

EGYPTIAN AGRICULTURAL MECHANIZATION PROJECT

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ACTIVITY REPORT NUMBER 14

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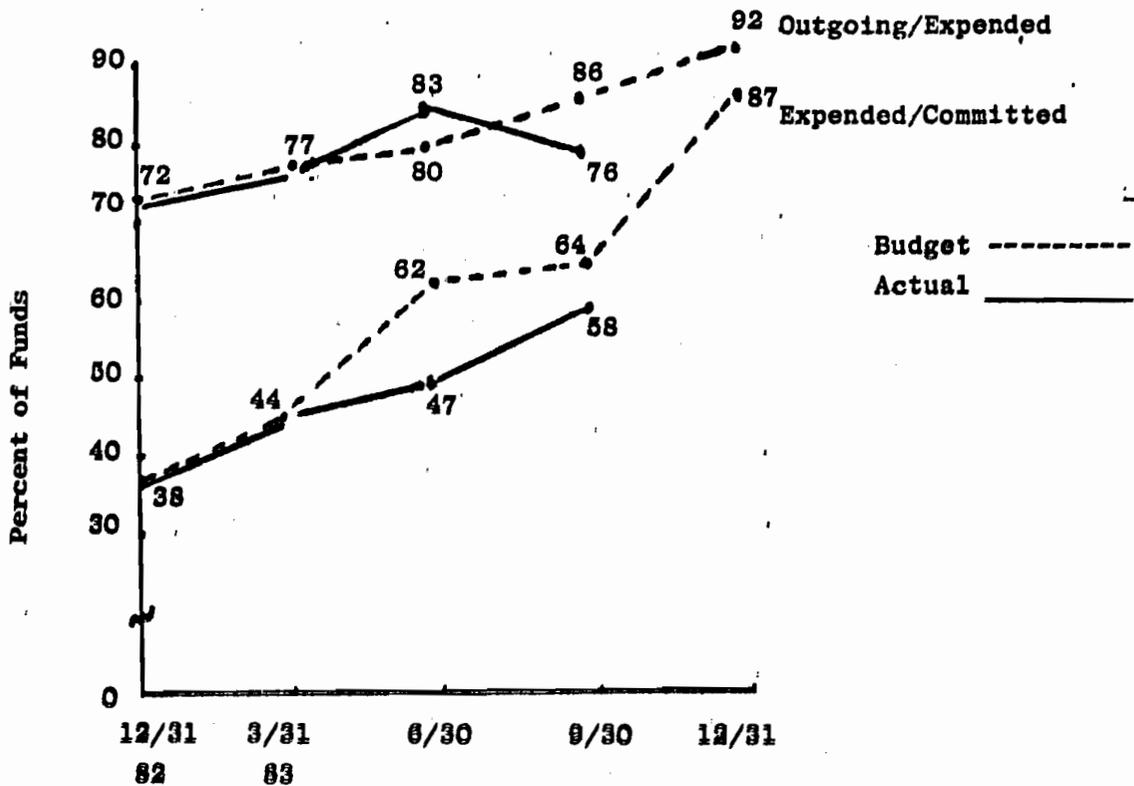
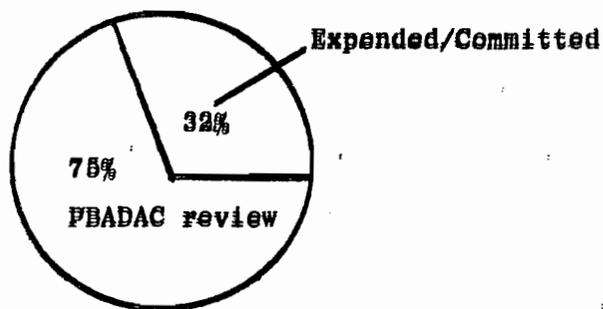
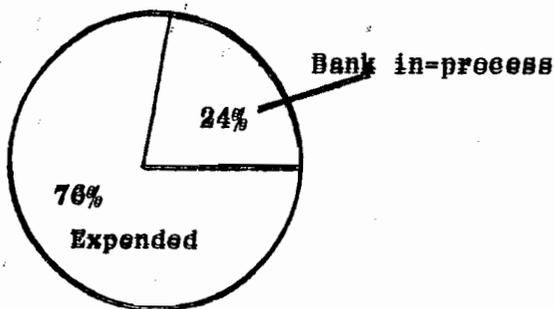


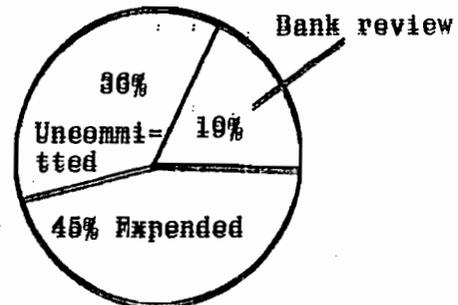
Figure 1.1 Project Expenditures, 1984



a. Service Center Fund (\$ 5.0 million)



b. Waterlift Fund (\$ 4.0 million)



c. Machine Introduction (\$ 2.0 million)

Figure 1.2 Credit Funds Status, September 30, 1984.

1.0 SUMMARY

At the end of this quarter, 75 percent of the Project funds were in the outgoing pipeline/expended category while 58 percent of the funds were expended and committed. Although the financial progress of the Project has been limited during this period, the waterlift fund was increased by \$1.0 million thus eliminating the uncommitted \$1.0 million in the credit fund line item.

Compared to the last quarter, the Project increased its expended/committed level from 47 percent to 58 percent. However, the outgoing-pipeline/expended category decreased from 83 percent to 75 percent. This was primarily due to reduced commodity activity: 1) foreign currency commodities: IFB 83/02 was only \$2.0 million compared to an estimated \$4.4 million, and 2) local currency commodities: a shortfall of \$1.0 million, as compared to last quarter, resulted because of a downward adjustment of a local IFB procurement.

Compared to the Project's budget, as evidenced in figure 1.1, funding in the outgoing-pipeline/expended category fell behind schedule. This mainly resulted because commodity and machine introduction fund activities fell behind their projected schedules.

If the commodity shortfall of \$3.4 million had been met, the Project would have reached the 84 percent level in its overall expenditure activity. To compensate for the commodity short-fall, the Project has initiated several procurements that have not as yet reached the outgoing side of the pipeline.

Figure 1.2 summarizes the credit funds: 1) If the PBDAC processes all existing applicants, the Service Center Fund will be oversubscribed by 7 percent. And if all applicants under review by the Project are successfully processed, the fund will be oversubscribed by 24 percent; 2) The original Waterlifting Fund has now been increased from \$2.0 to \$4.0 million with 76 percent of this new amount expended; and 3) Forty-five percent of the Machine Introduction Fund is spent while 19 percent is under PBDAC review.

This report also includes two studies of importance to the Project's program which are added in Annexes B and C respectively:

1. Critical to future landleveling activities is an economic and technical assessment of costs and benefits of precision landleveling using laser technology. So the Planning and Evaluation and Land Improvement subprojects have joined to conduct this study. The expected outputs are:

- a. Identify the technical parameters of the laser system.
 - b. Identify the financial and social cost/benefits of precision landlevling.
 - c. Identify potential government policy towards government and/or private sector intervention.
 - d. Establish standards for evaluating precision land-leveling.
 - e. Assess the practicality of precision landleveling without other interventions in the irrigation system.
 - f. Determine future research needs and directions.
2. Agricultural machinery manufacturing needs assesment: This document identifies the production bottlenecks that have created a demand for agricultural mechanization, categorizes the benefits of mechanization, and reviews the history of farm machinery adoption on Egyptian farms.

Briefly, other activity highlights were:

1. Research and Development

During this period, the Egyptian-side developed the research program. And as needed, expatriate TDY assistance will be forthcoming. Two research areas of importance were undertaken machinery development and solar energy research.

- a. Machinery development: Dr. Saad has been working successfully with the following activities:
 - 1) Walk-behind cultivator, as a replacement for the donkey, was successfully tested. This will be augmented with additional equipment such as a seeder and 4-row sprayer which utilizes the power unit of the cultivator.
 - 2) Experimental greenhouse: The objective of this program is to develop a low-cost structure that can be used to grow a green forage crop for cattle during the summer months after the berseem is no longer available. Experimental tests have been conducted with barley, and the results are promising: one kilogram of barley will produce 8 to 10 kilograms of green matter within a 10 day period at a cost of 4.5 piasters per kilogram.
- b. Solar energy research: the purpose of the this effort is to apply one of Egypt's basic resources, solar enegy, for agricultural uses. In this regard,

Dr. Sabbah has been working on a solar dryer for either grain or vegetable crops at the village-level. The design has been developed and construction has started.

- c. Mechanical cotton picking: The Testing Center at Alexandria will be conducting experiments this coming quarter comparing mechanical harvesting and hand picking. This report will be described in detail in the next quarterly report.

2. Planning/Evaluation

- a. Farm management study: Completed farm budgets for all major crops, which included: cotton, wheat, rice, berseem (long-term and short-term), maize, fodder maize, potatoes, tomatoes and broad beans. These data will provide the necessary inputs for a linear program model that will test the impact of mechanization on farm income.
- b. Wheat harvesting survey: Analyzed these data from last quarter's survey; this will form the basis for a technical report evaluating economic and financial costs and returns of four alternative harvesting systems.

3. Extension/Training

- a. Extension field courses totalled 102 sessions, and involved 909 participants: Planting rice with a grain drill, rice transplanting, backhoe operation and maintenance, cotton fertilization, laser leveling, conventional landleveling, arc welding, and spare parts system.
- b. Held the biannual Extension/Training workshop at Sidi Beshr training center, September 25-27: The workshop dealt with Project village progress, problems, and workplans in some 25 villages; approximately 50 specialists attended.
- c. In addition to the 1,112 participants in the Project's village extension/training field activities, 248 participants were involved at Training Centers. This included:
 - 1) tractor operation
 - 2) welding
 - 3) mechanics I, III
 - 4) water pumpset operation/maintenance
 - 5) backhoe operation/maintenance
 - 6) laser landleveling
 - 7) farm structures
 - 8) farm medical care

4. Service Center/Village Workshop Subproject

- a. A second tranche for \$2.0 million was received bringing the total monies from USAID to \$3.5 million.
- b. If all commitments and funds in-process are approved, the Fund would be overdrawn by \$1,206,790: This represents a total Project involvement with 100 village workshops and 13 area service centers.

5. Land Improvement Subproject

- a. Demonstration program: 280 feddans were precisioned land-leveled in Minia, and compares favorably with the 310 feddans landleveled during the peak season last spring. The areas landleveled were:

Location	Feddans
1) Selia El Gharbia	72
2) Abyuha (EWUP site)	60
3) Sugar Company	45
4) Beni Abeed	80
5) El Atlat	12
6) Beni Suef	15

7) Total	284

- b. The subproject started its demonstration activity in Beni Suef in mid-September at Sids El Omraa village with four laser/scrapper units, one transmitter, and one tractor with chisel plow. Fifteen feddans were landleveled.

6. Local Manufacturing Program

- a. Thresher manufacturing prototype at Beheria Company:
 - a. Designed and manufactured toggle clamps for thresher welding frame fixtures.
 - b. Designed and manufactured appropriate pattern equipment, e.g., match plates, core boxes, etc., for 1984 thresher production.
 - c. Revised, updated, and indexed bill of materials to more accurately reflect the Egyptian market.
 - d. Designed a universal slip-joint assembly for local production that will reduce thresher costs L.E.150.

e. Although the above represents training activity, specific work has been devoted to more formal training programs:

- 1) Planned and started a pretraining program designed to support a hands-on technical study tour in the U.S.
- 2) Initiated a cooperative training program between the Project's Research and Testing Station in Alexandria, Behria Company, and Army Factory 999.

Implementation issues closely paralleled the issues of the last quarter: 1) The slow process of procurement, beyond the control of the Project, has limited the range of the extension demonstration activities; 2) The inability of the banks to process the submitted loan requests has greatly delayed the expenditure of the Service Center credit fund; 3) The lack of candidates with English language proficiency has slowed the development of the participant training program, and 4) Poor dealer support has slowed the distribution of Extension equipment.

2.0 PROJECT ACCOMPLISHMENTS

2.1 Planning and Evaluation

1. Farm management study: Completed farm budgets for all major crops, which included: cotton, wheat, rice, berseem (long-term and short-term), maize, fodder maize, potatoes, tomatoes and broad beans.
 - a. These crop enterprise budgets are stratified by farm size and levels of mechanization.
 - b. These data will provide the necessary inputs for a linear program model that will test the impact of mechanization on farm income.
2. Prepared a Cobb-Douglas production function analysis of cotton production utilizing four significant independent variables: hired labor, commercial fertilizer, organic fertilizer, seed, and land.
 - a. The MVP/MFC ratios were: hired labor, 1.27; seed, .90; chemical fertilizer, .85; organic fertilizer, .88; and land, .66.
 - b. Hired labor is a constraint to cotton production, and its greater use will increase cotton production, especially during harvest.
 - c. Since mechanization can substitute for labor, this suggests a potential area for a mechanized alternative.
3. Data collation for the tractor cost survey in Beheria, Gharbia, Qaliubia, Sharkia, and Minia governates during the 1983-1984 agricultural year is nearly completed.
4. Agricultural machinery manufacturing needs assessment (annex A): This document identifies the production bottlenecks that have created a demand for agricultural mechanization, categorizes the benefits of mechanization, and reviews the history of farm machinery adoption on Egyptian farms.
5. Wheat harvesting survey: Analyzed these data from last quarter's survey; this will form the basis for a technical report evaluating economic and financial costs and returns of four alternative harvesting systems.
6. Prepared cash needs statement and expenditure report for Project funds, and with the Extension unit, participated in procurement including Project invitation to bid documents.

2.2 Research and Development Subproject

1. During this period, the Egyptian-side developed the research program. And as needed, expatriate TDY assistance will be forthcoming. Two research areas of importance are machinery development and solar energy research.
2. Machinery development: Dr. Saad has been working successfully with the following activities:
 - a. Walk-behind cultivator, as a replacement for the donkey, was successfully tested. This will be augmented with additional equipment such as a seeder and 4-row sprayer which utilizes the power unit of the cultivator.
 - b. Single-row potato digger: Currently, this is in the design stage, but active development work will commence this next quarter.
 - c. Experimental greenhouse: The objective of this program is to develop a low-cost structure that can be used to grow a green forage crop for cattle during the summer months after the berseem is no longer available. Experimental tests have been conducted with barley, and the results are promising: one kilogram of barley will produce 8 to 10 kilograms of green matter within a 10 day period at a cost of 4.5 piasters per kilogram.
3. Solar energy research: the purpose of the this effort is to apply one of Egypt's basic resources, solar energy, for agricultural uses. In this regard, Dr. Sabbah has been working on a solar dryer for either grain or vegetable crops at the village-level. The design has been developed and construction has started.
4. Mechanical cotton picking: The Testing - Center at Alexandria will be conducting experiments this coming quarter comparing mechanical harvesting and hand picking. This report will be described in detail in the next quarterly report.

2.3 Extension/Training Subproject

2.3.1 Overall Activities

1. Equipment procurement: stateside

- a. IFB 83/02: Project village demonstration/training equipment -- bids awarded and equipment arriving. Bid value: \$3.564 million representing 380 units.
- b. IFB 83/03: Crop-specific demonstration/training equipment. Bids completed; spare parts under review. Estimated value: \$2.0 million.
- c. IFB 82/01: Land Improvement equipment; awaiting parts delivery.

2. Equipment procurement: local

- a. Group 5: Hay balers -- Completed. Bid value: LE 88,000 (\$105,810).
- b. Group 10: Village maintenance equipment. Equipment arriving. Estimated value: LE 534,000 (\$642,000).
- c. Group 11: Research, demonstration/training equipment -- Bids advertised.
- d. Group 12: rebid from group 7; bid review completed. Procurement in progress.

2.3.2 Extension Unit

1. Most field activities were at a minimum due to the summer growing season prior to the harvest season.
2. Extension field courses totalled 102 sessions, and involved 909 participants: Planting rice with a grain drill, rice transplanting, backhoe operation and maintenance, cotton fertilization, laser leveling, conventional land-leveling, arc welding, and spare parts system.
3. Held the biannual Extension/Training workshop at Sidi Beshr training center, September 25-27: The workshop dealt with Project village progress, problems, and work-plans in some 25 villages; approximately 50 specialists attended.

4. Special attention is being directed to developing a comprehensive parts control system within the village Equipment Maintenance Unit that will mesh with MOA policy and procedures.
5. Demonstration/training equipment continued to be ordered and delivered to field sites. However, failure of dealers to meet their delivery and setup commitments has hampered the full development of this program as originally planned and scheduled.

2.3.3 Training Unit

1. A draft 1985 Training Plan completed and under review by Project Management.
2. In addition to the 1,112 participants in the Project's village extension/training field activities, 248 participants were involved at Training Centers, which included:
 - a. tractor operation
 - b. welding
 - c. mechanics I, III
 - d. water pumpset operation/maintenance
 - e. backhoe operation/maintenance
 - f. laser landleveling
 - g. farm structures
 - h. farm medical care
 - i. machinery operation
3. This quarter seven trainees attended seven new and continuing programs as a part of the Participant Training activities:
 - a. Technical training: Economic evaluation (2).
 - b. Academic training: agricultural economics (3), agricultural production (1), and soilscience (1).

2.3.4 Extension Information Unit

1. Produced a television program on rice mechanization at Miet El Sheik training center at Kafir El Sheik.
2. Opened bids for additional printing of 1,000 copies of the Agricultural Almanac.

3. Cooperated with the Small Scale and Rice Mechanization projects in developing extension information activities.
4. Reprinted nine extension pamphlets.

2.3.5 Demonstration/Training Unit

1. During this period , the Demonstration/Training unit was active in two locations: Gabel Asfar and Fayoum.
2. At Gabel Asfar training activity has been worked into the farming operation: barley was harvested which served as a combine training activity -- operation, adjustments, and maintenance; training has been incorporated with laser landleveling having leveled approximately 25 feddans; and workshop training -- tool room setup, oxygen-acetylene cutting and welding, and machinery repair.
3. At Fayoum research station, the focus has been survey and mapping of fields for landleveling.

2.4 Service Center/Village Workshop Subproject

Table 2.1 summarizes the status of the Service Center-Village Workshop Fund:

1. A second tranche for \$2.0 million was received bringing the total monies from USAID to \$3.5 million.
2. Of the total fund (\$5,000,000), 32 percent is in the expended/committed category.
3. Seventy-five percent of the total fund is under review by the banks.
4. If all commitments and funds in-process are approved, the Fund would be overdrawn by \$1,206,790.
5. This represents a total Project involvement with 100 village workshops and 13 area service centers.

2.5 Land Improvement Subproject

1. Demonstration program: 280 feddans were precisioned land-levelled, which compares favorably with the 310 feddans landlevelled during the peak season last spring. The areas landlevelled were:

TABLE 2.1 SERVICE CENTER/VILLAGE WORKSHOP LOANS IN-PROCESS AT GOVERNATE BANKS AND AT THE PROJECT LEVEL, 9/30/84.

