

PROJECT APPRAISAL REPORT (PAR)

PAGE 1

1. PROJECT NO. 663-55-130-162	2. PAR FOR PERIOD: 10-31-74 TO 5-1-76	3. COUNTRY ETHIOPIA	4. PAR SERIAL NO. 76-4
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5. PROJECT TITLE
 ADA DISTRICT DEVELOPMENT PROJECT (ADDP) 23p

6. PROJECT DURATION: Began FY <u>71</u> Ends FY <u>T.Q.</u>	7. DATE LATEST PROP 9-23-75	8. DATE LATEST PIP -	9. DATE PRIOR PAR 10-31-74 (75-7)
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10. U.S.(000) FUNDING	e. Cumulative Obligation Thru Prior FY: \$ <u>G-1,553</u> <u>L 569</u>	b. Current FY Estimated Budget: \$ <u>293</u>	c. Estimated Budget to completion After Current FY: \$ <u>12</u>
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11. KEY ACTION AGENTS (Contractor, Participating Agency or Voluntary Agency)

a. NAME	b. CONTRACT, PASA OR VOL. AG. NO.
NEAR EAST FOUNDATION	HOST COUNTRY

I. NEW ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION

A. ACTION (X)			B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
USAID	AID/W	HOST		
X		X	Off-shore procurement of spare parts required for maintenance of Jeep G-J5's.	7-76
		X	Management of Ethiopian staff problems and accommodating trained manpower staff shortages at ADDP headquarters.	9-76
X			Monitoring completion (in Dec. 1976) of MSU/IDR socio-economic research final report.	12-76
		X	Study and documentation of project components by EPID in order to facilitate replication of successful project methodologies in other development areas.	12-76

12. REPLANNING REQUIRES
 REVISED OR NEW: PROJ PIP PRO AG P/O/Y P/O/C P/O/P

13. DATE OF MISSION REVIEW: 6-25-76

PROJECT MANAGER: TYPED NAME, SIGNED INITIALS AND DATE: PETER W. SHIRK *Peter W. Shirk*
 REGIONAL DIRECTOR: TYPED NAME, SIGNED INITIALS AND DATE: JOHN L. WITHERS *John L. Withers*

II. PERFORMANCE OF KEY INPUTS AND ACTION AGENTS

A. INPUT OR ACTION AGENT CONTRACTOR, PARTICIPATING AGENCY OR VOLUNTARY AGENCY	B. PERFORMANCE AGAINST PLAN							C. IMPORTANCE FOR ACHIEVING PROJECT PURPOSE (X)					
	UNSATISFACTORY		SATISFACTORY			OUTSTANDING		LOW		MEDIUM		HIGH	
	1	2	3	4	5	6	7	1	2	3	4	5	6
1. Eddie F. Daniel - Credit, Marketing Cooperatives											X		
2. Gilbert Muhr - Extension Agronomist				X									X
3. Russell Parker - Ag. Engineer			X					X					
Don Schmidt - Production Agronomist					X				X				

Comment on key factors determining rating

Dr. Daniel was to be instrumental in the establishment of a credit program, marketing program, and cooperatives. The proclamation of land reform, in general, and gov't imposed price ceilings plus delays in formulation of regulations for cooperative formation, in particular, caused postponement of progress toward above objectives. As a result, Dr. Daniel was transferred to EPID in April 1976.

Dr. Muhr, serving as head of the ADDP Agricultural Unit, effectively directed the project extension program, assisted in establishing and modifying the ADDP package of practices, and supervised compilation of demonstration data which was conducted throughout the project area. (see page 5)

4. PARTICIPANT TRAINING				X							X			
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Comment on key factors determining rating

Funding has been provided through the project for short term training programs and observational visits to development projects in Kenya. The training, especially when conducted in other countries, broadens the perspective of the participant by introducing new approaches within his field of expertise, with the ancillary advantage of not requiring the employee to remain absent from project activities for long periods.

