groups do not appear to be important suppliers of such labour. Further, there is little evidence to suggest that there is a shortage of family labour, although emigration of male farmers could create indirect effects on the hired market. The weight of the evidence suggests that the shortage of labour is a shortage of hired male workers.

The shortages are not uniform over time and space. Simultaneous shortages and surpluses appear. For example, although survey evidence of peak season labour shortages was presented, the same source also noted that seasonal surpluses appear. This is not a new finding, of course as it was intensively studied in the 1960s. We may note, however, that this situation persists. Further, although labour shortages are reported from every governorate, and survey evidence shows a seasonal shortage of hired peak season labour for eight villages in the Sharkia governorate, in the same governorate there exist migrant workers (taraheel) who go to labour on new lands. They travel some ten times per year in search of such work. This evidence of simultaneous surpluses and shortages of labour within one governorate is evidence of very poor labour market information. This is an important area for policy action.
The problem of poor market information is compounded by the imperfect substitutability of one kind of worker for another. Workshop participants stressed the very complex modes of organisation of work in Egyptian agriculture. The principal means of organising such work is the rural household. Although an individual household may lack adequate labour at a particular time, small farmers have many ways to deal with the problem without having to resort to the hired labour market. In particular, in some Delta areas small farmers share labour with each other. Such exchanges are not limited to labour, but extend to animals, irrigation, pumps, and harvested crops. Such complex village social systems help small farmers to survive without entering the agricultural labour force. It was also stressed that small peasants dislike working under supervision, and that they rely heavily on livestock products for income and work. All of these factors contribute to the reluctance of small farmers to enter the hired labour market.

Family labour and hired labour are not freely substitutable. For example, hired workers work with livestock on the larger farms only, while the picking of cotton is invariably a hired labour task. As the latter example indicates, different age groups are, just as the two sexes are, also highly imperfect substitutes. Children pick cotton, women often have the principal responsibility for livestock, men do the land preparation, etc. However, there is some evidence that women have increased their labour input into crop production in recent years in the Delta, as men leave the farm to seek other jobs. Although different types of labour are imperfect substitutes, it would be a mistake to believe that no substitution takes place.
Im summary, there was consensus that Egypt faces specific rather than general shortages of agricultural labour.

IV. The Role of Migration in Generating Labour Shortages in Egyptian Agriculture

There was agreement, although not unanimity, that the increase in demand for crop labour was not the principal cause of the hired labour shortage as measured by the acceleration of agricultural real wages. Although such demand has indeed risen, the rise has been gradual, rather than discontinuous. It does constitute a source of pressure on the labour market, but cannot be the principal cause of the hired labour shortage.

There was consensus that the principal cause for the observed labour shortage was the increase in off-farm labour activities. Here too, there is a need to find a discontinuous cause for a discontinuous effect (rising wages). Several more sharply focused hypotheses were explored.

1. The growth of off-farm rural employment may be responsible for this unprecedented rise in rural wages. Various surveys have indicated that a substantial proportion of the rural labour population does not work in agriculture. There are important local variations here. The percentage of non-farm employment in total village work ranges from 30% to 70%, according to different surveys. This has important consequences in agriculture, since workers in non-agricultural jobs avoid farm labour. It is not clear however, how rapidly such non-agricultural jobs have expanded and whether they have expanded at a discontinuous rate. It is likely that the acceleration of the rate of growth of the economy after
1974 included an expansion of non-farm rural activities. However, there is insufficient evidence to evaluate the role of off-farm employment growth in generating specific labour shortages facing Egyptian agriculture.

2. Several participants stressed that spreading education stimulated changes in the agricultural labour market. Young people were portrayed as increasingly unwilling to engage in farm work. However, there is little evidence to suggest that education accelerated in the early 1970s. Accordingly, it is unlikely that education alone bears the responsibility for the acceleration in agricultural real wages. According to GOE data, rural enrollments in primary grades cover only 60% of the male children between the ages of six and twelve. It is highly likely that most of the children not in school come from the poorest families, i.e. from the pool of agricultural workers.

Further, over 90% of the rural population have received a "less than primary" education; i.e. they have dropped out of primary school. It is likely that the functional literacy and numeracy of these individuals is rudimentary at best. However, the rise of aspirations and expectations in the aftermath of the October war could be a factor here. It was also stressed that education is complementary with the force discussed below (migration), since education facilitates migration for employment abroad. It is evident that more detailed information about occupation-specific education attainment would be very useful.

3. The military draft was cited as a force generating labour shortage. The number of men in the armed forced rose prior to the October war, and has steadily increased since. This has unquestionably drawn workers from
the agricultural labour pool, and up until 1978 those discharged were
guaranteed government employment. There was disagreement on how
discontinuous this force has been; but a consensus held that it constitutes
a steady drain on the agricultural labour pool.