CATEGORY	UNITS	EXPENDED	COMMITTED	LOAN VALUE
A.COMMITTED/EXPENDED				
1.SERVICE CENTERS	3	319000	318600	637600
2.VILLAGE WORKSHOPS	33	698543	0	698543
3.SUBTOTAL (LE)	36	1017543	318600	1336143
B.LOANS IN-PROCESS AT THE BANKS				
1.SERVICE CENTERS	9			1872000
2.VILLAGE WORKSHOPS	45			1245720
3.SUBTOTAL (LE)	54	0	0	3117720
C.LOANS IN-PROCESS AT THE PROJECT				
1.SERVICE CENTERS	1			200000
2.VILLAGE WORKSHOPS	22			508200
3.SUBTOTAL (LE)	23	0	0	708200
D.LOAN ACTIVITY				
1.SERVICE CENTERS	13			2709600
2.VILLAGE WORKSHOPS	100			2452463
3.OVERALL TOTAL (LE)	113			5162063
(US\$ EQUIVALENT)	.83168			6206790

Location	Feddans
a. Selia El Gharbia	72
b. Abyuha (EWUP site)	60
c. Sugar Company	45
d. Beni Abeed	80
e. El Atlas	12
f. Beni Suef	15

g. Total	284

2. Startup problems with the introduction of the new demonstration landleveling units are mostly behind us. In large part, this has been due to the maintenance advisor's success in repairing all down tractors and putting the new tractors into the field.
3. However, other factors also contributed to this improved performance: drivers now have six months experience, recruitment of local supervisors, and reorganization of the subproject has led to managerial and equipment efficiencies.
4. The subproject started its demonstration activity in Beni Suef in mid-September at Sids El Omraa village with four laser/scrapper units, one transmitter, and one tractor with chisel plow. Fifteen feddans were landleveled.
5. Planning is under way to include Fayoum governate in the subproject's demonstration activities. But this will be dependent upon an additional laser transmitting unit.
6. Critical to future landleveling activities is an economic and technical assessment of costs and benefits of precision landleveling using laser technology. This evaluation would include both farm and societal viewpoints. So the Planning and Evaluation and Land Improvement subprojects have joined to conduct such a study. The expected outputs would be:
 - a. Identify the technical parameters of the laser system.
 - b. Identify the financial and social cost/benefits of precision landleveling.
 - c. Identify potential government policy towards government and/or private sector intervention.
 - d. Establish standards for evaluating precision landleveling.
 - e. Assess the practicality of precision landleveling without other interventions in the irrigation system.
 - f. Determine future research needs and directions.

2.6 Local Manufacturing Program

1. While in the United States, discussed with ASAE/FIEI officials possible technical assistance to study the local manufacturing of adapted machinery in Egypt, which would recommend a manufacturing priority based upon market analysis, manufacturability, serviceability, and impact on local manufacturing development.
2. Thresher manufacturing prototype at Beheria Company:
 - a. Designed and manufactured toggle clamps for thresher welding frame fixtures.
 - b. Designed and manufactured appropriate pattern equipment, e.g., match plates, core boxes, etc., for 1984 thresher production.
 - c. Revised, updated, and indexed bill of materials to more accurately reflect the Egyptian market.
 - d. Designed a universal slip-joint assembly for local production that will reduce thresher costs L.E.150.
 - e. Continued to supervise drawing changes as identified from the manufacturing prototype.
3. Although the above represents training activity, specific work has been devoted to more formal training programs:
 - a. Planned and started a pretraining program designed to support a hands-on technical study tour in the U.S.
 - b. Initiated a cooperative training program between the Project's Research and Testing Station in Alexandria, Behria Company, and Army Factory 999.
4. Miscellaneous activities:
 - a. Initiated importation of special agricultural bearings not in local supply. Later, alternative local bearings will be identified as replacements for these.
 - b. Started a warehousing system for "difficult to procure" research materials.
 - c. Designed and constructed a portable steel storage prototype rack to be used in the "village manufacturing" system.
 - d. Designed a system of portable agricultural, or light-duty industrial, steel buildings for local production: preliminary work with a slip-roll forming machine for making the necessary framing was successful.

3.0 FINANCIAL AND TECHNICAL LEVEL OF EFFORT

3.1 Financial Level of Effort

Because the Project has less than one year of operation, this and succeeding reports will add a second analysis identifying available Grant Agreement funds. Thus, this section includes the following financial analyses: 1) a summary of the Project's expenditure position (table 3.1), and 2) an analysis of Grant Agreement funds that have not been brought into the Project and uncommitted cash (table 3.2).

The definition of money flows in table 3.1 are as follows:

1. Grant Agreement (column 1): Total Grant Agreement line item funding, as may be amended.
2. Line Item Balance (column 2): Uncommitted line item funds. Under Foreign Currency, this equates to uncommitted Grant Agreement funding; but within Local Currency, this may consist of available cash in addition to Grant Agreement funding (table 3.2).
3. Funds In-coming/Available (column 3): Funds coming into the Project from USAID and/or cash on-hand.
4. Outgoing Funds (column 4): Funds in the review/expenditure process either by USAID, MOA, or PBDAC.
5. Funds Committed (column 5): Funds committed by contract or bid award.
6. Outgoing Pipeline (column 6): All funds on the outgoing side of the pipeline, columns 4 plus 5.
7. Funds Expended (column 7): Funds physically expended.
8. Outgoing Pipeline/Expended (column 8): The summation of outgoing and expended funds, columns 6 plus 7. This category equates to the Project's overall expenditure activities.

At the end of this quarter, 75 percent of the Project funds were on the outgoing pipeline/expended category while 58 percent of the funds were expended and committed. Although the financial progress of the Project has been limited during this period, the waterlift fund was increased by

TABLE 3.1. FINANCIAL LEVEL OF EFFORT: FOREIGN AND LOCAL CURRENCIES FROM
15 SEPTEMBER 1980 - 30 SEPTEMBER 1984, IN US DOLLARS.

LINE ITEMS	(1) GRANT AGREEMENT	(2) LINE ITEM BALANCE (1-8)	(3) FUNDS IN-COMING/ AVAILABLE	(4) OUTGOING (AID,MOA, PBDAC)	(5) FUNDS COMMITTED	(6) OUTGOING PIPELINE (4+5)	(7) FUNDS EXPENDED	(8) OUTGOING PIPELINE/ EXPENDED
A. FOREIGN CURRENCY								
1. TECHNICAL ASSISTANCE	6424000	468382	0	96205	1425934	1522139	4433479	5955618
2. COMMODITIES	9133000	2039500	0	2000000	3333310	5333310	1760190	7093500
3. TRAINING	2023000	1468181	0	100000	41670	141670	413149	554819
4. RESEARCH SUPPORT	1005000	701027	0	0	0	0	303973	303973
5. SPECIAL STUDIES/ EVALUATION	215000	121023	0	0	3363	3363	90614	93977
6. SUBTOTAL	18800000	4798113	0	2196205	4804277	7000482	7001405	14001887
B. LOCAL CURRENCY (US\$)								
1. TECHNICAL ASSISTANCE	2302000	587102	0	0	517698	517698	1197200	1714898
2. COMMODITIES	4000000	622190	440861	462963	113655	576618	2801192	3377810
3. TRAINING	1000000	478273	388393	0	0	0	521727	521727
4. VEHICLE OP EXP	100000	40380	19705	0	0	0	59620	59620
5. FACILITIES	70000	70000	0	0	0	0	0	0
6. CREDIT FUNDS								
A. SERVICE CENTER	5000000	-355260	2276521	3748701	383080	4131781	1223479	5355260
B. WATERLIFT	4000000	954265	954265	0	0	0	3045735	3045735
C. MACHINE INTRO	2000000	711025	1097887	386863	0	386863	902113	1288975
7. RESEARCH SUPPORT	2000000	1206625	2316	0	195267	195267	598107	793375
8. SPECIAL STUDIES/ EVALUATION	728000	695248	8548	0	0	0	32752	32752
9. SUBTOTAL	21200000	5009848	5188496	4598527	1209701	5808228	10381925	16190152
C. PROJECT TOTAL	40000000	9807961	5188496	6794732	6013978	12808710	17383330	30192039
PERCENT COMMITTED/EXPENDED		25			15	32	43	75 58

\$1.0 million thus eliminating the uncommitted \$1.0 million in the credit funds.

Compared to the last quarter, the Project increased its expended/committed level from 47 percent to 58 percent. However, the outgoing pipeline/expended category decreased from 83 percent to 75 percent. This was primarily due to reduced commodity activity: 1) foreign currency commodities: IFB 83/02 was only \$2.4 million compared to an estimated \$4.4 million, and 2) local currency commodities: similarly, an adjustment of a local IFB resulted in a shortfall of \$1.0 million, as compared to last quarter.

Compared to the Project's budget, as evidenced in figure 1.1, funding in the outgoing pipeline/expended category fell behind schedule. This resulted mainly because commodity and machine introduction fund activities fell behind their projected schedules:

1. Commodities:

	Foreign Currency	Local Currency
a. Budgeted	10,229,066	4,195,796
b. Actual	7,093,500	3,377,810
	-----	-----
c. Shortfall	3,135,566	817,986
d. Overall Shortfall		3,953,552

2. Machine Introduction Fund:

a. Budgeted	1,700,000
b. Actual	1,288,975

c. Shortfall	411,025

3. Total Shortfall

4,364,577

If these objectives had been met, the Project would have reached the 86 percent level in overall Project expenditure activity. To compensate for the commodity short-fall, the Project has initiated several procurements that have not as yet reached the outgoing side of the pipeline.

Table 3.2 analyzes the uncommitted "line item balance" of \$9,807,961 in table 3.1. This represents 25 percent of the Grant Agreement funds of which 19 percent are monies from the Grant Agreement itself that remain to be brought into the Project. The conclusion is that monies from slower moving line items should be transferred to the faster moving line items. For example, excess foreign currency training funds might be reallocated to foreign currency commodities and excess local currency research support might be reallocated to local currency commodities.

TABLE 3.2 LINE ITEM BALANCE ANALYSIS: GRANT AGREEMENT AND AVAILABLE CASH

	CASH AVAILABLE			GRANT AGREEMENT			(7) CASH AVAILABLE	SUMMARY (8) GRANT AVAILABLE	(9) LINE ITEM BALANCE
	(1) ON-HAND	(2) COMMITTED/ OUTGOING	(3) NET CASH	(4) INITIAL FUNDING	(5) DEMANDS AGAINST	(6) BALANCE			
A. FOREIGN CURRENCY									
1.TECH ASSISTANCE	0	0	0	6424000	5955618	468382	0	468382	468382
2.COMMODITIES	0	0	0	9133000	7093500	2039500	0	2039500	2039500
3.TRAINING	0	0	0	2023000	554819	1468181	0	1468181	1468181
4.RESEARCH SUPPORT	0	0	0	1005000	303973	701027	0	701027	701027
5.SPECIAL STUDIES/ EVALUATION	0	0	0	215000	93977	121023	0	121023	121023
6.SUBTOTAL	0	0	0	18800000	14001887	4798113	0	4798113	4798113
B. LOCAL CURRENCY (US\$)									
1.TECH ASSISTANCE	0	0	0	2302000	1714898	587102	0	587102	587102
2.COMMODITIES	440861	576618	-135758	4000000	3242052	757948	0	622190	622190
3.TRAINING	388393	0	388393	1000000	910120	89880	388393	89880	478273
4.VEHICLE OP EXP	19705	0	19705	100000	79325	20675	19705	20675	40380
5.FACILITIES	0	0	0	70000	0	70000	0	70000	70000
6.CREDIT FUNDS									
A.SERVICE CENTER	2276521	4131781	-1855260	5000000	3500000	1500000	0	-355260	-355260
B.WATERLIFT	954265	0	954265	4000000	4000000	0	954265	0	954265
C.MACHINE INTRO	1097887	386863	711025	2000000	2000000	0	711025	0	711025
7.RESEARCH SUPPORT	2316	195267	-192952	2000000	600423	1399577	0	1206625	1206625
8.SPECIAL STUDIES/ EVALUATION	8548	0	8548	728000	41300	686700	8548	686700	695248
9.SUBTOTAL	5188496	5290530	-102034	21200000	16088118	5111882	2081935	2927912	5009848
11.PROJECT TOTAL PERCENT				40000000			2081935 5.20	7726025 19.32	9807961 24.52

3.2 Technical Assistance Level of Effort

Table 3.3 compares the actual level of effort (column 2) with the projected level of effort (column 3) and the contract effort (column 4). The projected effort is based upon the Inception Report, Project action and subsequent contract amendments. The Project is lagging in man-months, but this mainly reflects the unfilled machinery development advisor's position. Most of the remaining man-months are recoverable, if the current positions remain filled. To date the man-month contribution totalled 533 as compared to a projected 554.

TABLE 3.3 LEVEL OF EFFORT: TECHNICAL STAFF FROM SEPTEMBER 15, 1980 THROUGH SEPTEMBER 30, 1983, IN MAN-MONTHS.

POSITION	(1) STARTING DATE DAY/MO/YR	(2) EFFORT TO DATE	(3) PROJECTED EFFORT	(4) CONTRACT EFFORT	(5) DIFFERENCE (2-3)
1. TEAM LEADER	4/10/80	48	48	60	0
2. PLANNING/FINANCIAL ADVISOR	9/15/80	48	48	60	0
3. RESEARCH DIRECTOR (TERMINATED: 1 JAN 84)	3/11/80	38	38	38	0
4. EVALUATION ADVISOR (TERMINATED: 7 JUN 84)	7/12/80	43	46	58	-3
5. EXTENSION ADVISOR	4/2/81	33	33	42	0
6. FARM MANAGEMENT ADVISOR	15/4/81	36	36	36	0
7. SERVICE CENTER ADVISOR	9/4/81	42	38	48	4
8. EQUIPMENT ADVISOR	7/5/81	41	41	48	0
9. SOIL IMPROVEMENT ADVISOR	13/7/81	34.5	36	36	-1.5
10. TRAINING ADVISOR	9/9/81	37	37	48	0
11. MACHINERY DEVELOPMENT ADVISOR (TERMINATED: 1 AUG 84)	5/1/82	20	33	36	-13
12. LOCAL MANUFACTURING ADVISOR	3/2/82	32	32	36	0
13. SI IRRIGATION ENGINEER	1/4/82	30	36	36	-6
14. SENIOR ACCOUNTING ADVISOR	1/11/82	19	20	36	-1
15. SHORT-TERM TECHNICAL ASSISTANCE		32	32	36	0
TOTAL		533.5	554	654	-20.5

4.0 IMPLEMENTATION

Milestone implementation schedules are shown for extension and land improvement in figures 4.1 and 4.2 respectively. A summary of implementation during this past period is as follows:

1. Extension (figure 4.1):
 - a. IFB 83/02: Equipment is arriving as scheduled in figure 4.1 (event 125,170).
 - b. IFB 83/03: Behind schedule with bid evaluation and award.
 - c. Group 7 (now Group 12): Since this involved re-bidding, these equipment are behind schedule; bid review completed and some procurement has started under Group 12.
 - d. Group 10: Behind schedule since procurement is not completed.
 - e. Group 11 is behind schedule since it is only now being advertised rather than being evaluated and awarded.
 - f. VILLAGE PROGRAMS: Demonstration/training equipment continued to be ordered and delivered to field sites. However, failure of dealers to meet their delivery commitments has hampered the full development of this program as originally planned and scheduled.
3. Land Improvement (figure 4.2): Although startup problems with the introduction of the new demonstration landleveling units severely limited the performance of this unit, all equipment is now operable and in the field. And the field program in Beni Suef started as scheduled this quarter (event 20,150).
4. Planning and Evaluation: On schedule with its data analysis program.
5. Training: The in-country training program is developing as anticipated in terms of participants but lags in expenditures. As has been the problem throughout the Project's life, the US training is behind schedule because of the lack of qualified candidates with the necessary level of English language capability.
6. Service Center/Village Workshop: At the Project-level, the Service Center program is on schedule but at the

OCT

NOV

DEC

JAN

FEB

MAR

APR

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SEPT

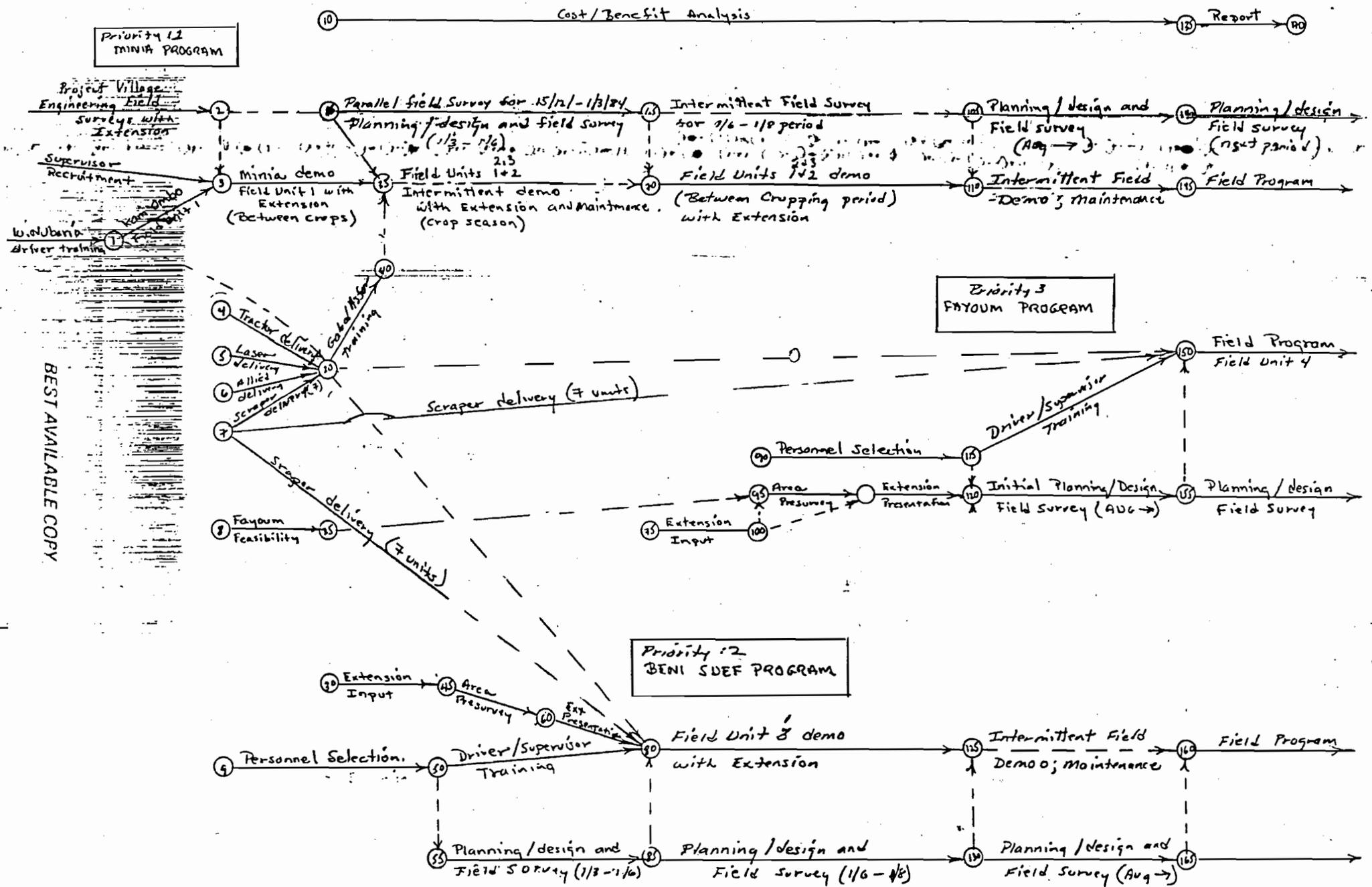
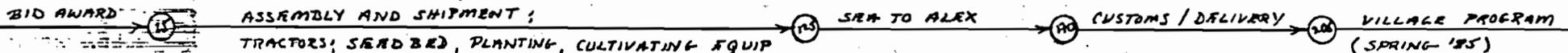