5. COMMODITIES				X										X
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Comment on key factors determining rating. All commodities intended for the project had arrived or were in the process of arriving during the period covered by the previous PAR, except for replacement parts for project GJ-5 Jeeps. The loan TDD expired before the needed parts could be shipped, which has resulted in serious maintenance problems. Action is being taken to procure spare parts through the project grant component.

6. COOPERATING COUNTRY	a. PERSONNEL													X
	b. OTHER EPID Linkages						X							X

Comment on key factors determining rating

(a) Personnel - Despite the considerable progress toward project objectives made during the remainder of 1974 and 1975 (see Annex I) personality difficulties between management and staff emerged which resulted in reduced morale on the part of project staff and subsequent decline in control of project activities by top management. Some project staff, left the project largely as a result of these management/personnel problems, and in June 1976 the project coordinator resigned and was replaced. These problems have accentuated an already serious trained manpower shortage. Staff shortages have already prevented the development of an effective experimental component within the ADDP with a suitable documentation capability. The administration and implementation responsibilities of the project have drawn heavily on the resources of the current staff. The new project coordinator is initiating measures designed to address remaining ADDP personnel problems. (see page 5)

7. OTHER DONORS	Intermediate Contractor -						X						X	
	NGEF East Foundation (NEF)													

(See Next Page for Comments on Other Donors)

AD 1630-0310-70)	PROJECT NO.	PAR FOR PERIOD:	COUNTRY	PAR SERIAL NO.
PAGE 3 PAR	663-55-130-162	10-74 - 5-76	ETHIOPIA	76-4

M. F. Cullinane's Comment on key factors determining rating of ~~ETHIOPIAN~~ NEF

None of the contract technicians listed (under A.1,2,3) above were recruited by the NEF. All technicians had been recruited by TransCentury or Glapp and Mayne. Therefore, the role the NEF has assumed in conjunction with the ADDP has been largely restricted to provision of administrative support which has been satisfactory (see ADA PAR Serial No. 75-7 for evaluation of Glapp and Mayne).

III. KEY OUTPUT INDICATORS AND TARGETS

A. QUANTITATIVE INDICATORS FOR MAJOR OUTPUTS		TARGETS (Percentage/Rate/Amount)					END OF PROJECT
		CUMULATIVE PRIOR FY	CURRENT FY '76		1/ FY '77	FY '78	
			YO DATE	TO END			
Number centers operational	PLANNED	6	7	7			7
	ACTUAL PERFORMANCE	6	7				
	REPLANNED			-	-	-	7
Kilometers of penetration road constructed.	PLANNED	30	50	55	80	103	105
	ACTUAL PERFORMANCE	32	44				
	REPLANNED						
Number participating farmers	PLANNED	1280	-	2304	3328	4352	10240
	ACTUAL PERFORMANCE	127					
	REPLANNED			3/ 144 PA's	144	144	144
Warehouse/office construction	PLANNED	4	5	6			6
	ACTUAL PERFORMANCE	5	5				
	REPLANNED						
B. QUALITATIVE INDICATORS FOR MAJOR OUTPUTS		COMMENT:					
1. Increase in Production		See Annex II p. 1,2					
2. Increase in Net Incomes (Increased net incomes although not listed as a project output is included in this section due to the close connection between production and incomes, and the recognition that increased production without increased net incomes is not a viable project output).		COMMENT: See Annex II p. 2,3,4					
3. Experimentation and Local Farmer Participation		COMMENT: See Annex II p. 1-9.					