4. Migration, both to cities and abroad, appears to be the principal
force behind the increase in rural wages. A minority of participants
dissented here. Evidence was presented to indicate that the percentage
of the landless in rural population may well have declined since the
early 1970s. The advantage of this hypothesis is that it can explain
the discontinuity in agricultural real wages. After the four-fold
increase in international petroleum prices in 1974, the OPEC states
embarked on massive development plans. Given their small indigenous
populations and the structure of their labour force, these plans
required a massive importation of labour. It is estimated that at least
forty and perhaps as much as sixty percent of Egyptian urban construction
workers have left to take advantage of the higher wages (e.g. the ratio of
OPEC to Egyptian construction wages is about 10 to 1). Although the
precise way in which this affected Egyptian agriculture is still not clear,
the leading hypothesis is that the departure of such workers, the construc-
tion boom in Egypt, and the wage differentials between agriculture and
construction provide incentives for agricultural workers to move to
the cities. Although some agricultural workers have gone abroad, the
expenses of going abroad limit the direct overseas migration outlet for
them. The main impact on Egyptian agriculture is probably indirect.
Some anthropological field evidence, as well as survey data, was presented
which supports the hypothesis that farm workers and their families have
moved to Egyptian cities. However, further research on the regional
pattern and precise channels whereby migration affects the rural labour force is clearly needed.

Migration also affects rural society through remittances. Some evidence was presented which suggests that workers abroad may send home as much as two-thirds of their foreign earning. They seem to be used primarily for consumption rather than investment, with the important exception of housing. The use of remittances to finance housing construction may be an important source of the growth of rural off-farm incomes. This would indicate that the growth of such off-farm income and migration, like education, are not independent forces, but rather constitute a complex dynamic source of change. However, none of the remittance funds are invested in raising agricultural productivity. This stands out as an important area for policy action.

Finally, participants stressed that insofar as the dynamics of rising real wages in Egyptian agriculture are heavily dependent on the demand for labour abroad, the ensuing labour shortages may be temporary. The long run stability of the demand for Egyptian unskilled and semi-skilled labour is highly questionable. The construction boom in the Gulf states and Saudi Arabia is slowing down as basic infrastructure projects are being completed. The World Bank projects a continued rise in the absolute numbers of construction workers in the OPEC states. But there are clear signs that the rapid rate of increase in the demand for Egyptian labour abroad will moderate during the 1980s. First, it is likely that the OPEC states will demand a higher percentage of skilled and professional workers in the future; second, Egyptian and other Arab workers face increasingly sharp competition from Asian labour;
third, many studies of the international petroleum market indicate that the real price of oil, and probably OPEC state revenues, will remain stable or decline. The shadow-price of agricultural labour may also be stable in the 1980s.

Several participants argued that this was but one example of the divergence between social and private benefits and costs of migration. In general, it was argued that benefits are primarily private and accrue immediately, while the costs are largely social and occur at a later date. It was suggested that the problems in Egyptian agriculture, created by migration, coupled with the obvious benefit that such migration creates for oil states, was an example of the phenomenon of "disequalising growth". Various policy interventions were suggested and discussed. They are stressed in the executive summary.

V. The Demand for, and Supply of, Agricultural Mechanisation

Discussions of mechanisation focussed on the technical, economic, and social aspects of mechanisation. It was observed that farm mechanisation has spread rapidly in Egypt. For example, tractor imports tripled between 1973 and 1978. Irrigation pumps and threshers have also diffused rapidly in the countryside. It was emphasised that specific labour shortages required specific forms of mechanisation, but it was noted that this had not always occurred.

Three technical problems face agricultural mechanisation: selection, adaptation, and diffusion. One important problem has been that agricultural machinery is often selected for engineering, rather than economic reasons. Indeed technologies have sometimes been selected for largely
political reasons. For example, in 1961 Egypt began to utilise and manufacture 65 hp tractors, not because these were specially appropriate for Egyptian conditions, but because international exigencies required Egypt to resort to Yugoslavia for tractors, and those were the tractors that the Yugoslav were willing to supply. Similar factors also underlay the creation of the "Mechanisation Farm" in Tahrir province in cooperation with the Soviet Union.

These factors as well as the price policies discussed in more detail below, suggest the need to adapt technology more closely to Egyptian conditions. However, this has posed problems for Egypt, because:

1) overseas manufacturers are reluctant to alter their machines for a relatively small proportion of their total world-wide sales; and 2) Egypt lacks facilities to carry out these alterations herself. The latter appears to be a specially urgent area for policy intervention.