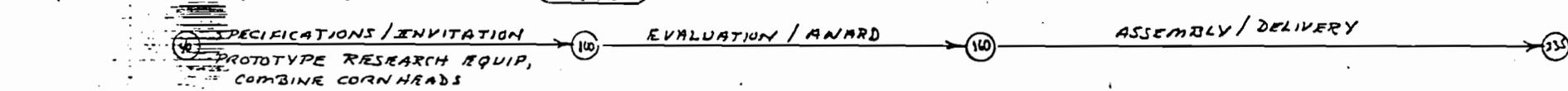
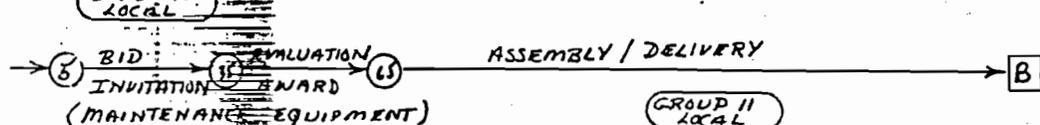
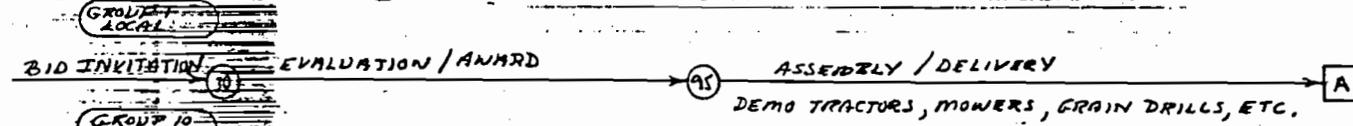
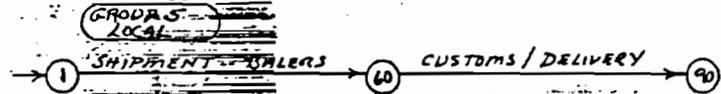
Figure 4.2 Land Improvement Activity Program.

PROCUREMENT

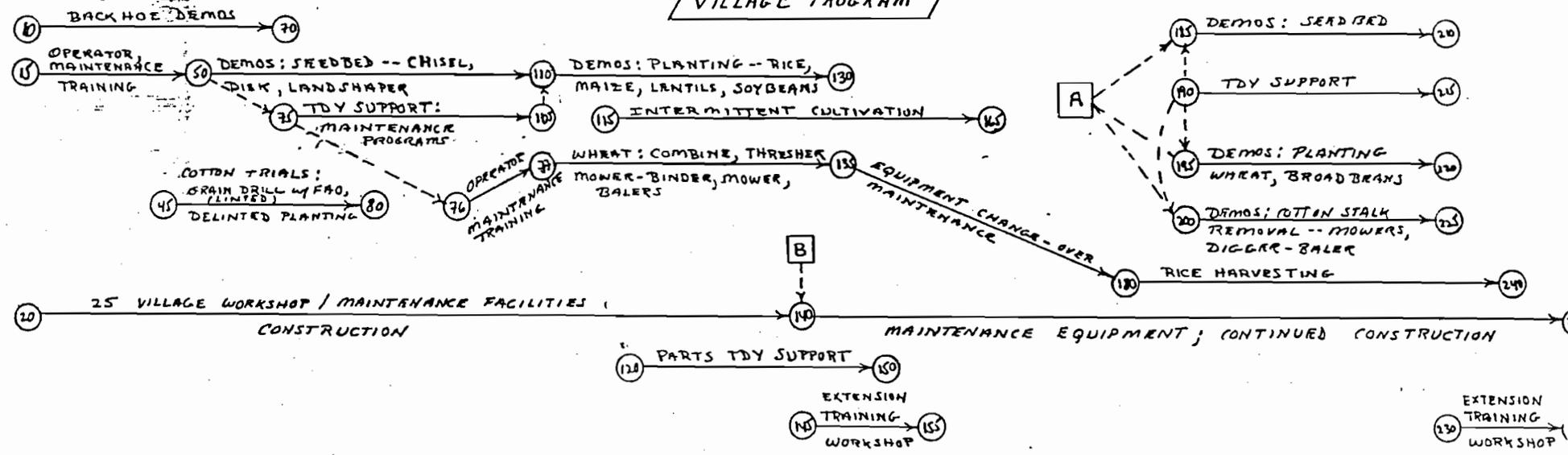
FFB 83-02



FFB 83-01



VILLAGE PROGRAM



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Figure 4.1 Extension Activity Program.

Bank-level it is lagging considerably. On the other hand, the village workshop program is progressing well although the actual disbursement of the monies is slow.

7. Local Manufacturing: Although behind its original schedule, the development of a full set of plans for manufacturing the thresher has been completed and 15 manufacturing prototypes started.

5.0 NEXT QUARTER'S OBJECTIVES

5.1 Overall Objectives

1. Machine Introduction Fund (\$2.0 million): Reach a 60 percent expenditure level and have 80 percent of the funds committed and/or expended.
2. Water Lifting Fund (\$4.0 million): Commit the remaining balance of the fund.
3. IFB 83/02: Receipt of equipment.
4. IFB 83/03: Bids to be committed.
5. Attain the 80 percent level in the Project's committed/expended category.

5.2 Planning and Evaluation

1. Paper dealing with resource allocation efficiency in Egyptian agriculture.
2. Paper on farm machinery manufacturing and sectoral assessment in addition to analysis of machinery supply demand and profitability at the farm-level.
3. Completion of crop budgets for the major crops of the farm management survey.
4. Production function analysis to derive technical coefficients for tractor cost components.

5.3 Extension/Training

1. Complete 1985 Training Plan.
2. Complete technical specifications for final extension-demonstration commodity procurement.
3. Assist in receiving IFB 83/02 deomstration/ training equipment.
4. Start developing a preventive maintenance and spare parts control system in Project areas for Project equipment.

5.4 Service Centers/Village Workshops

1. Bring to eight the service centers in the bank-approved and committed/expended categories
2. Develop eight village workshops.
3. Complete liquidation of the first tranche of the Service Center Fund and reach the 35 percent level in the committed/expended category.

5.5 Land Improvement

1. Expand the pretest operation in Beni Suef.
2. Extend pretest area to Fayoum governate.
3. Continue demonstrations of landleveling and agricultural equipment in Project villages in Minia.
4. Start with the data collection for monitoring landleveling costs and benefits analysis.
5. Continue development of maintenance repair and service facilities and programs at Land Improvement project sites.
6. Start institutionalization of Land Improvement activities with each governate assuming planning, monitoring, and field operational responsibilities.

5.6 Local Manufacturing

1. Assist subcontractor's with production of thresher manufacturing prototypes and continue with the tooling required.
2. Working with NASCO for manufacturing the currently assembled IMR 60: review two previous feasibility studies for the purpose of increasing the local manufactured content from 5% to 75%; and modification of production to produce half 45 hp and half 60 hp tractors.
3. Continuing product research and design on means of reducing the imported content of the thresher and encouraging specialization to develop supplier-goods manufacturing.

ANNEX A

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A.1 Planning and Evaluation

PLANNING AND EVALUATION

Activity Report

Period: July, August, September, 1984

Prepared by: Dr. Steven Shepley
Mr. Mohammed Shoukry
Mr. Nour El Din Nasr
Mr. Mohammed Shoukry

Summary

The Planning and Evaluation Sub-Project focused its efforts on completion of the statistical processing for the farm management survey data. In conjunction with this work, Sub-project staff have initiated a series of analyses, using production function modelling, to derive imputed factor costs of major agricultural inputs (eg. seeds, labor, fertilizer and land. The year-long tractor-cost survey data were tabulated and a computer program was written for data analysis. Crop production inputs/outputs and prices were collected and tabulated from the Department of Agricultural Statistics to serve as a cross check on the farm management survey data. A paper was written, identifying the need and potential for manufacture of farm machinery in Egypt. Finally, a wheat harvesting survey was designed and implemented in conjunction with the Research and Development Sub-Project and statistical analysis of the data was made.

Farm Management Survey Data Processing

Complete farm budgets have been prepared for all of the major crops by farm size and various levels of mechanization. These crop enterprise budgets list all physical input and outputs, prices, total costs and returns, plus fixed costs and gross margins. The budgets which have been completed include:

- cotton
- wheat
- rice
- berseem (long and short)
- maize
- fodder corn
- potatoes
- tomatoes
- broad beans

These budgets have been sent out for final typing and, upon completion, will provide the input data for linear program modelling of the Egyptian farming system and testing of mechanization impact on farmer income. When completed, the farm budgets will be published in a comprehensive volume.

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Cobb-Douglas Production Function Modelling

The purpose of this activity is to derive the imputed or opportunity costs of agricultural production inputs in the Egyptian farming system. The hypothesis to be tested is that Egyptian farmers, like many farmers in developing countries, are economically rational in that they maximize returns to their limited production resources.

The production function is of the form:

$$y = ax_1^b x_2^c x_3^d \dots x_n^z \quad (1)$$

where:

y = gross farm income

x = magnitude of input n

b, c, d, z = monetary coefficients of production

a = constant

The first derivative of equation (1), y' , for each factor, is the marginal value product of that factor, or imputed input cost in terms of its contribution to total revenue. When the marginal value products and the market prices (marginal factor costs) are equal ($MVP/MFC = 1$), farmers are said to be optimizing their input resource use. A ratio of less than 1 implies excess use of the resource in question, while a ratio of greater than 1 indicates a constraint on the use of the resource.

The production function analysis for cotton production, yielded the following parameters:

$$y = 6.45262 x_1^{0.0363} x_2^{-0.17999} x_3^{0.04486} x_4^{0.05366} x_5^{-0.039} \quad (2)$$

where:

y = gross farm income from cotton

x_1 = hired labor input in man-day equivalents

x_2 = seed input in kgs.

x_3 = chemical fertilizer in kgs

x_4 = organic fertilizer in metric tons

x_5 = cotton area in quirats

$$n = 111; \quad R^2 = 0.58$$

The estimated production coefficients for hired labor, fertilizers, seeds, and land are all significant. The seed and land variables are negatively correlated with the dependent variable. The explanation of the seed variable sign can be attributed to two factors: (1) high government subsidy of seeds; and (3) overseeding by farmers in the belief that higher seeding rates give higher yields and abnormally low costs associated with excessive seeding. Farmers pay 0.04 per kilogram of registered cotton seed while the international price is £E 0.13 per kilogram.

A test for efficiency of resource use was made. In this test, if cost-minimizing behavior is assumed and no resource constraints are considered, each factor of production would be used up to the point at which the Marginal Value Product (MVP) equals its Marginal Factor Cost (MFC), or the price of the resource in the market. The average input prices from the farm management survey were used as a proxy for the MFC. If input restrictions are ignored, an MVP/MFC ratio of 1 indicates that farmers have allocated the resource in question so that its returns are just paying for its additional cost. A ratio of less than 1 implies excess use of the resource and a ratio of greater than 1 shows a constraint on the resource, preventing optimal levels of use.

The comparisons of Marginal Value Products and Marginal Factor Costs of the major cotton production inputs clearly confirm the economic rationality of Egyptian farmers, who have obtained equilibrium in product and factor markets.

Table
Comparison of Marginal
Products and Marginal
Factor Costs in Egypt-
ian Cotton Production

Input	Unit	X	MVP	MFC	MVP/ MFC	Significance Level
-Hired labor	hours	896	0.337	0.266	1.27	0.05
-Seeds	kgs.	94	0.036	0.040	0.90	0.05
-Chemical Fert.	kgs.	118	0.204	0.241	0.85	0.05
-Organic Fert.	ton	10	1.802	2.04	0.88	0.05
-Land	quirat	28	0.913	1.393	0.66	0.10

The Table shows that the market prices and marginal value products for fertilizers and seeds approach equilibrium. The marginal value product for labor is higher than its marginal factor cost because hired labor is in short supply and the supply constraint prevents optimal use of this resource input. The family labor input was also tried in earlier runs of the model and its coefficient was negative and insignificant. A plausible explanation of this outcome is that family labor represents a small percentage of the total labor input. The bulk of the of the total labor requirement in Egyptian cotton production is used in harvesting operations for which all farmers in the survey sample were heavily dependent on the external labor market for their labor supply. Finally, it is noted that the land MVP/MFC ratio is significantly less than unity.

This might imply that the land resource is being used to excess, but such an explanation is implausible under Egyptian farming condition where land is a major production constraint. A more convincing explanation is found from field observations of surveyed farms where a high incidence of intercultivation is common. Since many farmers are not allocating their full cotton acreage to that crop, it is understandable why the cotton land input factor might not surface as a significant determinant of cotton income as part of the input resources have been used in the production of a secondary, intercultivated product.

The utility of production function analysis to agricultural mechanization lies in several important areas. On the one hand, it provides a quantitative analysis of farmer efficiency from which conclusions can be drawn about the likelihood of technological adoption. The analysis also identifies production resources in short supply and, through identification of these constraints, problem areas for technological substitution can be isolated. In the cotton example, the analysis identified hired labor as a major constraint to increasing crop income, thereby, showing that mechanization of labor-intensive operations requiring large hired labor inputs, is a target of opportunity. The efficiency of farmers, revealed in the analysis, indicates their tendency to maximize returns from available resources, suggesting that labor to capital substitution in the machinery adoption process has high potential when returns to investments are favorable. In summary, production function analysis is a useful tool for analysing farming systems from which constraints and solutions to production problems can be identified and found.

Tractor Cost Survey

During the 1982-1983 agricultural year, a cost survey of 46 randomly selected tractors was conducted in Behera, Gharbia, Qalubia, Sharkia, and Minia Governorates. The survey consisted of cost recording for maintenance/repair, fuel consumption, grease, and labor across a wide spectrum of tractor usage from agricultural operations to transportation. During the reporting period, cost and quantity data were tabulated on VIZICALC and a BASIC series 80 program for Hewlett Packard compatible machines was written to read the VIZICALC files and perform basic statistical analysis and regression analysis of the variables. To date complete data for 12 tractors in Behera were tabulated. Upon completion of the tabulation and analysis, derived technical coefficients shall be used for calibration of the Agricultural Cost Model developed by Dr. Shepley and Mr. Wissa.

Machinery Local Manufacturing Assessment

As a preliminary document, pending preparation of a complete manufacturing feasibility study for implement manufacture in Egypt, the Planning and Evaluation Sub-Project has prepared a needs assessment. This document (attached as Appendix A), identifies the production bottlenecks which have created a demand for agricultural mechanization, categorized the benefits of mechanization, and presented a quantitative history of farm machinery adoption on Egyptian farms. The paper evaluates the economics of farm mechanization, used in conjunction with biological improvement packages developed by other USAID-sponsored projects, and presented a preliminary supply/demand assessment.

Wheat Harvesting Survey

A random survey of harvesting and threshing losses was designed and implemented in cooperation with the Research and Development Sub-Project. The survey evaluated pre-harvest yields, post harvest output from the Deutz-Fahr Model 980 combine harvester, and the Behera thresher. Additional data have been collected from field tests on the Agostini Mower-Binder, the Deutz Fahr Model 980 combine, and an improved threshing winnowing machine developed under the auspices of the Egypt Agricultural Mechanization Project. A statistical and economic analysis of the data have been made and these are being used in a technical report (to appear next month) on economic and financial costs and returns of four alternative wheat harvesting systems.

cc Dr.Sahrigi
Dr.Haddad
Dr Gaiser
File

A.2 Extension and Training

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

AGRICULTURAL MECHANIZATION PROJECT

A. I. D. Proj. NO. 263 - 0031

EGYPTIAN MOA/USAID

5 th. Floor - Building of the
General Society For Land Reform
P. O. B. 256 Dokki - Giza, ARE.

704660 - 704720

704364 - 707247



15 OCTOBER 1984

DATE _____ التاريخ

مشروع المكننة الزراعية
وزارة الزراعة المصرية - وكالة التنمية الأمريكية
الدور الخامس - مبنى الجمعية العامة للإصلاح الزراعي
صندوق بريد ٢٥٦ - الدق - جيزة ج ٢٠
٧٠٤٦٦٠ - ٧٠٤٧٢٠
٧٠٤٣٦٤ - ٧٠٧٢٤٧

To: Dr. David Gaiser AND Dr. Zakaria El Haddad
Team Leader Project Coordinator

From: Fred Schantz, Extension and Training Coordinator
Ibrahim El Gattas, Training Officer

with THE STAFF of the Machinery Management Extension and
Training Subproject

Subject: QUARTERLY REPORT for July/August/September 1984 of the

Machinery Management Extension and Training Subproject

The following is a summary of the Machinery Management
Extension and Training subproject activities for the July/August/
September 1984 period and includes inputs from all subproject
staff.

I. SUMMARY

A. Extension Unit Activities

1. Most field activities were at a minimum during this quarter due to the summer season when crops are in the field and many staff were on vacations at various times during the quarter and also due to the month of July having the Bairam feasting period.
2. The total number of demonstration/training field activities was 102 sessions held for 909 participants. Annex 2a (field courses section) details these activities. Planting corn and soybeans with the recently procured seed planters (John Deere 71 flexi-planter), supervising rice drilling and rice transplanting activities as well as continuing discussions concerning the erection of equipment and tool sheds in project areas with the field staff who have to date succeeded in laying a large number of concrete pads which are being used to park the incoming demonstration/training equipment. Yet to be complet-

ed are the roof structures lying beside the pads which have been ready to erect for some time (see Annex 1 for the Extension Advisor's detailed report)

3. The biannual workshop for all extension and training staff was held at the Sidi Beshr training center in Alexandria on Sept. 25-27. Project staff presented an update of project activities to the some 50 extension field staff and the field staff discussed the progress, problems and plans of their village programs in the some 25 villages.

Also presented was the estimated demonstration/training equipment arrivals which was of primary interest to all who expressed concern about having so many implements without available, proper tractors to effectively demonstrate and train village populations on mechanized farming practices.

4. A number of farmer meetings were held during the quarter to discuss individual village mechanization programs, equipment on hand and arriving, and particular needs. The schedule of these meetings is in Annex 1c which shows the locations, etc., of these meetings which have been and will continue to be attended by both counterpart and advisory staff.

5. Under the direction of the Project Coordinator, a number of project activities have been carried out at various research stations including Gima Meza, Saft Kaled, Moshtol, Ed Fina and Miet El Diba. While most of these areas are primarily using the Deutz/Farg combines and balers for operations, a number of other project research station and field demonstration equipment has been and is being located at these various stations. Also planned and/or under construction are equipment storage sheds to house this equipment.

6. The USAID evaluation team (Pragma Corporation, an AID contractor), completed their evaluation of project activities after considerable time was spent with them on the final report produced prior to their departure in July.

7. Due to the increasing numbers of demonstration/training equipment now reaching the field, a request for seasonal Temporary Duty (TDY) technical staff was requested (Annex 1a). Considering the limited technically qualified extension staff now on the project, the limited fuel allocations for field travel and the large quantities of incoming equipment (over 1000 units), it would be difficult to effectively cover all this equipment without TDY support.

In response to this request, project management reviewed the activities of the extension staff and directed all concerned to focus specifically on field activities, especially during peak seasons. One TDY was approved to assist in this effort and the former administrative duties of the extension and training coordinator, especially regarding commodities procurements administration, were reassigned to the project financial unit staff in order to ensure that sufficient technical staff would be in the field during the critical seasons and while the new equipment is arriving.

8. During the quarter the weekly extension and training staff meeting was changed from Sundays at 0930 to Thursdays to 1200. This was done in order to reduce the number of personnel in the office on Sundays and to provide a more suitable schedule to those concerned.

9. Demonstration/training equipment. A large amount

of time was spent during the quarter on evaluating the bids of IFB 84/03, developing equipment specifications for new procurements and checking incoming equipment and its spare parts lists. The following is a status report on this equipment:

NO.	GROUP ORDER	STATUS (as of 30 Sept 84)
1.	\$ IFB 82/01	Land Improvement Equipment; awaiting spare parts delivery
2.	\$ IFB 83/02	Most equipment still arriving in Alexandria ; none in project villages yet. About 45 units have now reached the Project Research Station in Alexandria after clearing customs. Assembly will be done there as soon as the dealers show up.
(A list of the estimated equipment arrivals is shown in Annex 3)		
3.	\$IFB 83/03	Bids now complete; spare parts lists being reviewed, some of which are waiting for dealers to supply the parts books for finalizing the parts orders

- | | | |
|----|---|--|
| 4. | Group 10
(maintenance) | Equipment still arriving |
| 5. | Group 11
(local demo/
trng equip) | Bids advertised; awaiting
bids in order to complete
bid evaluation |
| 6. | Group B
(Gabel Asphar) | Awaiting spare parts del-
ivery |
| 7. | Group 2
(local demo/
trng equip) | " " " |
| 8. | Group 12 | Bid review complete;
equipment being procured |

The specifications for three new equipment procurements were revised in order to use up the remaining US\$ foreign currency, local currency (LE) and the local US\$ for prototype equipment. The specs for these three orders will be ready for bid advertisement next quarter as soon as they clear the project Technical Committee, project management approvals, the MOA's and USAID's commodities procurement committees.

10. The Equipment Maintenance Unit continued to

develop and has produced a number of maintenance record keeping books for distribution in project areas. Request forms for spare parts have also been developed by Mr. Moussa Shafik who will process all spare parts requests from the field through the Cairo office. To date a number of maintenance staff (mechanics, spare parts clerks, etc) have been selected for most villages and some are presently being trained at the Maamoura Training Center in Alexandria where ongoing courses on equipment maintenance have been established.

A priority has been set by the project to establish a spare parts system and determine the necessary space for the present and incoming spare parts. A warehouse in the MOA has been designated for this purpose and is being developed. At this time there are a number of parts shelves and a conscientious clerk at the store. A large number of shelves are still required to hold the thousands of spare parts soon arriving and are being built.

11. The Extension Information Unit continued its

activities a follows:

a) Assisted project management in preparing the new offices for the Agricultural Mechanization Institute which the project staff is planned to occupy within the next few months,

b) Opened bids for printing 1000 copies of the Agricultural Almanac to be distributed to farmers and staff,

c) Reprinted 9 extension pamphlets,

d) Cooperated with the Small Scale Mechanization and the Rice Mechanization Projects in extension information activities,

e) Produced a television program on rice mechanization from Miet El Diba training center in Kafr El Shiek and continued normal extension information activities

12. The Demonstration/training Unit continued

activities at the Gable Asphar Training Center and the Fayum research station. A full report on these activities is presented in Annex 1b.

13. The Land Improvement Unit in the Minia, Beni

Suef and Fayum governorates was reorganized under the direction of Dr. Nabil Saif El Yazl with technical support from Mr. Jim McClung. All future extension activities in these areas are under this new management and will be supported, as requested, by the extension/training subproject staff. Since the extension staff in the Minia governorate were trained with the specialists from the delta areas and have similar equipment for field demonstration/training sessions, they will be invited to attend the biannual extension workshops held to discuss common problems, plan ongoing activities and hear information concerning the project's progress.

14. The Machinery Introduction and Water Lifting

Credit Funds administration is now under the

direction of the project's financial unit staff who are now controlling/monitoring funds disbursements. Technical evaluation of machinery introduction funds equipment is still done by the Machinery Introduction Technical Committee staff which usually meets bimonthly in the Cairo office.

B. In-Country Training Activities

1. During the quarter a total of 1114 trainees

attended 125 new and continuing training center and field courses/sessions (Annex 2).

2. A draft of the 1985 Training Plan was completed as requested and submitted to project management. It was then returned in order to revise the participant training section which had not included new academic training programs which were also omitted in the 1984 plan due to the nearness of the project termination date.

A total of 18 new academic training programs were then inserted into the proposed 1985 plan following a discussion with the USAID officials that the project may be extended and therefore a request for the additional academic programs was in order.

The revision was submitted to project management on 30 September 1984 and included funding requests for a total of 22 academic training programs which included the 6 already in progress or in the final stages of approvals. Also included were a number of technical training programs according to the directives given by management to cover the needs of the various subproject staff.

3. A meeting was held at the USAID offices with the training officers of USAID and was attended by Mr. Arnold Radi, the agricultural desk officer. Discussed was the possibility of allowing some participant training candidates who had lower than required USAID participant training English scores to participate in off-shore training courses at universities which had agreed to accept them even if their written English scores were low. This was agreed upon by the training officer but since was not the normal policy of USAID/Cairo, the mission decided not to allow such exceptions to occur. Therefore, a Dr. Mubarak from the Ein Shams University who had low English scores in comprehension and who was accepted by Ohio State University for a post-doctoral program, was sent back to take more English courses.

4. During the quarter a proposed training program was developed for procurement personnel (Annex 2c) and submitted for project management approvals.

5. A financial summary of the quarter's training and extension expenditures is as follows:

MONTH	EXPENDITURE (LE)	
July	6,066.910	(NOTE: Outstanding
August	155.550	petty cash-in checks
September	7,829.885	to individuals-
TOTALS:	14,052.345	was LE 47,800.000)

C. Participant Training Activities

1. During the quarter 7 participant trainees attended 6 new and continuing programs (Annex 2b).
2. As detailed in 2. above (In-Country Training Activities), the decision first to eliminate any new academic training programs for 1985 was reversed pending a probable extension of the project training activities which would allow several new programs to be financed until completion. The request to USAID is still under review by their offices.

II. DURING THE QUARTER

The primary issues this quarter, as detailed above already, focused on the increasing need in the field for technical assistance to handle the enormous quantities of incoming demonstration/training equipment which has been ordered due to the overwhelming positive responses from the farming populations to the in-field demonstrations on appropriate equipment to mechanize agricultural practices which replace the critical labor shortage in the field at peak periods. Also emphasized above is the problem of the academic programs approval which is still pending.

III. PROBLEMS

Ongoing fuel limitations: This problem is being dealt with this season by serious attempts of all concerned to ride together to the various field activities. Also, the increased ability of the field extension staff to handle the operations problems themselves with their motorcycles has eased the transportation problem somewhat. When the numerous new machines are placed in the field (probably for the spring season) the fuel allowance problem will become greater than before since extensive field travel will be required to demonstrate this new machinery.

IV. PLANS FOR NEXT MONTH

1. Continue extension and training activities with a focus on field extension/training activities due to the fall season need.
2. Complete technical specifications for the last commodities procurements.
3. Secure project management's approval for the 1985 Training Plan and send it to USAID for approvals.
4. Check/train personnel on the maintenance/repair of demonstration/training equipment in project areas.
5. Assist in receiving (technical evaluation) of IFB 84/02 demonstration/training equipment.
6. Begin developing a preventative maintenance/spare parts system in project areas for project equipment.

Agricultural Mechanization Project

Quarterly Report of the EXTENSION ADVISOR
Prepared by ROGER ENGSTROM
For the period of JULY to SEPTEMBER 1984

SUMMARY:

Extension activities to follow up on planting corn with corn planter/ridger. Some problem with the insects because we didn't have insecticide for several treatments. Farmers were happy with planter and seed rate, depth, spacing which resulted in excellent germination. Weed control was late. Did not use proper cultivator but did use furrower/ridger which removed weeds from between rows and reformed ridges/furrows for next irrigation. Farmers were happy. We must get cultivators into fields at proper time which means plant size/stage; weed size/stage; moisture condition; insect control; all these factors must be managed. Laser leveling is still the key factor which helps control/manage the other variables.

Cotton coordination with research was/is time consuming. Concerning all the problems, the crop/field looks good. Tractor, scraper, disc harrow, mower/binder, mowers, sprayer, harvesters were repaired/adjusted at various places. Individual and small group training/institutions were carried out. Soybeans were planted with corn planter.

Farmers meetings-training

Sheds tool rooms-tools-equipment were talked about but other than floors(concrete) no progress was made; however, we are now leasing the Ministry and will erect the sheds ourselves with help from Said Assar. We saw a small thresher/cleaner which looks promising.

PROBLEMS:

Tool bars/completed equipment; tractor, shed erection, combine repair for rice harvest

PLANS FOR NEXT QUARTER:

Erect sheds, tool rooms, tool boards, harvest rice, sorghum, corn with combine. Plant protection, wheat, fava beans, lentil, sugar beets. Work on tool bar for ridger/planter. Change combine for rice, adjust balers.

ANNEX I

AGRICULTURAL MECHANIZATION PROJECT

A. I. D. Proj. NO. 263 - 0031

EGYPTIAN MOA/USAID

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DATE 11 Sept. 1984 التاريخ

TO: Dr. David Gaiser / Dr. Zakaria El Haddad
Team Leader Project Coordinator

FROM: Fred Schantz, Extension and Training Coordinator
Roger Engstrom, Extension Advisor

SUBJECT: Specific Duties for Two Temporary Duty (TDY) Specialists in
Extension for the Fall 1984 (Sept.-Dec.) Season

The critically needed short-term technical specialists during the peak seasons of the project, especially during the fall 1984 season, have the following specific duties to perform. If these tasks are not completed by technically qualified personnel, when the field equipment is in operation, considerable permanent damage to the project equipment can be expected.

1. Assist/train the field extension staff and newly arriving mechanical staff to carry out preventative maintenance, complete minor repairs and determine the spare parts necessary for ongoing use of the equipment,
2. Assist the field staff in establishing spare parts systems, physical facilities for the maintenance equipment and spare parts inventories in the field and assisting in the erection of equipment sheds and tool rooms in the project villages,
3. Assist the field staff in the reception and assembly of the various agricultural equipment which has arrived in Alexandria and will be arriving over the next few months. Once assembled by the dealers, then helping to ensure the equipment is correctly assembled and delivered in useable condition to the project villages.

Specific equipment in project areas which now are in need of repairs include the following:

Behera/Garbya: Disc harrow, mower-binders, planter, ridgers, wheel tractor and tool bar

Sharkia: Pickup baler, digger, mower-binders, tractor

Although action has begun to carry out repairs on this equipment, additional technical assistance is needed to ready the machinery for this season.

Most importantly, there is a desperate need for the establishment of a viable spare parts system which is required to support the machines and which is not yet in place. Some paperwork has been completed on this problem but the designing of parts shelves, securing of specific

ANNEX 1a

facilities in the field for small but necessary spare parts inventories, and training of newly arriving parts administration staff needs to be done immediately since already there are three layers of spare parts in a temporary store at the Alexandria Research Station which will be almost impossible to sort out since each layer represents different equipment.

It is important to point out that we have over 2 million dollars in spare parts arriving in the next few months which need to be received, inventoried and shelved if our field effort is to continue without most of the equipment being down for a minor spare part which we cannot locate. Minia machinery can be used as an example since the new technical assistant (Fred Hugdson) has mentioned that spare parts are needed for several of the units there. The dealers are partly to blame for not providing all the necessary parts but the absence of a spare parts inventory system makes it impossible to determine if the project has the part or not.

Concerning the reception and assembly of the newly arriving equipment in Alexandria, some of the tendered IFB equipment has arrived at the research station and is being assembled by either the staff there or by the dealers themselves who should supervise all assembly if their warranty is to be in effect. Critical to this assembly is the presence of technical assistance familiar with the incoming American equipment to ensure that it is done correctly and ready to use when it reaches the field. Past experience with ICON and FORD local assemblies has shown that their staff are not yet fully qualified on all of this equipment which has required assistance from our technical staff to put in operating order. Considerable time and certain parts' failures can always be expected when new machinery is assembled without proper direction and unnecessary problems can be avoided at this time if effective technical assistance is secured now when they are critically needed .

cc: file

بسم الله الرحمن الرحيم

AGRICULTURAL MECHANIZATION PROJECT

A. I. D. Proj. NO. 263 - 0031

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DATE - 14 August 1984 - التاريخ

To : Mr. Fred Schantz, Training and Extension Coordinator

From : Paul Armstrong, Short Term Consultant

Below I have identified my activities for the period February
15th - August 8, 1984

Concerning Gabel Asfor:

- 1- Harvesting and supervision of harvesting barley crop. Training engineers in operation and maintenance of combine during harvest.
- 2- Set up of tool room to facilitate easier access to tools and help storekeeper keep track of tools out. Tool boards and trays were built.
- 3- Survey of the fields to be levelled at Gabel Asfar and the training of engineers to survey. Design of field slopes.
- 4- Land Breparation for levelling - clearing of rubbish
- 5- Hand levelling and training. Approximately 25 feddans have been levelled to date requiring about 10 tractor hours/feddan.
c Engineers have been trained to set up laser equipment and most are capable to good drivers. It has required about 50-100 hrs of tractor operation to produce an engineer capable of handling the operation unsupervised.

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ANNEX 1 b

6- Instruction in oxygen-acetylene cutting, welding, and various help in all other areas of shop repair.

7- I have done numerous repairs on machinery and have supervised repairs in the hope that they will be done in the future without my help. some of these include

- a) Repair of Ford tractor oil leaks, gasket replacement
- b) Scraper axle straightening, bearing and blade adjustment.
- c) Straightening of Jan axle on pneumatic planter
- d) Modification of disc harrow blade angle adjustment for strengthening
- e) Combine repair on sickle bar

All machinery is in excellent condition except farthat which spare parts are not available namely one ford tractor need a fuel cock-value, scraper requires a bearing seal and the combine sickle bar gaurds and knives.

With Extension:

1. I calibrated a seed drill for planting corn and observed the engineers using the lasers in Minia.
2. Helped take delivery of D-F balers in Sheik Ahmed and inventory of spare parts.
3. Prepared air compressors for distribution to villages for combines. Helped Roger Engstrom set up corn planter in Sheik Ahmed.
4. Calibration of corn planter and demonstration of mower-binder in villages near Tanta.
5. Developed a Spare parts inventory card for use in villages.

Fayoum:

1. General observation of structure of the farm and facilities.
2. Survey and mapping of the area for design partially complete.

Reccomendations

1. Concerning Gabel Asfar all the facilities for a basic farm shop repair and maintenance training area are present and functioning well. It is a good facility any standards and all that is lacking is a field area in which to demonstrate machinery. I estimate by Sept 30 - Oct 15 an area of approximately 50 feddans will be levelled and ready for crops. It has been planned that this area is to be established as a citrus orchard and which I appose as this is completely uncomplimentary with what we have available in regards to machinery and thus also our workshop area. It is also intended to turn this area back to the original farm management which I believe is incapable of utilizing our efforts to the full benefit without cooperation and advice from the mechanization project. As well as this 50 feddan the other 80 feddan, which is ready for levelling, will also betreos. I would reccomend that he 50 feddan be used exclusively for training and demonstration of row crop farming. It provides large enough area for growing at least three wops simultaneously and compatible for mechanization. There is some concern that the area is not representative of a typical soil type found in Egypt. If Egypt hopes to expand the available acres of farmland in the future there is little elsewhere to look than the large sandy soil regions which will be more receptive to broad acre farming and mechanization than the custom and economic bound black soil areas.

2. Fuel is stored at Gabel Asfar in the barrels it comies in and is suceptable to contamination as well as being delivered partially contaminated. To alleviate this problem a storage tank of at least 2000 litres should be aquired with filter which would also help any problem with fuel shortage due to delivery.

3. In order to have a full training and demonstration program at Gabel Asfar there is a need for accomodation and transportation. Accomodation could be located either on site, in Cairo or at one of the surrounding villages.

4. With regards to working in Fayoum, a shop area must first be established and at least partially tooled before any major work can effectively be started. Survey work and planning can be completed.

5. In Fayoum there are at least two other projects involved in the area. One involving a British team with cotton pest control and a Dutch team which plans to set up a small scale 15 feddan research area complete with labs and machinery workshop. In order to avoid conflicts the farm planner should be fully aware of this and have made contacts with all parties involved.