Diffusion of tractors is also believed to be a problem, although there was no consensus here. Some stressed the well-known weaknesses of the agricultural extension service as a factor limiting agricultural mechanisation, while it may well be that the lack of specialists in mechanisation in the extension service retards diffusion. It was pointed out that Egyptian farmers respond rapidly and rationally to incentives. Many believed that lack of adequate repair facilities constituted a more serious problem.

There appear to be regional differences in the institutional structure affecting the diffusion of agricultural mechanisation. In some areas, such as Sharkia Governorate, well-developed rental markets ensure that even quite small farmers have access to tractor services. On
the other hand, in some areas in Upper Egypt, there is evidence that larger farmers, with a vested interest in certain existing types of machines, have impeded the diffusion of newer, more appropriate technologies.

Discussions of the economic aspects of mechanisation began with the observation that the official plan for the 1980s calls for the complete mechanisation of agriculture by the end of this decade. There was consensus that this is overly ambitious. There is a need for non-labour-replacing mechanisation, and for techniques of mechanisation more specifically tailored for Egyptian conditions. Not only would this enable farmers to respond to specific shortages with specific machines, but also would necessarily create many more jobs in small scale industry than would a plan which imported foreign machines, and utilised them without modification. In view of the steadily increasing rural population, the creation of such employment opportunities is obviously essential to the welfare of the country.

Several participants stressed that an important reason why farmers adopt machines, is not to reduce dependence on agricultural labour, but to reduce work for the livestock. This was shown to increase milk and meat productivity. It was emphasised that there are several reasons why mechanisation has not so far, and probably will not, lead to a reduction in the number of animals kept, and hence the berseem area cultivated, as is often hoped. But, an increased meat and milk production is an important private benefit of mechanisation. It was emphasised, however, that price policies, which raise the price of animal products well above international levels, distort the pattern of agricultural mechanisation in Egypt. Private benefits are greater than social gains.
Several participants stressed the complex interaction between migration and mechanisation. Not only does migration provide an incentive to mechanise by pushing up the rural wage rate, but also migration facilitates mechanisation. In addition, mechanisation has made it possible for many rural Egyptians to become "part time" farmers, dividing their activities between their own farms and non-agricultural work.

VI. Policy Issues

The policy conclusions can be summarised under six headings:

1. It was stressed that many price distortions in Egyptian agriculture make it extremely difficult to select an appropriate technology. Capital and operating costs of mechanisation are heavily subsidised. Of particular relevance for mechanisation is the fact that product prices are set by the government in such a way that farm gate prices have lost their function, and give conflicting signals to producers. Prices of some crops are heavily taxed (e.g. cotton, rice, maize .. etc), other prices are subsidised (e.g. broad beans), while prices of some other crops are allowed to clear the market (e.g. fruits and vegetables). In the face of many distortions, one cannot be sure that the removal of one such distortion (e.g. tractor subsidies) will improve the utilisation of society's scarce resources. It was suggested that the optimal policy might be to allow all prices to move to international levels. But it was pointed out that since many international prices reflect elements of monopoly in distribution, (such as oil, sugar, tobacco, etc.) such prices cannot be considered accurate indicators of true social scarcities.
There was also consensus that reform of the pricing structure is a necessary condition for the diffusion of the agricultural technology which would be appropriate for Egypt during the 1980s.

2. Since the labour shortages in Egyptian agriculture are specific, not general, mechanisation needs to be targeted to meet the specific shortages. This is rather easy to say, but difficult to implement concretely, because of the distortions in the pricing system mentioned above, and because agricultural implementation can often be used for a variety of tasks. A new tool may create a specific labour shortage, but it may also exacerbate specific surpluses. Further, it was noted that targeted mechanisation strategies may present policy makers with a trade-off between efficiency and equity. Shortages of male hired workers suggest that mechanisation should concentrate on the tasks performed by such workers. This shortage has been caused by the departure of many agricultural hired labourers. But many such workers remain, and they are heavily dependent on such jobs for their meagre incomes. Mechanising their jobs could make them poorer still.

3. Migration policies should be more active. These are detailed in the executive summary of this report. Here, we shall note that some other recommendations included improved local capital markets to facilitate the use of remittances for agricultural investment, and steps to improve regional integration. A number of proposals were made to make Egypt less of a price taker and more of a price maker in the regional market. However, it was frequently noted that this is very difficult to do, since the labour importing countries have numerous alternative sources of labour. However, insofar as they need Arabic-speaking labour, Egypt appears to be in a relatively strong position, especially if it coordinates such policies with the Sudan.
4. Internal migration: Here, above all, improved labour market information is essential. Also, increased investments in rural health, education, and social amenities are essential if the countryside is to appear attractive to young Egyptians. If the price signals were correct, the development of agricultural machines especially adapted for Egyptian conditions could provide the jobs and income which would be an essential part of such a strategy.