FARMER MEETINGS SCHEDULE

SEPT-OCTOBER 1984

DATE	VILLAGE	
18/9	Kom El Naggar	BEHERA
25/9	Kafr Dima	GOVERNORATE
2/10	Koniset Damshit	
9/10	Shabshir El Hessa	
16/10	Shobra Kas	
19/9	Disia	GARBYA
26/9	El Rezka	GOVERNORATE
2/10	Ezab Besentwai	
10/10	Desounnes	
17/10	Kafla	
25/10	Waked	

(NOTE: Field days in Sharkia, Qualibya and Minia to be planned for November 1984)

ANNEX 1c

Project: Agricultural Extension Project

SUMMARY
Quarterly Training Activities for
JULY/AUGUST/SEPTEMBER 1984

NO.	DATES	COURSE NO.	COURSE TITLE	LOCATION	TR
I. IN-COUNTRY TRAINING CENTERS:					
1.	7 J1-16 Aug 84	4 Ex 25.2	Tractor Operator	Maamoura TC	15
2.	7 J1-26 J1 84	4 Ex 23.2	Welding	" "	8
3.	14 J1-8 Nov 84	4 Ex 62	Mechanic III	" "	15
4.	4 Aug-23 Aug 84	4 Ex 23.3	Welding	" "	9
5.	4 Aug-4 Oct 84	4 Ex 2.2	Mechanic I	" "	11
6.	11 Aug-23 Aug 84	4 Ex 65.1	Backhoe op/maint	" "	7
7.	18 Aug-30 Aug 84	4 Ex 58	Water pump set op/maint	" "	14
8.	25 Aug-30 Aug 84	4 Ex 68.1	" " " "	" " "	12
9.	15 Sept-20 Sept 84	4 Ex 68.2	" " " "	" " "	14
10.	22 Sept-27 Setp 84	4 Ex 68.3	" " " "	" " "	15
11.	14 J1-19 J1 84	4 Ex 36	Tractor Driving	Sanawa Field trng. cntr	10
12.	28 J1-2 Aug 84	4 Ex 52.1	" "	Beltan Field trng. cntr	15
13.	25 Sept-27 Sept 84	4 Ex 57	Workshop: Mechanization Extension	Sidi Beshr trng. cntr	60
TOTAL:					205

II. FIELD COURSES:

NO. OF DEMOS.	NO. OF FEDDANS	NO. OF TRAINEES
102	80 and 188 kls.	909

(see attached sheet for detailed information 2a)

III. PARTICIPANT TRAINING:

A. Academic Programs: (USA)

1.	Aug 83-Jan 85	3 PL 1a	MS: Agri. Economics	1 (Atif)
2.	Jan 85-Aug 86	3 PE 1b	" " "	1 (Zaki)
3.	Jan 85-Aug 86	2 PD 1	MS: Agri. Production	1 (Ayman)
4.	Mar 84-Feb 86	3 PE 1c	MS: Agri. Economics	1 (Ali Kamel)
5.	Aug 84-Aug 87	3 PD 2	MS: Soil Science	1 (Gouda)

SUBTOTAL= 5

ANNEX 2

Agricultural Mechanization Project

FIELD COURSES: Quarter of : JULY/AUGUST/SEPTEMBER 1984

NO.	DEMONSTRATION	NO. OF DEMOS	NO. OF FEDDANS/KLMS	NO. OF TRAINEES
1.	Farmer Meetings	7	---	525
2.	Field Days			
3.	Planting (maize)			
4.	Rice drilling	10		200
5.	Rice transplanting	4		150
6.	Agri. backhoe op/maint	60	198 kls.	188
7.	Fertilization (cotton)	1	5	10
8.	Farm Structures (concrete)	12	--	120
9.	Laser leveling a) Gabel Asphar b) Delta c) Other	3	45	10
10.	Tractor driving (Ford)			
11.	Spare parts system	1	----	6
12.	Hay baling			
13.	Air compressor op/maint			
14.	Arc welder op/maint	10	--	10
15.	Land leveling	8	30	40
		102	80 fed & 188 kls	909

ANNEX 2a

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AGRICULTURAL MECHANIZATION PROJECT

A. I. D. Proj. NO. 263 - 0031

EGYPTIAN MOA/USAID

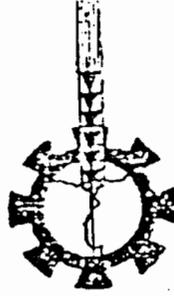
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DATE 18 Sept. 1984

التاريخ

TO : Dr. Zakaria El Haddad / Dr. David Gaiser
Project Coordinator Team Leader

FROM: Fred Schantz, Extension and Training Coordinator
Ibrahim El Gatas, Training Officer

SUBJECT: Request for Approval to Organize a Training Course
for Procurement Personnel

It has recently come to our attention that although several of the personnel involved in procurement of Project commodities have had formal training in the USA on procurement procedures used by USAID, none have been trained on USAID's Handbook 11 which is the primary document used by all concerned for USAID-funded procurements. In addition, none are aware of the waivers of Handbook 11 which were granted to the Project which simplifies procurements in Egypt. Without effective training, this information, it is *difficult to* carry out accurate processing of project procurements which have been done to date by careful questioning of all concerned at the USAID offices and within the MOA as each step of a procurement was taken in order to prevent variations from the required procedures. The only exposure the staff has had concerning the rules and regulations of USAID procurement has come from a Mr. Gus Guniko who was here for a short stay two years ago to develop the "boiler plate" or bid document for project procurements. While he was here, he trained Mr. Ali Kamel on this document and exposed him to Handbook 11 for a short time. Unfortunately, Mr. Kamel has left the country for long term academic training in the USA, leaving a critical need for newly trained personnel to accurately carry out ongoing procurements.

As the Project is now in need of qualified procurement officers who are familiar with Handbook 11, USAID procedures and Project-specific commodities procurements waivers, we request permission to arrange a course to train the appropriate persons on these subjects. In order to do this the following is required:

- I. TRAINERS:
1. A commodities procurement officer from USAID's procurement office familiar with Handbook 11 and specific problems with Egyptian procurement
 2. A Project staff member familiar with the waivers developed when the Project began; this should come from the financial unit which was responsible for the waiver requests which deviate from Handbook 11's regulations
 3. A USAID Project Officer who is familiar with the project and USAID procurements

ANNEX 2 b

4. A MOA senior procurement officer who can explain the Ministry's system and how it is different from the USAID system, what must be done to follow Ministry's procurements' requirements and how the two systems can work together to allow procurments to proceed

- II. DURATION: The course should be planned for at least one week or longer, according to the time needed to explain the relevant information and answer outstanding questions. Suggested dates are from October 1-5, 1984, or sooner if possible. Mr. Ali Rashat of the MOA procurement unit has suggested that the course be held from 3-5pm during the week to allow for normal operations to continue while the training is in progress
- III. LOCATION: The location of the training room could be in the FAO building or nearby to facilitate normal working conditions. As only about a maximum of 10 trainees will be in the course, it could easily be held in a project office
- IV. NUMBER
of TRAINEES: About 10 trainees should attend the course including:
1. Two or more Project procurement officers
 2. Two or more MOA Procurement officers
 3. One or more MOA Technical committee officers
 4. One or more MOA Procurement committee officers
 5. A commodities' committee secretary (for notes on the information)
 6. One or more Project advisory staff involved in developing specifications and processing of the various procurements needed by the Project
- V. COURSE MATERIALS: Copies of the Handbook 11 and the Waivers should be provided for all trainees in addition to notepads and pens for note taking. A practical exercise using a recent procurement could be carried out to effectively train all concerned
- VI. COSTS: The only costs will be for the copies of the course materials and the cost of the instructors' time.

Agricultural Mechanization Project

ESTIMATED EQUIPMENT ARRIVAL DATES for
LSY TFRA3/82

ITEM NO.	DESCRIPTION	COMPANY	QTY	Est. Arrival Dates	
				ALEX CUSTOMS	RESEARCH STATION
1.	TRACTOR (70HP)	JOHN DEERE	50	8 NOV 84	
1a.	FRONT-END LDR	JOHN DEERE	12	8 NOV 84	
2.	TRACTOR (90HP, high-crop)	JOHN DEERE	15		
3.	TRACTOR (110HP)	FORD	15		
4.	SPIKE TOOTH HARROW	AMICO	30		
5.	MOWER (cancelled)				
6.	GRAIN DRILL	OPPENHEIMER	30		
7.	DISC BEDDER	WALPECO	30	19 AUG 84	22 SEPT84
8.	SEED PLANTER	JOHN DEERE	30		
9.	CULTIVATOR	DALTON/ COOPER/GATES	30	30 AUG 84	22 SEPT84
10.	MANURE SPREADER	WALPECO	30		
11.	RING ROLLER	DALTON/ COOPER/GATES	15	30 AUG 84	22 SEPT84
12.	ROLLER HARROW	DALTON/ COOPER/GATES	15	30 AUG 84	22 SEPT84
13.	BULLDOZER	J I CASE	1		
14.	SELF-PROPELLED SCRAPER	JOHN DEERE	1		
15.	MOTOR GRADER	JOHN DEERE	1		
16.	CHEMICAL FERTILIZER SPREADER	(cancelled)			
17.	LIQUID SPRAY RIG	OPPENHEIMER	15		
18.	TRACTOR MOUNTED LIQUID SPRAY RIG	DALTON/ COOPER/ GATES	15		
19.	REAR MOUNTED TRACTOR BLADE	AMICO	30		
20.	SUBSOILER	AMICO	15		
Total Units:			380		

NOTE: All units were ordered between 7 June 1984 and 8 Aug 1984. The companies have 150 days (3 months) from then to have the equipment and spare parts on a ship ready to be sent to Egypt. It takes about one month minimum to reach Alexandria and about six weeks to get through customs to the Project Research Station at Alexandria. Therefore, all units above without dates should be at the Station between October and December 1984, with luck.

ANNEX 3

A.3 Service Center/Village Workshop

Monthly Report
Service Centre Subproject

June/July 84.

Submitted by Graham G Sparrow.(Tech. Advisor)

Ramadan fell in June this year so very little was accomplished, although during the first part of the month we had the project evaluation team visit us, so with making trips to small workshops and service centres in upper Egypt and the Delta and furnishing them with information that they requested, we were kept on the hop so to say.

We did make a visit to Mr Zoomers location(service centre) on the 7th June at Imbaba and saw that the foundations had been dug and the base concrete poured, also the brickwork was well under way on the existing concrete structure which will be the parts store and office building.

On the 26th June I left Egypt for my annual holiday, on my return at the end of July I learnt that Mr Baraket (CEC) had signed a contact with the bank in Damanhor for his loan.

The bank in Dakalia has agreed to the loan for Diabex and has sent the documentation to the PBDAC in Cairo for their approval.

Mr Said Aguizy sent a letter to the project management requesting permission to lodge a letter of guarranty while his application of land registration is being completed,so as to enable him to proceed with the development of his service centre,this request is to be submitted to the next sitting of the Loan committee meeting for their decision.(early August)

On July 8th Mr Mohammed Fattah from Bilbas, Sharkia come to the office to inform us that he was continuing with the registration process with regards to his land, which he hoped would be completed in about one month.

Monthly report.

Aug. 1984.

Service Centre Subproject.

Submitted by Graham G Sparrow, M.I. Diag, Eng.

This month we have visited or had meetings with nine of our clients, the outcome is that there is still a great deal of misunderstanding of the operation of the Service Centre Credit Fund, on behalf of the P.B.D.A.C. bank. For example after the project has submitted an application, the bank makes changes to parts of it and as a result the context of the loan is destroyed and leaves our client in such a position that we must on business and moral grounds advise him not to continue, otherwise it could lead to disaster

As a result of these findings and discussions with Dr Gaisor, Dr Shargi agreed for members of the Service Centre section and Dr Gaisor to meet Mr Kamel Nasr of the P.B.D.A.C. at the head office of the bank in Cairo, it was during this meeting that Mr Kamel Nasr realised the difficulties that the project was working under by the imposed working system of the bank.

In order to rectify the current situation Mr Kamel Nasr recommended that a training seminar be set up immediately whereby members of the bank would understand the workings of the Service Centre loan credit fund and the terms and conditions of the letter of understanding, which are in contradiction to the banks system of operation. This situation has arisen I believe in too many individual interpretations being applied to the letter of understanding and poor communications.

Mr Kamel Nasr made it clear that this problem will be resolved quickly and he expected a rapid outgoing of funds to Service Centres in the very near future. So until this situation is resolved, progress is at a stand still at the present time.

Monthly Report.

Sept. 1984

Service Centre Subproject.

Submitted by: Graham G. Sparrow, M.I. Daig, Eng.

With the problems we are encountering with the bank with regards to the current terms set by them, we are finding that some of our clients are being placed in a very dangerous position, financially. At the end of last month after a meeting at the bank's head office in Cairo with Dr Gaisor, we felt that at long last we were about to make some progress, when the bank requested the project to hold a training seminar for the bank employee's, as the banks method of operation was totally different to the terms and conditions agreed between U.S.AID and the Ministry of Agriculture.

Towards the end of September with arrangements well under way for the training seminar, I was informed that it had been cancelled, which as far as I can gather puts us back where we started no concrete action to resolve the problems.

The only bright light this month is that Mr Zoomer has received a further L.E.25,000 towards his project in Giza. While the terms have been changed slightly in his application we havenot had the opportunity as yet to examine the change and what extent it will affect his project as a whole.

As an advisor it does appear that there is a lot of talk about what or what not can be done, but no solid action taken on who should do it or what should be done.

If there is not a concerted effort to resolve the present situation in the very near future, it is doubtful in my opinion that there will be enough time to spend our budget, although we have the clients and applications to expend the full amount of the Service Centre credit loan fund.

TO : Dr. David Gaiser
FROM : Robert E. Snyder
DATE : 8 September 1984
SUBJECT : Monthly Report (August 1984)

General:

Most of this month was spent in the office catching up on Bid Evaluations and technical reports.

We made one contact in Kafr El Sheik. I was under the impression that this area was out of bounds and consequently, we have not done any follow-up on the many contacts we had made there in early 1983, but were forced to abandon. Dr. Zakaria insists we are free to develop in this area. This, being the case, we will pursue the new contact and see what happens. There is no doubt the area is in need of workshop development.

Shortening our technical report has helped, but it is not the whole answer. We still need additional staff to assist with paper work and machinery deliveries.

Loan Activity:

No loans were completed this month. Loan activity for the month are as follows:

Disbursements thru July '84	.....	LE 601,301
Disbursements for August '84	.....	- 0 -
Total Disbursements thru Aug. '84	.....	601,301
Loan values with banks' approvals	.....	267,020
Loan values at banks, not approved	.....	1,149,500
Loan values being reviewed at project.....		233,400

For details of the above, see "Attachment A" of this report.

SERVICE CENTER DEVELOPMENT

Developed Workshop

Small Workshop

Month of Aug. 84

Name	Delivering date	Location	Value L.L.
I. Ateya	18/1/83	Delengat-Behera	12636
H. Shalaby	15/3/83	Damanhour - "	18800
M. Kohla	9/3/83	Delengat - "	78815
Y. Emarra	9/12/83	Itay El-Baroud-Behera	16649
S. El-Nashar	9/12/83	Abu Homos - "	11958
A. El-Sheik	29/3/84	Kafer El-Dawar - "	21139
A. Saad	19/7/84	Delengate - "	13349
M. Abed El-Ghany	19/7/84	" - "	10814
M. El-Mohalawy	31/3/83	Banha - Qalubia	44000
M. El-Bayoury	31/3/83	" - "	37950
A. Afify	16/5/83	Tough - "	10000
A. Hafez	16/5/83	Banha - "	38780
M. Yousef	11/9/83	Tough - "	27000
M. Zaky	13/10/83	Danater - "	20000
H. Gafer	25/11/83	" - "	9323
M. Selem	30/10/83	Kafer El-Zayat-Gharbia	50000
A. Abu Kohla	31/10/83	Basun - Gharbia	25000
I. El-Hadary	22/12/83	" - "	15703
A. Abu Hamer	19/4/84	" - "	25000
A. Ahmed	28/8/83	Minia - Minia	8916
S. Ateya	1/9/83	" - "	15000
R. Mohamed	3/11/83	Samalout - Minia	11399
A. Nagib	2/4/84	Abu Korkas - Minia	24500
M. Abd El-Motagaly	2/5/84	" - "	49000
A. Ahmed	31/5/84	Samalout - "	23520
T. Mekael	5/7/84	" - "	23130
M. Abd El-Malak	19/7/84	" - "	18920

2- Loans approved by the bank

Loans with bank approvals

Aug. 84

Name	Approval date	Location	Value L.E.
A. Adly	12/10/83	Hosch Essa - Behera	7000
A. Mahmoud	21/7/84	Itay El-Baroud-Behera	25000
A. Metwaly	1/8/84	Kafer El-Dawar - "	25000
A. Shalash	16/5/84	Kafer El-Zayat-Gharbia	25000
A. El-Shahat	27/6/84	Zefta - "	25000
A. Abd El-Rahman	29/7/84	Samaned - Gharbia	25000
M. Yousef	21/7/84	Tough - Qalubia	23000
S. Abd El-Wahab	21/7/84	khanka "	12000
H. El-Gamal	6/8/84	Shehen El-kanater="	25000
L. Fahmy	10/6/84	Samalout - Minia	24500
M. Dawoud	11/6/84	Melawy - "	23520
S. Omar	27/8/84	Osem = Giza	15000
H. Mahdy	9/6/84	Embaba = Giza	12000

- Loan files at the banks - not approved

Aug. 84

Name	Delivering date	Location	Value
S. Selem	5/7/83	Malawy - Minia	15000
F. El-Hady	15/4/84	" - "	15000
A. Ahmed	14/8/84	" - "	15000
F. Abd El-Ha-am	14/8/84	" - "	25000
F. Attv	14/8/84	" - "	25000
S. Henes	14/8/84	" - "	25000
N. Yousef	14/8/84	" - "	20000
F. Abd El-Baky	14/8/84	" - "	20000
S. Atta	18/1/84	Kafer El-Zayat-Gharbia	25000
A. El-Deltany	3/4/84	Kotor - "	50000
M. Mansour	12/6/84	Tanta - "	50000
M. Selem	14/6/84	Kafer El-Zayat- "	35000
I. Sheded	13/7/84	Tanta - "	50000
T. Okbba	12/10/83	Kam Hamada - Behera	15000
M. Kohla	17/1/84	Delengat - "	4000
M. El-Anany	17/1/84	Hosch Esso - "	25000
A. Zaky	2/4/84	Abu Homos - "	50000
A. Abd El-Ghany	2/4/84	" - "	10000
E. Ahmed	2/4/84	Delengat - "	12000
M. Soliman	7/5/84	Hosch Essa - "	50000
S. El-Ghanam	7/5/84	Rashed - "	25000
S. Edress	12/6/84	Abu Homos - "	20000
E. El-Araby	29/7/84	" - "	25000
S. El-Said	29/11/84	Hosamia - Sharkia	50000
A. Ashraf	30/7/84	Minia El-Kamh - Sharkia	50000
M. Abd El-Rahman	30/7/84	Abu Hamad - "	20000
M. Abd Rabu	30/7/84	Abu Keber - "	25000
E. Said	30/7/84	Abu Hamad - Sharkia	25000
A. Aly	17/1/84	Osem - Giza	3500
S. Abu Hamer	17/1/84	Mansouria - "	15000
W. Tadros	30/5/84	Manashy - "	50000
F. El-Kharsa	30/5/84	Osem - "	15000
A. Abd Allah	19/10/83	Kafer Shoukr - Qalubia	40000
M. Asser	27/6/84	Qulib - "	100000
B. Hegazy	22/8/84	Kafer El - Sheak	150000

*Loan files being reviewed at Project level**Aug, 84*

Name	Application date	Location	L.E
H. Abd El-Salam	/11/83	Kafer El-Dawar-Behera	15000
S. Saed	27/7 /84	Toukh - Qalubia	10200
A. Abbas	14/8/84	Kotor - Gharbia	60000
H. Shalaby	5/8/84	Damanhour - Behera	6200
H. Ahmed	2/8/84	Toukh - Qalubia	50000
S. Ibrahim	16/8/84	Kanater El- Khayrio - Qalubia	15000
A. El-Salamony	15/8/84	Samanod - Gharbia	17000
A. Yany	16/8/84	Abu Korkas - Minia	20000
M. Taha	20/8/84	Minia - "	15000
A. Sloum	28/8/84	Kafer El-Shaek	25000
		Total	233400
	Grand total of small workshop		2284841 L.E

TO : Dr. David Gaiser
FROM : Robert E. Snyder
DATE : 6 August 1984
SUBJECT : Monthly Report for July 1984

General:

I have felt for sometime that our paper work was unnecessarily cumbersome and full of duplications from the bid evaluation which it is attached to. We have deleted the duplications and some items we felt were unnecessary. Hopefully, it will satisfy the administrative staff.

We still feel that we have to add to our staff. Staffed as we are now, it is unlikely that we will be able to complete the targeted 70 small shop development projects as suggested in the original plan. It is essential however, that we get competent employees. Otherwise, they will only add to the confusion.

The project evaluation group completed their work and left around the 15th of the month. Our subproject received a rather favorable report.

Loan Activity:

We completed four loans this month, bringing the total to 27 loans with a total value of LE 601,301.

Loan activity for the month and the accumulation to date are as follows:

Disbursements thru June 1984	.....	LE 585,089
Disbursements for July '84(4 loans)	.....	66,213
Total Disbursements thru July '84	.....	601,301
Loan Values with banks' approvals	.....	177,020
Loan Values at banks, not approved	.....	804,504
Loan Values being reviewed at project	.....	242,200

For details of the above, see "Attachment A" of this report.

SERVICE CENTER DEVELOPMENT

Small WorkshopDeveloped Workshop

Month of July 84

No	Name	Delivering date	Location	v
1	I. Ateya	18/1/83	Delengat-Behera	12636
2	H. Shalaby	15/3/83	Damanhour - "	18800
3	M. Kohla	9/3/83	Delengat - "	78815
4	Y. Emarra	9/12/83	Itay El-Baroud-Behera	16649
5	S. El-Nashar	9/12/83	Abu Homos - "	11958
6	A. El-Sheik	29/3/84	Kafer El-Dawar - "	21139
7	A. Saad	19/7/84	Delengate - "	13349
8	M. Abed El-Ghany	19/7/84	" - "	10814
9	M. El-Mohalawy	31/3/83	Banha - Qalubia	44000
10	M. El-Bayoury	31/3/83	" - "	37950
11	A. Afify	16/5/83	Tough - "	10000
12	A. Hafez	16/5/83	Banha - "	38780
13	M. Yousef	11/9/83	Tough - "	27000
14	M. Zaky	13/10/83	Qanater - "	20000
15	H. Gafer	25/11/83	" - "	9323
16	M. Selem	30/10/83	Kafer El-Zayat-Gharbia	50000
17	A. Abu Kohla	31/10/83	Basun - Gharbia	25000
18	I. El-Hadary	22/12/83	" - "	15703
19	A. Abu Hamer	19/4/84	" - "	25000
20	A. Ahmed	28/8/83	Minia - Minia	8916
21	S. Ateya	1/9/83	" - "	15000
22	R. Mohamed	3/1/83	Samalout - Minia	11399
23	A. Nagib	2/4/84	Abu Korkas - Minia	24500
24	M. Abd El-Motagaly	2/5/84	" - "	49000
25	A. Ahmed	31/5/84	Samalout - "	23520
26	T. Mekael	5/7/84	" - "	23130
27	M. Abd El-Malak	19/7/84	" - "	18920
28				
			Total	601,301

2- Loans approved by the bank

Name	Delivering date	Location	value L.E.
A. Adly	12/10/83	Hosh Essa - Behera	7000
A. Shalsh	16/5/84	Kafer El-Zayat-Gharbia	25000
A. El-Shahat	27/6/84	Zafta - "	25000
M. Yousef	21/7/84	Toukh - Galubia	23000
L. Fahmy	10/6/84	Samalout - Mwnia	24500
M. Dawoud	11/6/84	Malawy - Giza	23520
H. Mohdy	9/6/84	Embaba - Giza	12000
S. Abd El-Wahab	21/7/84	Khanka - Qalubia	12000
A. Mahmoud	21/7/84	Itay El-Baroud-Behera	25000
		Total	177,020

3- Loans under investigation at the bank

Name	Delivering date	Location	value L.E.
S. Selem	5/7/83	Malawi - Minia	15000
F. El-Hady	15/4/84	" - "	15000
Y. El-Tamayhy	18/1/84	Samanod - Gharbia	25000
R. Keshasha	18/1/84	" "	25000
S. Atta	18/1/84	Kafer El-Zayat-Gharbia	25000
A. El-Dattony	3/4/84	Kotor - "	50000
M. Mansour	12/6/84	Tanta - "	50000
A. Abd El-Rahman	12/6/84	Samanod - "	25000
T. Okba	12/10/83	Kom Hamada - Behera	15000
M. Kohla	17/1/84	Delengat - "	4000
M. El-Anany	17/1/84	Hosch Essa - "	25000
A. Zaky	2/4/84	Abu Homos - "	50000
A. Abd El-Ghamy	2/4/84	" - "	10000
E. Ahmed	2/4/84	Delengat - "	12000
A. Metwaly	7/5/84	Kafer El-Dawar - "	25000
M. Soliman	7/5/84	Hosch Essa - "	50000
S. El-Ghanam	7/5/84	Rashid - "	25000
S. Adress	12/6/84	Abu Homos - "	20000
H. Aly	29/11/83	Ciza - Giza	50000
E. Aly	17/1/84	Osem - "	3590
S. Omar	17/1/84	" - "	15000
S. Abu Hommar	17/1/84	Mansoroia - "	15000
M. Hemedah	7/2/84	Maruotaia - "	50000
F. Magrash	7/2/84	Kombera - "	25000
W. Tadros	30/5/84	El-Manashy - "	50000
F. El-Kharsah	30/5/84	Osem - "	15000
A. Abd Allah	19/10/83	Kafer shokr - Qalubia	40000
H. El-Gamal	17/8/83	Sheben El-Kanater- "	25000
S. El-Said	29/11/83	Hosania - Sharkia	50000
Total			804,504

4- Loans at the project level

Name	Application	Location	<u>Value</u> L.E.
H. Abd El-Salam	11/ /1983	Kafer El-Dawar-Behera	15000
A. Ahmed	24/5/84	Malawi - Minia	15000
F. Abd El- Hakem	14/2/84	" - "	25000
F. Atty	24/5/84	" - "	25000
S. Hens	12/7/84	" - "	25000
N. Yousef	12/7/84	" - "	20000
A. El-Said	12/6/84	Minia El-Kamk-Sharkia	12000
M. Abd El-Rahman	17/6/84	Abu Hamad - "	20000
M. Abd Rabou	17/6/84	Abu Keber - "	25000
A. Ashraf	6/6/84	Minia El-Kamh - "	25000
I. Sheded	10/6/84	Tanta - Gharbia	25000
S. Saed	27/7/84	Toukh - Qalubia	10200
		Total	242200
	Grand total of small workshops :	1,825,021	L.E.

TO : Dr. David Gaiser
FROM : Robert E. Snyder
DATE : 3 October 1984
SUBJECT : Monthly Report (September 1984)

General:

Some of the clients whose loans were processed earlier have begun making installments on their loans. Although we have not contacted all of them, those that we have, seem to be financially able to handle the payments.

We will accrue more information on this as we do follow-up monitoring of these shops.

We have been avoiding loans for building construction and building improvements. This type of loan gets too involved with land titles, bank guarantees, etc., which become very time-consuming. In all cases to date, the clients have been able to acquire adequate space for their shops without construction loans.

We assembled a photo album this month showing the various shops we have made loan to, including photos of some of the machinery purchased. The owner's name and the loan value is also listed. It presents a record in photos of the progress of this sub-project's developments.

Our project has still not been able to do business with the bank in Sharkia Governorate.

It appears that our entire productive staff will be leaving for a three-months training session in the US in the near future. I do not have to tell you what this will do to our sub-projects performance during their absence. It is difficult for me to understand why, with three years to plan such an activity, that the end result should be such a total disaster.

I do not think it is too early to consider the fate of this sub-project when the expatriate staff leave a year from now. All indications so far lead me to believe that our clients and the banks will need assistance from a technical staff long after our phase-out. There is no question in my mind that the Egyptian staff is competent to do the job. It will however require adequate planning and preparation before our departure, if they are to be effective.

Loan Activity:

We have completed six loans this month, bringing the total to 33 loans, with a total value of LE 698,543. Most of the paper work for these loans was processed in August when no loans were completed. Although six loans is the most we have ever completed in one month, the LE value is relatively low at LE 97,000. Unfortunately, it takes nearly as much time to process loan for LE 10,000 as for a LE 100,000. Loan activity for the month and the accumulation to date are as follows:

Disbursements thru August '84	.....	LE 601,301
Disbursements for Sept. '84	.....	97,242
Total Disbursements thru Sept. '84	.....	698,543
Loan Values with banks' approval	.....	276,020
Loan Values at banks, not approved	.....	1,149,500
Loan Values being reviewed at project	.....	233,400

For details of the above, see "Attachment A" of this report.

SERVICE CENTER DEVELOPMENT

Small workshop

I- Developed workshop :-

Month of Sept, 84

Name	Delivering date	Location	Value L.L
I. Ateya	18/1/83	Delengat - Behera	12636
H. Shalaby	15/3/83	Damnhour - "	18800
M. Kohla	9/3/83	Delengat - "	8815
Y. Emarra	9/12/83	Itay El-Baroud-"	16649
S. El-Nashar	9/12/83	Abu Homos - "	11958
A. El-Sheik	29/8/84	Kafer El-Dawar-"	21139
A. Saad	19/7/84	Delengat - Dawar-Behera	13349
M. Abd El-Ghany	19/7/84	Delengat - Behera	10814
A. Mohmoud	19/9/84	Itay El-Baroud-Behera	8790
A. Metwaly	20/9/84	Kafer El-Dawar-Behera	11908
M. El - Mohalaw-	31/3/83	Banha - Qalubia	44000
M. El-Bayory	31/3/83	Banha - Qalubia	37950
A. Afify	16/5/83	Tough - Qalubia	10000
A. Hafez	16/5/83	Banha - Qalubia	38780
M. Yousef	11/9/83	Tough - Qalubia	27000
H. Zaky	13/10/83	El-Kanater - Qalubia	20000
H. Gafer	25/11/83	El-Kanater - Qalubia	9323
S. Abd El-Wahab	23/9/84	Khanka - Qalubia	10964
H. El-Gamal	27/9/84	Shehen El-Kanater	25000
M. Selem	30/10/83	Kafer El- - Gharbia	50000
A. Abu Kohla	31/10/83	Basun - - Gharbia	35000
I. El-Hadary	22/12/83	Basun - -Gharbia	15703
A. Abu Hamer	19/4/84	Basun - Gharbia	25000
A. Ahmed	28/8/83	Minia - Minia	8916
S. Ateya	1/9/83	Minia - Minia	15000
R. Mohamed	3/11/83	Samalout - Minia	11399
A. Nagib	2/4/84	Abu Korkas - Minia	24500
M. Abd El-Motagaly	2/5/84	Abu Korkas - Minia	49000
A. Ahmed	31/5/84	Samalout - Minia	23520
T. Mekhael	5/7/84	Samalout - Minia	23130
M. Abd El-Malak	19/7/84	Samalout - Minia	24500
H. Mahly	24/9/84	Embaba - Giz	12000
M. Yousef	30/9/84	Tough - Qalubia	23000
		Total	698543

2- Loans approved by the bank

Name	Delivering date	Location	value L.E.
A. Adly	12/10/83	Hosch Essa - Behera	7000
A. Shalsh	16/5/84	Kafer El-Zayat-Ghaibia	25000
A. El-Shahat	27/6/84	Zefta - Ghalbia	25000
A. Abd El-Rahman	29/7/84	Samanod - Ghälbïa	25000
L. Fahmy	10/6/84	Samalout - Ghalbia	24500
M. Dawoud	11/6/84	Malawi - Ghalbia	23520
S. Omar	27/8/84	Osem - Giza	15000
		Total	145020

3- Loans under investigation at the bank

Name	Delivering date	Location	val L.
S. Selem	5/7/83	Malawy - Minia	16000
F. El-Hady	15/4/83	" - "	15000
A. Ahmed	14/8/84	" - "	15000
F. Abd El-Hakem	14/8/84	" - "	25000
F. Atty	14/8/84	" - "	25000
S. Heness	14/8/84	" - "	25000
N. Yousef	14/8/84	" - "	20000
F. Abd El-Baky	14/8/84	" - "	20000
S. Atta	18/1/84	Kafer El-Zayat-Gharbia	25000
A. El-Daitony	3/4/84	Kotor - Gharbia	50000
M. Mansour	12/6/84	Tanta - "	50000
M. Mohamed	14/6/84	Kafer El-Zayat-Gharbia	35000
I. Sheded	31/7/84	Tanta - "	50000
T. Attya	12/10/83	Kom Hamada - "	15000
M. Kohla	17/1/84	Delengat - "	4000
M. El-Anany	17/1/84	Hosch Essa - "	25000
A. Zaky	2/4/84	Abu Homes - "	50000
A. Abd El-Ghanv	2/4/84	" - "	10000
E. Ahmed	2/4/84	Delengat - "	12000
M. Soliman	7/5/84	Hosch Essa - "	50000
S. Ghanam	7/5/84	Rashed - "	25000
S. Edrees	12/6/84	Abu Homos - "	20000
E. El-Araby	29/7/84	" - "	25000
S. El-Said	29/11/83	Hosoynia - Sharkia	50000
A. Arshraf	30/7/84	Minia El-Kamh- "	50000
M. Abd El-Rahman	30/7/84	Abu Hamad - "	20000
M. Abd Rabu	30/7/84	Abu Keber - "	25000
E. Said	30/7/84	Abu Hamad - "	25000
E. Aly	17/1/84	Osem - Giza	3500
S. Abu Hamer	17/1/84	Mansouria - "	15000
W. Tadros	30/5/84	Manashy - "	50000
F. El-Kharsa	30/5/84	Osem - "	15000
A. Abd Allah	19/10/83	Kafer Saukr - Qalubia	40000
M. Asser	27/6/84	Qalub - "	100000
B. Abd El-Meged	22/8/84	Kafer El-Sheik	15000
H. Shalaby	17/9/84	Damanhour - Behera	6200
A. Abbas	17/9/84	Kotor - Gharbia	60000
A. El-Salamony	17/9/84	Samanod - "	20000

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4- Loans at the project level

No	Name	Delivering date	Location	Value
1	H. Abd El-Salam	/11/83	Kafer El-Dāwar-Behera	15000
2	M. Saadawy	25/9/84	Shabrakhet - "	25000
3	M. Abd El-Nabi	25/9/84	" - "	25000
4	G. El-Nashar	26/9/84	Itay El-Baroud - "	10000
5	M. Awad	2/9/84	Delengat - "	50000
6	H. Sultan	27/9/84	Zefta - Gharbia	60000
7	F. Omer	28/9/84	Mahala - "	8000
8	A. Zayd	28/9/84	Kotor - "	25000
9	S. Saed	27/7/83	Toygh - Qalubia	10200
10	H. Ahmed	21/8/84	" - "	50000
11	S. Ibrahim	16/8/84	Kanater- "	50000
12	A. Sloum	28/8/84	Kafer El-sheak	25000
13	A. Yany	16/8/84	Abu Korkas - Minia	20000
14	M. Taha	20/8/84	Minia - Minia	15000
15	Z. Fahem	19/9/84	Maghagha - "	12000
16	A. Mohamed	18/9/84	Matay - "	15000
17	M. Aly	18/9/84	Der Mewas - "	20000
18	S. Saleh	20/9/84	Beni Mazar - "	5000
19	A. Meawed	20/9/84	" - "	25000
20	F. Ghaubryal	20/9/84	" - "	25000
21	I. Abd El-Azem	20/9/84	" - "	8000
22	S. Khalef	20/9/84	" - "	10000

Total

50820

Grand tota of small workshop:- 2452463 L.E.

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A.4 Land Improvement

THIRD QUARTERLY REPORT
Land Improvement Sub-Project

I. ACTIVITY DURING THE QUARTER

1. Demonstration Program: During the period of July-September, the land leveling demonstration program completed the Spring 1984 work program, carried out ad-hoc land leveling and began work on the Fall 1984 work program. About 6 weeks were spent in down-time for equipment repair and reorganization of the sub-project. In mid-September, the sub-project's field units were able to begin the Fall 1984 demonstration program with the harvest of soy beans. Table 1 summarizes the sub-project's activities.

Table 1: Areas Precision Land Leveled - July/September 1984

<u>Village</u>	<u>Area (feddan)</u>
Seila El Gharbia	72
Abyuha (EWUP site)	60
Sugar Company	45
Beni Abeed	80
El Atlas	12
Beni Suef	15
TOTAL	284

It is interesting that the performance of the sub-project's field units is much improved over performance in the Second Quarter. In the peak season during this second quarter, a total of 310 feddan were leveled; in the Third Quarter, between work program and with a period down, the sub-project was able to level almost as much land. This improved performance may be attributed to several factors including:

1. Repair and maintenance of tractors
2. More tractors were moved to the field
3. Improved field performance of staff
4. Re-organization of sub-project field units
5. Varying earthwork volumes and length of run in the work areas

The maintenance advisor was finally able to begin implementing a program for repair and maintenance of all land improvement equipment. To begin, the advisor was involved in general orientation and initial administrative details. His first real input was in sorting out eh many problems encountered with the delivery of IFB-01 equipment. This included questions regarding the hydraulic system of Spectra Physics on the Ford tractors which were discussed in detail in the previous quarterly report.

The second input, involving assembling and purchasing (for training and maintenance) a set of land tools. Combined with compressors, welders and miscellaneous tools purchased through the RFQ process, a workable mobile workshop has been established. This has resulted in the formation of a special mobile maintenance unit to service equipmnet in Minya, Beni Suef and presently, Fayoum. With access to funds and with two counterpart staff assigned, the advisor has put all tractors in th- field in working order. Concurrently, a central workshop and spare parts area is being developed in the Mudiriah in Minya itself.

In the Second Quarterly Report, it is mentioned that 4 out of 7 tractors in the operating units were in the field working on any given day; by the end of the Third Quarter, 7 out of 7 tractors are moving. In summary, previously 12 tractor/laser units were in the field, four of which were not running. Now 17 tractor/laser units and 4 tractor chisel plow units are in the field, all of which are working. Several other tractors are ready to move to El-Fayoum Governorate and the program there should begin in the Fourth Quarter.

Obviously, the improved distribution and performance of tractors and laser units is not completely attributed to maintenance and repair. After 6 months working in the field, the drivers and supervisors have a modicum amount of experience. Recruiting new supervisors who are residents in the governorates involved and eliminating the use of field supervisors from outside the governorates, has also improved performance. Elements of the reorganization of the sub-project as discussed on the following pages has also improved performance.