5. The fragmentation of decision making must be improved. At present, there are many government agencies making decisions which affect the complex interaction of labour migration and agricultural mechanization. It would be surprising if coherent policies emerged from such a process. Egypt is hardly unique here. Streamlining the decision making process and formulating a national, integrated approach to these issues seems essential.

6. Finally, the data base must be improved. This is especially a problem for microlevel data. If mechanisation is to be targeted to specific needs, the nature of the specific labour shortages must be better understood. We recommend that one agency be in charge of a comprehensive collection of data on rural labour markets. We also recommend that it should collect data on the basis of well defined, consistent concepts, and that it should gather such data at frequent intervals so that policy makers can monitor the rapidly changing pattern of labour supply and demand in rural Egypt.
THIRD ECONOMICS POLICY WORKSHOP

"MIGRATION AND MECHANIZATION IN EGYPTIAN AGRICULTURE"

December 15-16, 1981

California Research Center
Faculty of Agriculture, Giza
University of Cairo

Agricultural Development Systems Project is a joint project of the Egyptian Ministry of Agriculture and Food Security and the University of California sponsored by US AID.
The ADS Egypt-California Project is a joint effort of the Egyptian Ministry of Agriculture and Food Security and the University of California promoting policy-relevant research on problems of the agricultural development of Egypt. The Economics Sub-Project of the ADS Egypt-California project has organized this Third Economics Policy Workshop to review and analyze the impacts of labor migration and agricultural mechanization on Egyptian agriculture and to identify policy alternatives for decision-makers.

PROGRAM

December 15 First Session  Defining the Issues
9:30am-12:00noon

Moderator: Dr. Ahmed Goueli

Welcome and Introductions: Dr. Mohamed Kamel Hindy
Dr. Frank C. Child
Dr. John Rowntree

Presentations: Dr. Ahmed Goueli, "Migration and Mechanization in Egypt: An Introduction and Overview."

Dr. James Socknat, "Who Is Migrating Where?" (Summarized by Dr. Philip Martin.)

Dr. Alan Richards, "An Overview of the Rural 'Labor Shortage' in Egyptian Agriculture."

Dr. Kamal Soliman, "A Review of Migration Studies in Egypt."

Dr. Sonia M. Ali, "Data Sources and Needs."

Discussant: Dr. Alain de Janvry
December 15 Second Session  Labor Emigration's Impact on Egypt
12:30pm-3:00pm

Moderator: Dr. Alan Richards

Presentations:
Dr. Ahmed Omar, "Extension Needs For Mechanization."

Dr. Refaat Nagar, "Seasonal Labor Shortages in Egyptian Agriculture: Survey Evidence from Sharqiyya Governorate."

Dr. Katherine Glavanis, "Small-Farmer Labor Systems: The Case of Minufiyya."

Dr. Carlos Benito, "Modeling Household Labor Supply."

Dr. T. Sharara, "The Social Implications of Migration."

Dr. Ali Abdallah, "The Uses of Remittances in Egyptian Agriculture: Some Evidence from Gharbiyya."

Discussant: Dr. Ismail Rochin

December 16 Third Session  Mechanization Issues
9:30am-12:00noon

Moderator: Dr. Ali Hossary

Presentations:
Dr. Shawky Imam, "Mechanization Decisions in Egyptian Agriculture."

Dr. Ali Hossary, "Egyptian Government Policy on Mechanization."

Dr. Nicholas Hopkins, "The Social Impact of Mechanization."

Dr. Ibrahim Soliman, "The Relationship of Livestock and Mechanization Policies."

Dr. David Hansen, "Small Farm Mechanization Under High Outmigration of Labor."

Dr. Sawsan El-Messiri, "The Impact of National Trends and Policies on Migrant Workers."

Discussant: Dr. M. Ragaa El-Amir
December 16 Fourth Session  Policy Issues and Alternatives
12:30pm-3:00pm

Moderator: Dr. Philip Martin

Presentations: Dr. Hassan Khedr, "Choice of Technique Under Price Distortions."

Dr. Alain de Janvry, "Forced Deliveries of Rice."

Dr. Philip Martin, "Experiences of Other Countries."

Mr. J.J. Dethier, "The Macro Impact of Government Policies."

Dr. Alan Richards, "Integrating Migration and Mechanization Policies."

Discussant: Dr. Mohamed Kamel Hindy

Proceedings Committee:

Dr. Hassan Khedr, Co-Chairman
Dr. Hanna Khier El-Din
Dr. Saad Nassar
Dr. Alan Richards, Co-Chairman
Dr. Philip Martin