2. Reorganization of the Project: In the first half of 1984, the LISP reached the stage where full scale implementation became possible. Several problems which impeded progress were discussed in the previous reports. In the meantime, extension efforts have been impeded for a number of reasons. This has particularly included inputs and coordination from the main office in Cairo. Although activities were taking place with a certain degree of success, it was apparent that the full potential of the project was not being met in the governorate. The abovementioned situation led project management to re-organize the LISP, the extension effort, and the evaluation effort under a more unified structure.

The re-organization is outlined on the attached organizational outline. In summary, all activities have been put under the coordinating and management of LISP. At the field level, supervision and staff continues to work as independent units on a package demonstration program. For the Fall 1984 season, the program centers on land leveling, long basins and mechanized planting of wheat and fowl beans. Other activities will be undertaken independently.

In each village, a mechanization extension officer and a land leveling irrigation extension officer will be active. At the mid-management level, the reorganized staff relies on the extension markaz level coordination. The program is now flexible enough to include both integrated management and allow flexibility for independent activities.

Included in the re-organization, and perhaps one of the weakest links in the decision to program land leveling, operations on the basis of project extension village. Due to the shortage of laser transmitters, only 4 of the 6 villages in Minya Governorate can be covered. The previous distribution of equipment is shown on Table 2 and the new distribution of equipment on Table 3.

Table 2 : Distribution of LISP equipment 3rd Quarter 1984
(previous to sub-project reorganization)

Village	Tractor/laser/ scraper	Tractor/Chisel	Tractor/misc.
Seila El Gharbia	7	1	
Abyuha	5	2	
Beni Suef	4	1	
Mudiriah *	5	1	3

*tractors in the mudirah had maintenance problems , had not been pre-delivered or did not have equipment mounting complete

Table 3 : Distribution of LISP equipment 4th Quarter 1984

Village	Tractor/laser scraper	Tractor/ chisel	tractor / extension use
El Atlas	4		1
Seila El Gharbia	4	1	1
Abyuha	3	1	
Beni Abeid	4	1	1
Beni Suef	4	1	
Fayoum *	4		1

* Two tractors delivered from Gabal Asfar

3. Earthworks Volumes and Length of Haul: The results of the program show a wide range of time required to level one feddan. In Seila El Garbia and in Abyuha, 4 and more hours were required to level one feddan. In Beni Abeid Village and in El Atlas, as little as one hour was required for the same feddan. This variation is expected due to topographic differences in the various areas as foreseen by the basin survey proposed in 1982. Due to a shortage of survey equipment, adequate survey data has not been collected in the PLL demonstration program. Action is being taken to remedy this situation in the future through the procurement of additional survey equipment.

In Ayuha, it is evident that the bulldozer work being undertaken for meska construction is slowing PLL work due to high earthwork volumes and fill areas in the turning areas. In Seila El Garbia, village earthwork volumes are not as excessive as in Abyuha, however, length of run ranges from 200 to 400 meters which causes delays in leveling. In Beni Abeid Village, it has been noted that rod readings prior to land leveling are 90% within the ± 3 cm range. Given that the standard set for a PLL field is 80% or more if rod readings are within the ± 2 cm range, it is evident that much of the land in Beni Abeid does not require extensive land leveling. El Atlas Village and Sida Village in Beni Suef both fall in the topographic variation range which indicate a need for land leveling.

During the next seasons where topographic surveying takes place several months in advance of the land leveling, the sub-project will be able to set priorities in leveling land. A program to evaluate the technical and economic aspects of land leveling has been approved and will be implemented over the period of November 1984 to June 1985. The proposal, including the program methodology is attached for reference. The findings of the sub-project to date indicate that:

1. insufficient data is available for planning land leveling operations
2. pre-leveling surveys are essential for rational planning of land leveling activities, and,
3. land leveling units should probably work on the basis of markaz level or grouped village programs to allow priority areas to be leveled first.

4. Beni Suef Demonstration Program: The Beni Suef PLL demonstration began in the middle of September with the arrival of 1 transmitter, 4 tractor/laser/scrapper units and 1 tractor chisel plow combination. The program began in Sids El Omraa Village near the Sids Ministry of Agriculture Research Station. During the Third Quarter, the participants of the training program leveled 15 feddan.

The staff working in Beni Suef includes: two land improvement engineers, one extension engineer and six drivers. This particular gamaya has a large shed and a storage room which have been assigned to the project. There exists in this the potential to develop a central service area for the governorate.

This village was chosen primarily to facilitate the training program and does not necessarily represent the site of future LISP activities in the governorate. The original selection of a village was to be based on reconnaissance visits to 12 villages in 3 markaz within the governorate. Due to the late start (the fall season was already beginning) and the shortage of transport, Sids was chosen as a site for a training program. Two disadvantages exist in the selection of this village as a demonstration site:

1. proximity to a national research site,
2. irrigation and water lifting constraints in the area.

In view of the proximity to the research station, it is likely that farmers are already exposed to improved farming techniques. In order to expose mechanization and improved irrigation to as many farmers as possible, it would be wise to have project activity in an area where there is not an existing demonstration facility. A second and more serious shortcoming is the fact that small farm size and water lifting constraints are common in the village. Many of the farms are well below the 1 feddan level and are unlikely to be able to use existing mechanization technology. Many of the farmers are using donkey-driven tambours to lift water. It is unlikely that these farmers will benefit from long furrow/basin irrigation based on the flow rates available. While the LISP plans to work in this village through 1984, it is planned that reconnaissance visits or surveys will be undertaken in the governorate simultaneous with the demonstration program.

5. Fayoum Demonstration Program: The project began planning demonstration programs for Fayoum on the basis of the availability of 2 tractor/laser units from the Gabal Asfar farm and the installation of the remaining 2 laser systems from IFB-01 on tractors in Minya Governorate. In Table 3, this distribution was presented. The start-up of this unit and of the unit in Abyuha was based on procurement of two additional laser transmitter units. With the availability of an equipment unit and a supervising engineer, it was decided to begin with a training program and initial pilot demonstration.

In October, the unit will be moved to the governorate. In the meantime, initial reconnaissance surveys and visits, as well as administrative activities will be undertaken. It is intended that initial pilot demonstrations will be held in Itsa Markaz.

6. Equipment Procurement: Four procurement activities were under way during the Quarter. Some maintenance and training equipment awarded to suppliers under RFQ 10-84 has not arrived. This includes the following items: hand tools and accessories (6 sets), electric welders (3), and grease guns and pumps (3). It would be appreciated if the procurement committee would push suppliers to deliver these items.

Several items were being procured for sub-project activities in IFB-03-84. These include the following:

- 2 Tractors 100kw
- 3 tractors 115kw, 4-wheel drive
- 3 tractor loader backhoe units
- 3 mole plows
- 3 rotary ditchers

Sub-project members were involved in technical evaluation of the bids. Unfortunately, there were no responsive bidders for all items.

Although delay in procurement to rebid these items will affect demonstration of certain land improvement methods, the precision land leveling program will be affected.

A Request for Quotations (RFQ) was issued for survey equipment in late September. This RFQ will be evaluated and awarded in the last quarter of 1984. This equipment will allow the LISP to improve its planning and surveying capability. The last item, with respect to procurement is the need to procure motorcycles and fuel bowsers for the field units. These items are to be included in future project RFQs or IFBs.

7. Survey, Design and Planning: Tentative plans were prepared for each governorate and are presented in the second section of this report. No surveys or designs were carried out to prepare this plan. With the arrival of survey equipment, the sub-project will have the capability to rationally plan activities. This shortcoming will be more limiting in the future and will detract from the total impact of the project if corrective action is not taken. The sub-project staff believes that this can be corrected in early 1985.

8. Training and Land Improvement Extension: During the month, a training program in precision land leveling began in Beni Suef. This program is for 3 engineers and 8 drivers. A Mechanic Level II training program was on-going in Manura. A training program in precision land leveling is under preparation for Fayoum Governorate drivers and engineers.

In Table 4 is presented the status of the sub-project's training program.

Table 4: Status of Scheduled Training Activities of 1984

<u>Course Title</u>	<u>No. of trainees</u>	<u>Original Status Schedule</u>	<u>Comments</u>
Shop Administration	4	June	delayed (Nov/Dec)
Parts Administration	4	June	delayed (Nov/Dec)
Mechanic Level II (Beni Suef)	10	July	on-going
Tractor Operator Course (Fayoum)	15	July	completed
Mechanic Level III (Fayoum)	6	July	
Land Leveling Operator Training (Fayoum)	15	July/Aug.	delayed (Oct/Nov)
Land Leveling Operator Training (Beni Suef)	15	May/June	on-going Sept
Welder	6	July/Aug	delayed
Ag. backhoe Operator Training	8	August	delayed
Technical Training (USA)	10	September	postponed (1985)
Technical Training (USA)	10	December	4 trainees
MSc Soil Science	1	September	canceled
MSc Irrigation Engineering	1	September	canceled
Extension Worker Training in Land Improvement and On-farm Irrigation	10	July	delayed (Dec)
" "	10	September	1985
" "	10	December	1985

A.5 Local Manufacturing

Progress / Activity Report - July 1984

Submitted by : Richard K. Berky
Manufacturing Advisor

After presenting a project paper at the ASAE Summer meeting at Knoxville I had conversations with a number of friends from farm machinery manufacturing industry concerning assistance in setting up an Egyptian Local Manufacturers Association with a sponsoring committee in the ASAE and/or ^{FEIE} FEIE. Most of my early contacts were from the farm machinery manufacturing sector of industry. The results here were negative in most cases. The reason given being the current depressed market for farm machinery. One exception was New Idea of Coldwater, Ohio. Their V.P. for Engineering, Bob Skromme is currently chairman of the ASAE/FEIE coordinating committee. He indicated that he would recommend any reasonable proposal to the members ^{and} that New Idea would probably participate. Another was Inter American Transport Equipment Co. - Miami Fla. *with positive response.*

The proposal discussed would ^atop specialists from the participating companies to undertake short term TDY tours in Egypt to study the potential for local manufacturing small adapted machinery in their field of expertise and establish a priority list based on manufacturability, market and servicability and local manufacturing development impact.

The top priority item of equipment would be designed in the U.S. under sponsorship of the originator and prototypes developed by means of a U.S. observation tour at a site designated and administered by the originator. If appropriate a * Village Manufacturing Plant " would be designed, built and preproduction tested by means of a second observation tour and relocated for startup tests in Egypt.

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July Activity Report (continued)

An equitable arrangement for funding these projects by AID and/or the Egyptian Government would need to be designed for execution by the * Local Manufacturers Association, which would ^atopp sponsoring members in manner similar to that of distributing assigned risk policies to insurance companies.

Next I discussed the program proposal with the ** Original Equipment Manufacturers Supplier sector. Here the response was excellent. Some of the respondents were : Drives Incorporated-chain and augers, Herschel Corporation - mower knives, cultivator shovels, discs etc. Power Engineering & Manufacturing LTD - Custom gears, drives etc., ^{w o} Modland Pattern Co. - Patterns, Shlesinger Arkwright Garvey & Fado- Patent services, Self Help Foundation - small agricultural machinery manufacturing systems international. Roscommon Engineering Co. - Universal joint assemblies, and others.

Some spot checks indicated FAS prices of engineered materials i.e. knives and univeral joint bearing assemblies to run between 10% and 20% of current market prices in Alex., indicating substantial savings after import tax and freight deductions. In serval instances current research development coincided with our areas of major interest.

* LMA

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Progress / Activity Report - August 1984

Submitted by : Richard K. Berky
Manufacturing Advisor

Concentrated on manufacturing of threshing machines including :

1. Design and manufacture of toggle clamps for thresher frame welding fixtures.
2. Design and manufacture of modern economically appropriate pattern equipment - match plates, core boxes etc. for thresher 84 production. We have proven the new systems at the Behera Foundary on the simplest and the most complex of the threshing machine castings with excellent results. We designed double shrink wooden pattern systems. From these we now must make several metal sets for each part and continue the procedure for all thresher castings.
3. Initiating and planning the import of special agricultural bearings not in local supply.
4. Planning and commencing a pre-training program designed to support a hands on U.S. observation tour.
5. Started a warehouse for difficult to procure research materials .
6. Initiated a cooperative pre-training program between the Tractor and Agricultural Machinery Testing Station, Behera and Army Factory 999.
7. Supervised necessary drawing changes as required by deficiencies noted during drawing proof build at Behera.
8. Revised, updated and indexed the thresher BOM to reflect the realities of Egyptian usage.

Progress / Activity Report - September 1984

Submitted by : Richard K. Berky

Manufacturing Advisor

Continued the work program initiated in August using wherever possible the pre-trainees and facilities at the Tractor and Agricultural Machinery Testing Station.

1. Procured a research supply of locally produced square and rectangular steel tubing.
2. Designed and built a prototype steel storage rack for various steel i.e. tubing, sheet, plate angle etc. The rack is designed for portability, outside storage and is a vital part of the "village manufacturing" system. The prototype is in use, and development of the concept continues.
3. Designed a system of local manufacture for agricultural or light duty industrial buildings, and completed a specific design for a 50 unit cattle feeding shed. Buildings are portable of steel construction and of locally produced steel. Preliminary work proving the forming of tubing by means of a slip roll forming machine was successfully concluded.
4. Designed a locally produced universal joint slip assembly which will reduce the imported content of the thresher by 150 L.E.

Annex B

PROPOSED ECONOMIC AND TECHNICAL
STUDY OF COSTS AND BENEFITS OF PRECISION
LAND LEVELING USING LASER TECHNIQUES

Egyptian Agricultural Mechanization Project

Prepared by: Dr. Steven Shepley
Dr. Nabil Saif El Yasl
Mr. James McClung
Mr. Ahmed El Fayoumi

September 1984

The Soil Amelioration Organization has undertaken a limited amount of PLL. However, to date, no results from its experience are available. The Delta Sugar Company has been one of the few groups to adopt large scale land leveling as part of a commercial effort. Whether this effort is economically viable remains to be seen.

The Egyptian Agricultural Mechanization Project (EAMP) has undertaken almost two years of field work in precision land leveling in El Minya Governorate. Two papers analysing results have been prepared. In this project, fair data on the topographic conditions in various parts of El Minya Governorate have been collected. An estimate has been made of the potential costs of the operation. Benefits have been estimated only through farmer interviews. Responses have ranged from positive with 30% to 50% reduction in irrigation time, to neutral, almost-nothing-has-changed. An economic and financial analysis needs to take place.

The data base currently available is not sufficient to identify how beneficial land leveling is. The EWUP contention that land leveling is only one part of improving irrigation is probably correct. On the other hand, continued PLL is a step in maintaining the improved irrigation. It is evident that touch up type land leveling must be evaluated as a single activity with associated costs and benefits. The Land Improvement Sub-Project (LISP) has set as an objective the establishment of an evaluation and economic research program for land leveling and improved irrigation. This program should include 2 parts: a long-term program that would be aimed at determining when, where and how often land leveling needs to take place, and a short-term program that tries to quantify the benefits of land leveling before the project ends in 1985.

The benefits of land leveling are expected to fall in three categories: 1) irrigation time and labor savings; 2) production increases and, 3) production and labor benefits from more effective mechanization. Each of these categories is general and may need to be more clearly defined in evaluation and in preparing a final report.

This memorandum reveals the current state of research into precision land leveling (PLL); the project's objectives in land improvement; and a proposed program for an economic study of land leveling. It is evident that in order to allow proper planning and decision making with respect to PLL on the part of the Egyptian government, a comprehensive economic and financial analysis of land leveling must be undertaken.

Over the last 10 years, activities related to improving surface irrigation through land leveling and other activities have been the focus of several research programs in Egypt. The private sector has adopted precision land leveling techniques in several areas. Unfortunately, to date, no precise analysis of the costs and benefits of land leveling has been undertaken. A review of the types of activities which have been undertaken is relevant.

The Egyptian Water Use and Management Project (EWUP), which began in the late 1970's and finished its first phase in mid-1984, may be credited with the renewed interest in precision land leveling. EWUP conducted applied research in the effects of land leveling, topographic conditions, etc., in three sites in Egypt. Although PLL was popularized in these areas, conclusive data for the evaluation of land leveling was not collected. The EWUP project considered that improved irrigation required improvement of a wide set of factors including meskas, PLL and water management groups. As such, EWUP evaluated PLL as part of a larger package. In these cases, PLL was recommended in certain cases within a package. Research was carried out over a number of years, often, however, on different sites and with different farmers. In conclusion, although EWUP has laid a solid base of information on three sites, continued research needs to be undertaken.

The Egyptian Major Cereals Project undertook a limited amount of research on PLL as part of a recommended package of practices. EMCIP came up with the hypothesis that present plowing methods tend to make fields bowl-shaped after a period of time. In a general sense, it recommends an initial precision land leveling and follow-up leveling after 3-5 years.

While the first two items are clearly attributed to land leveling alone, the third item is based on the assumption that improved mechanization requires the use of long furrow/basin irrigation systems which have as pre-requisite precision land leveling. Mechanized planting seems to offer one of the greatest potential in increasing production through mechanization. It is proposed that evaluation of the benefits of mechanized planting be included in this effort.

To quantify the magnitude of these benefits, a randomized block testing procedure will be implemented. In standard analysis of variance methodology, two alternative technologies (leveling and no leveling) are factors with location (the two basins where land leveling will take place) as on other factors. All areas will be mechanically planted.

The study then, consists of treatments consisting of one level from each factor. Thus, a 2x4 factorial experiment shall be conducted with two levels and in total, there shall be six treatments. The number of participating farmer (replicates) shall be determined from a pre-test sample to evaluate yield and irrigation time variances among farms with already leveled land and contiguous farms without leveled land in each of the two basins. The final number of replicates shall be determined through the formula:

$$n = \frac{(z(1 - \alpha/2))^2 \cdot s^2}{h^2}$$

where:

n = number of replicates

(z(1 - $\alpha/2$)) = normal distribution probability percentile
(at the 95% probability level, this value is 1.960)

s² = pre-test sample variance

h² = desired confidence interval half-width
(5 to 10% of the mean value)

While the pre-test variances are not yet known, it is expected that the number of replicates will not exceed 5 to 10 farmers for each factor, making a total sample of some 60 farmers.

The yield data for each factor, will be collected by taking four to five randomly selected one square meter plots from each field and weighing the yield and measuring the moisture content. An analysis of variance shall be performed on the plot samples from each factor to calculate degrees of freedom from the treatments and for the residual. Mean square errors and F-ratios shall also be determined. Treatment significance shall be determined through least significant difference tests according to the formula:

$$LSD_i = t_i \sqrt{\frac{(\text{residual DF})}{\text{sample size}} (\text{residual mean square})}$$

The decision rule shall be that a treatment is significant if the mean difference is greater than the LSD at the 95% probability level and shall be judged insignificant when the LSD is greater than the mean difference.

Where treatments are found significant, the sample mean differences shall be assumed as the magnitudes of irrigation time savings and yield increases that will be evaluated at farm gate and equilibrium prices to quantify the land leveling benefits. Costs are then subtracted from benefits to calculate financial and economic rates of return for the land leveling technology.

Costs, both financial and economic, shall be determined using data collected by the LISP operating groups during actual field operations. Furthermore, the paper "A Preliminary Study of a Precision Land Leveling Service" prepared by project staff will serve as a first pass towards quantifying the costs of land leveling. In addition to the standard costs such as fuel and lubricants, depreciation, capital etc. the project will attempt to quantify the indirect costs of land leveling. At present, we believe such costs include cost to the farmer of entertaining LISP staff (tea, cigarettes, etc.), the loss of all or part of a cropping season and additional costs in maintaining precision land leveling, field loss or damage to trees, etc. In conclusion, two costs will be identified: the economic costs to the farmer and suggested costs to be charged or subsidized to the farmer.

Proposed Pre-test Research Program

The pre-test program will center on 4 basins in Seila El Garbia and El Atlat villages in Matai markaz, El Minya Governorate and 2 basins in Beni Abeed Village in Abou Quarbas Markaz. In each village, one basin will be leveled and a second will not be leveled, making a total of 3 leveled and 3 non-leveled basins. In each basin, 10 farms will be studied.

In order to quantify land leveling requirements, topographic surveys will be undertaken in all areas. In order to have relevant comparisons of leveled versus non-leveled land, all areas chosen will have earthworks volumes which are comparable. The 95% confidence interval will be chosen with respect to earthworks volumes in the various areas. The topographic data will be plotted for all areas to identify any predominant slope(s) which may exist. Topographic conditions will also be identified in terms of the percentage of the area falling within $\pm 2\text{cm}$ of the mean field height. In summary, the existing conditions will be identified and quantified in order to select a sample with equivalent degrees of roughness.

The study will also serve as a pre-test in developing criteria for precision land leveling in Egypt. At present, three criteria or methodologies have been in use around the world. The first method is to select on the basis of earthworks volumes. The second methodology consists of utilizing certain criteria such as 80% of rod readings falling within $\pm 1.5\text{cm}$. A third possibility lies in the use of "a field leveling precision index", in centimeters. A comparison of the above and the setting of a standard for determining when PLL should take place is of critical importance.

The critical point of roughness will not be a major factor under investigation. However, in time, studies will have to be undertaken to develop more rational criteria for land leveling.

In the cases of leveled land, the criteria will be that more than 80% of all rod readings will have a range of ± 1.5 cm from the mean. Furthermore, in the cases of leveled land, the check survey will be carried out to ensure criteria are met and to allow calculation of remaining earthworks requirements.

The pre-test areas chosen will all be planted mechanically to wheat. Seeding rates will be determined for each plot tested through the use of meter squares. This method consists of dividing the individual field into a grid of 1 meter by one meter and randomly selecting areas for sampling, the number of samples being based on the size of the field. The actual sample is collected by placing a wooden frame on the selected square and determining the number of seeds or yield by hand.

Aside from earthwork volumes planting method, and crop planted, the basin chosen will be as similar as possible with respect to irrigation. Meska size and farm configurations and layout will be chosen which are as similar as possible. In order to quantify water available, a permanent flume or weir will be placed on the upstream and downstream ends of the meska. This will allow determining how much water is available to the farmers in each basin area. Limitations on flow rate may also be calculated. Two types of water lifting, commonly used in the governorate, pumps, and tambour/gravity will be included. Depending on the actual conditions in the basins under investigation, about 50% of the sample should use one type of irrigation.

The farm size to be chosen for investigation will be based on the records of the Agricultural Department of El Minya. Farms smaller than 1 feddan will initially be eliminated from the study. Such farms are smaller than is practical to mechanize at present. In addition, it is likely that other interventions than land leveling are more beneficial to these farmers.

Based on data collected by the Mechanization Project during the Farm Management survey on the Nile Delta, approximately 69% of the cropped area is in farms between one feddan and 10 feddan in size. In "The State of Agricultural Mechanization in Egypt", published by AMP in 1982, it is stated that the average farm size in Seila El Gharbia village is 1.5 feddan. Therefore

it is intended that the study will concentrate on this type of farm size.

Portable flumes and a stop-watch will be used to collect data on water use on each farm. These data are to be collected from each irrigation. It is estimated that each enumerator will collect data for four farms of varying sizes. Given a rotation of 5-7 days on irrigation, it is reasonable that the enumerator can keep pace. All areas will be zero-grade land leveled and will use the method of irrigation preferred by the farmer.

All farming operations will be recorded. That is, dates, quantities, types, etc. of fertilizers, insecticides and cultivation operations will be recorded as well. While it is not expected that farmers will be receiving outside advice on new technologies, collecting such data will allow identification of interventions which may have affected the study. One variety of wheat will be planted.

One meter squares will be used to determine yield in each area. Four or five such samples per feddan will be taken.

A work schedule for such a program is outlined on the following page. It is expected that the program will be carried out jointly by the three sub-projects under the direction of Dr. Zachariah El Haddan with field supervision by Mr. Said Farid and Dr. Steven Shepley and with Mr. James McClung carrying out computer studies and providing general advice.

STUDY SCHEDULE

- October 10 - Approval of program and selection of 15 enumerators begin manufacture and procurement of commodities
- October 20 - Training of enumerators by Planning and Evaluation staff
- October 15-
December 7 - Topographic surveys, land leveling, and mechanized wheat planting to be undertaken by Land Improvement and Extension staff.
- November 1-
December 7 Identifications of individual farmers to be studied.
- November 1984-
May 1985 Collection of relevant field data.
- May/June 1985 Collect data on crop yields and harvest of wheat.
- June/August Carry out follow-up surveys of all areas.
- June/August Carry out follow-on analysis of maize crop.
- June/August Prepare report and pre-test on wheat crop and present detailed study program for follow-on investigation

The estimated project study budget is summarized on the following page.

BUDGET FOR STUDY

1. Salaries:

Enumerators (12x70L.E./month x 9 months)= 7,560 L.E.

2. Permanent Weirs and Installation:

(12x100L.E./weir) = 1,200 L.E.

3. Portable flumes:

(24x25L.E./flume()) = 600 L.E.

4. Stop watches:

(12x50L.E.) = 600 L.E.

5. Calculators:

(12x20L.E.) = 240 L.E.

6. Farmer incentives:

(60x50L.E.) = 3,000 L.E.

7. Miscellaneous: 5,000 L.E.

8. Supervisors: 3,000 L.E.

9. Soil Surveys/Study: 2,000 L.E.

SUB-TOTAL: 15,640 L.E.

10% Contingency 1,560 L.E.

TOTAL 16,200 L.E.

EXPECTED OUTPUTS

It is expected that the pre-test study data will be used to prepare a report on the technical, economic and financial aspects of PLL in Upper Egypt. The goals of this report will include:

- 1) Identifying the cost/benefit feasibility of precision land leveling
- 2) Determining future research needs and directions
- 3) Identifying potential policy and government intervention with respect to PLL
- 4) Setting a standard for evaluating when and if PLL is required
- 5) Assessing to what extent PLL and level basin irrigation are practical without other interventions in the irrigation systems.

This report will form part of the basis for the Mechanization Project's final report. It is also expected that such a study will allow planning of follow-on projects and other activities.

Annex C

FARM IMPLEMENT MANUFACTURING IN EGYPT

1. The Need for Agricultural Mechanization

Unlike many developing countries, agricultural mechanization in Egypt is a critical component of the national agricultural development strategy. With a population growth rate of some 2.5 percent, and a finite productive land area base that is only 4 percent of the total area of the country, maximum effort must be made to expand the productivity of available agricultural lands. Although Egypt's farm land is among the most intensely cropped in the world, with a cropping ratio of 1.82, domestic supply of food has not kept pace with the burgeoning demand. As a result, there is an ever-widening gap between food production and consumption with increasing reliance on imported foods. To reverse this unfavorable trend, the nation has embarked on a concentrated effort to promote food self-sufficiency through enhancement of land productivity and promotion of improved farming practices. The national campaign to increase agricultural production is a three-sided effort to induce adoption of improved biological technologies (seeds, fertilizers, and pesticides), up-grade management at the sectoral and farm levels, and enhance delivery systems through labor-to-capital substitution in the production process.

The importance of agricultural mechanization is highlighted by three major production constraints.

1:1 Labor Productivity and Cost

During the past decade, there has been a steady outflow of labor from the rural sector, particularly an outflow of adult males. This migratory trend has been instigated, in part, by rapid escalation of the real consumer price index (adjusted for inflation) for rural areas relative to significantly lower price increases in the urban centers. Another major factor affecting the farm labor emigration rate has been the growth of higher paying employment opportunities in neighboring oil exporting countries of the Persian Gulf.

Labor emigration has created labor shortages and upward pressure on wages during critical periods of the agricultural season which occur in May and during the fall months of September, October, and November.

Seasonal labor shortages and high input factor cost has reduced farm income through increasing costs of production in a labor-intensive farming system and increased field losses from an inadequate labor supply during periods of peak demand.

1.2 Relating Opportunity Costs of Animal Labor

High population growth rates and relatively static domestic production of animal products have accelerated inflationary price trends for meat and milk in the domestic market. The result of these changes in supply/demand and prices for animal products is a rising opportunity cost of animal labor, represented by forfeited production of milk and meat. These trends have made animal draft, the traditional power source on Egyptian farms, unprofitable. The relative changes in input power costs are summarized in Table 1.

Table 1
Relative Cost Shares of Human Labor
Animal Draft, and Mechanical Energy
in Egyptian Agricultural Production
(Percent of Total Costs)

Year	Human Labor (HL)	Animal Draft (AD)	Machine Energy (ME)	Ratio AD/HL	Ratio AD/ME	Ratio ME/HL
1960	23	23	0	1.00	0	0
1970	34	17	6	0.50	2.83	0.18
1977	35	9	23	0.26	0.39	0.66
1979	36	10	22	0.28	0.45	0.61
1982	38	8	27	0.24	0.30	0.71

Source: Computed from Ministry of Agriculture Data

1.3 Low Output Growth of Major Crops

During the decade of the 1970's, output of major cereal and fiber crops has been relatively stagnant. Low rates of output growth are attributed to a number of internal and

Internal factors related to the soil as well as to on-farm cultivation practices. Packages of biological inputs have been developed through various research efforts. Proven mechanical inputs are urgently needed to enhance the delivery efficiency of these yield-increasing biological packages and to improve on-farm management efficiency of farming operations.

2 Types of Mechanization Benefits

Mechanization benefits have been found to occur in the following categories:

2.1 Agronomic

Yields are increased through improved tillage and cultivation practices, including technological optimization of plowing and seedbed preparation, mechanized planting and cultivation, and soil improvement.

2.2 Cropping Calendar Optimization

Research conducted in Egypt and elsewhere has indicated significant yield increases through timely planting and harvesting. The timeliness of planting permits plant growth to proceed in concert with optimal climatic conditions. Harvesting at the correct time reduces losses through crop

recovery at a much lower cost, thereby reducing shattering incidence. Mechanization of labor-intensive operations can reduce the time required for both harvesting and seedbed preparation for the subsequent crop, thus allowing the farmer to take advantage of seasonal periods most conducive to plant flowering and growth with improved yields. Shortening the farming operation will also affect cropping intensities (ratio of cropping area to cultivated area) by increasing the number of crops grown in an agricultural cycle.

2.3 Animal Product Loss Recovery

It has been demonstrated through farm management surveys that draft animals consume more feed and produce less milk and meat than livestock not used for draft purposes. Increased mechanization will remove animals from plows and irrigation devices, thereby generating increased output for home consumption and the domestic market.

2.4 Farm Labor Productivity Enhancement

Productivity enhancement will increase output per worker-hour, reduce on-farm labor costs, and recover production losses caused by labor shortages during peak-demand periods.

Experience over the past decade has shown that Egyptian farmers are efficient and rational economic operatives; empirical studies reveal that farmers have been maximizing their returns to available resources and that enterprise profitability is a key determinant in their resource allocation decisions. To date, some 83.2 percent of randomly sampled farmers in the Nile Delta have adopted mechanized tillage and 67.4 percent have adopted mechanical water lifting practices in place of animal draft. The reasons most frequently given by farmers for these changes in cultivation practices is the high cost of animal labor when compared with mechanical alternatives.

The random sample also revealed that 70.7 percent of the farmers have adopted the use of stationary mechanical threshers because of the high cost of alternative labor-intensive threshing operations.

From the empirical evidence gathered to date, Egyptian farmers appear eager and ready to change their cultivation practices when the marginal rate of return of the technological innovation is at least 2. This means that the propensity of farmers to substitute capital for labor in adopting agricultural mechanization occurs when they can realize a net return of at least 2 Egyptian Pounds (LE 2.00) for every LE 2.00 of invested capital.

Table 2, below, illustrates the history of agricultural mechanization adoption with marginal rates of return. Technologies denoted by the asterisk (*) have already been adopted by participating farmers. Those without this designation have been refused because of low marginal rates of return.

In addition to the agricultural mechanization technologies which have already been demonstrated and accepted by farmers, profitable use of other implements has also been identified through various Agricultural Mechanization Project research efforts. Mechanical planters for maize, soybeans, peanuts, and cotton will result in production cost savings from a 30 percent reduction in seeding rates as well as increased yields when used in conjunction with improved seed varieties. Mechanical planting also provides the added advantage of facilitating even row alignment, needed for mechanized harvesting operations during periods of labor shortages and high costs.

Another significant new development is the design of an improved tillage instrument to replace the standard Behera-type chisel plow. This implement, the TTS has shown considerable advantages over existing chisel plows. In various tests, use of this improved plow resulted in breaking up the entire plot surface with one pass and less draft. Operating at a recommended speed of 5 to 6 km/hour, use of the 1.6 meter implement costs LE 4.53 per feddan vs. LE 10.16

Table 2

On-Farm Returns from Agricultural
Mechanization technologies Intro-
duced in Egypt
(£E/Acre)

Technology	Animal Loss Recovery	Labor Cost Savings	Increased Production	Total Benefits	Total Costs	Net Benefits	Margin Return
1. Clover irrigation by Pump	14.68	4.80	19.59 ^{1/}	39.25	4.28	34.97	9.77
2. Cotton Irrigation by Pump	48.58	4.68	43.87 ^{2/}	97.13	15.84	81.29	5.73
3. Cotton Stalk Cutting by Mower	-	13.23	-	13.23	4.27	8.96	6.13
4. wheat Planting by Seed Drill	-	2.17	86.51 ^{3/}	88.68	10.99	77.69	8.07
5. Mechanical Tillage for Cotton	-	-	74.10 ^{4/}	74.10	29.93	44.17	2.48
6. Wheat Harvesting by Mower	-	23.01	-	23.01	7.18	15.83	2.70
7. Wheat Harvesting by Combine	-	61.63 ^{5/}	-	61.63	55.37	6.26	7.00
8. Rice Harvesting by Mower	-	22.17	9.65 ^{6/}	31.82	8.65	23.17	3.00
9. Rice Harvesting by Combine	-	73.60 ^{5/}	26.21 ^{6/}	99.91	57.78	15.92	1.00
10. Wheat Irrigation by Pump	-	14.86	6.16	21.02	6.60	14.42	2.00
11. Threshing wheat by drum thresher	-	38.61	-	38.61	14.68	23.93	2.00

1/ Yield increase of 1.03 tons per acre

2/ Yield increase of 117 kgs per acre

3/ Grain yields increase by 585 kgs per acre
Straw yields increase by 1.17 tons per acre
Seeding rate is reduced by 33 kgs per acre

4/ Yield increase of 19/ kgs per acre

5/ Includes labor input cost savings and
mechanical thresher cost savings.

6/ Rice grain loss recovery

*Financially feasible and adopted.

Source: Egypt Agricultural Mechanization Project
Farm Management Survey 1981-82
Field Trials and Demonstrations

for the improved plow. Using the farmers' decision-making criterion of at least LE 2.00 for every LE 1.00 invested, the calculated marginal rate of return of the improved plow (2.24) would appear feasible. Draft requirements for this improved tillage instrument are 40 percent less than for the commonly-used chisel plow. And the requirement of only one pass to achieve desired soil tilth vs. two passes for the latter implement makes this technological improvement significantly more economical to use.

4 Economics of Agricultural Mechanization

The mechanization component of Egypt's multi-phased program to increase agricultural production has been found essential to achieving production benefits of the biological improvement package that will be introduced over the next five years. Proof of this assumption was found in an analysis of marginal rates of return of improved seeds, fertilizers, and pesticides with and without the mechanization component. The results of this analysis are in Table 3.

Summary Returns for Some Major
Crops With and Without Small
Scale Mechanization

Crop	Without Mechanization	With Mechanization
Wheat	0.37	29.78
Maize	0.64	6.27
Rice	1.63	16.07

Source: Egypt Agricultural Mechanization Project
USAID/Agriculture

From the foregoing analysis, it is evident that small scale mechanization is essential to realizing the financial benefits of production increases from improved biological inputs. Without mechanization, income improvements from increased production will be negated by the scarcity and high cost of farm labor and high draft animal opportunity costs. Thus, mechanization of Egyptian agriculture is not only desirable but essential to improving production and farm income.

5 Supply and Demand for Farm Implements

Factors affecting farmer decisions with respect to adoption of new technologies have been explored in preceding sections. This section provides a quantitative estimate of farm implement supply and demand in Egypt.

Supply and Demand for Major
Agricultural Machinery
(Units per 1,000 Acres)

Type	Current	Required 1/
Tractors	7.30	6.30
Plows	6.80	7.45 2/
Mowers	0.02	2.72 3/
Pumps	163.90	267.16
Sprayers	2.40	3.74
Threshers	1.50	3.82 3/

1/ Represents required density of working units which must be maintained. Wearout periods are:

-Tractors:	8,000	hours
-Plows:	2,500	hours
-Mowers:	2,000	hours
-Pumps:	2,000	hours
-Sprayers	2,500	hours
-Threshers	2,000	hours

2/ Requires shift from current to improved technology

3/ Urgent need to expand availability of harvesting systems

Source: Egypt Agricultural Mechanization Five Year Plan

6 National Policy for Farm Implement Manufacture

Given the criticality of farm implements in realizing Egypt's food self-sufficiency goals, priority is to be given to local manufacture of essential farm implements identified in the previous sections. Currently most implements in use, with the exception of plows and threshers are imported. As it is expected that the growth of mechanization will proceed rapidly on Egyptian farms due to labor and animal draft shortages and high costs, the stated policy of the Government is to encourage and facilitate local manufacture of essential implements in sufficient quantities to move the country from import-dependency to self-sufficiency. The projected demand

For implement units in the... at units and... new units to reach required implement density levels. It is recognized that development of local manufacturing capabilities must proceed in an orderly manner. Thus, it has been decided to give highest priority to implements designed to alleviate key production constraints and to implements which have been successfully demonstrated and adopted at the farm level. These include:

- improved plows
- mowers
- water pumps
- cultivators
- sprayers
- tractors

It is expected that implements will be of simple, practical design which can be manufactured from locally available materials in small factories and workshops. There is an abundance of available credit facilities to serve investment needs in both the public and private sectors and the full support of appropriate Government agencies, laws, and institutions shall be made available to interested potential manufacturers upon investment program approvals under the auspices of Law 43 and other pertinent legislation.