H. 7. Continued: Comment on key factors determining rating of Other Donors

III. KEY OUTPUT INDICATORS AND TARGETS (CONT)

A. QUANTITATIVE INDICATORS FOR MAJOR OUTPUTS		TARGETS (Percentage/Rate/Amount)					END OF PROJECT
		CUMULATIVE PRIOR FY	CURRENT FY 76		FY 77	FY _____	
			TO DATE	TO END			
Water Development: Deep Wells	PLANNED	3	4	4/	--	--	--
	ACTUAL PERFORMANCE	3	4				
	REPLANNED			2/	--	--	--
Ponds	PLANNED	3	4	4/			
	ACTUAL PERFORMANCE	3	4				
	REPLANNED			2/	--	--	--
Spring Development/ Protection	PLANNED	2	2	4/	--	--	--
	ACTUAL PERFORMANCE	2	2				
	REPLANNED			2/	--	--	--
See narrative supplement of progress toward project targets in Annex I	PLANNED						
	ACTUAL PERFORMANCE						
	REPLANNED						
B. QUALITATIVE INDICATORS FOR MAJOR OUTPUTS	COMMENT:						
1.	COMMENT:						
2.	COMMENT:						
3.	COMMENT:						

IV. PROJECT PURPOSE

A. 1. *Statement of purpose as currently conceived.*

2. *Form as to PRDP?* Yes No

To develop and test in the Ada District, new technology, local institutions and delivery mechanisms which are financially, technically and administratively reproducible by the GOE within the Ethiopian context and which will facilitate movement of small holders and former tenants from subsistence to market oriented agriculture.

B. 1. *Conditions which will exist when above purpose is achieved.*

2. *Criteria to date of project toward these conditions.*

1. Cooperatives, or farmers associations, have been established to provide credit and production inputs, to market crops and to disseminate information.

2. GOE agencies working together effectively to achieve project purpose.

3. Net farm income for tenants and small holders increased.

4. Increased diversification of crops.

5. Adoption and replication of selected project techniques and systems in other areas.

6. Research capability developed to measure impact of new technologies and inputs in rural sector.

1. Pre-cooperative organizations are established in each of seven project centers and 127 farmer's associations have been organized. Two cooperatives have been registered in the Ada District, however, little has been done to develop them. Further cooperative promotion activities are pending the development of the new cooperative policy by the GOE.

2. Coordination of research and development activities between the Debre Zeit Experiment Station and the Ada Project is considered to be one of the more beneficial developments of the project design, because of the expanded area and scale in which research and trial results can be demonstrated.

3. Indicators of income growth are to be generated by MSU/IDR socio-economic research and included in Dec. 1976 final report. For assessment of future prospects for income growth in the Ada District, see Annex II, p.2,3,4.

4. The effects of alternative policies on production is also to be measured by MSU/IDR research. (see page 7)

V. PROGRAMMING GOAL

A. *Statement of Programming Goal*

To achieve a primary GOE goal which emphasizes the modernization and monetization of peasant subsistence agriculture by the development of institutions and infrastructure for improving the socio-economic status of small holder and former tenant farmers.

B. *Will the achievement of the project purpose make a significant contribution to the programming goal, given the magnitude of the national problem? Cite evidence.*

Achievement of the project purpose will serve to identify rural development approaches, technologies, and institutions which the GOE, using it's own resources can replicate in other development areas of Ethiopia to increase agricultural production and farmer's net income.

II. 3

Comment on key factors determining rating

Mr. Parker was to assist in the development of small farm machinery suitable for use in the Ada District. Shortly after his arrival it was determined, through discussions with his employer, that his services could be more effectively utilized in supervising the small scale industry component of the MSU/IDR socio-economic research. Upon completion of the research assignment (June 1976) Mr. Parker is scheduled to assume responsibilities in the Rural Artisans Section at WADU.

Dr. Schmidt served as an effective link between the Debre Zeit Experiment Station and ADDP Agricultural Unit in conducting field trials for use in demonstration programs in the ADA District. He departed Ethiopia in June 1975, and was replaced by Dr. Gallagher April 1, 1976.

6. Cooperating Country

(b) EPID Linkage - After the joint USAID/MinAg evaluation in April 1974 and the management adjustments which resulted, direct linkages with EPID were established, project autonomy was eliminated, and through the added coordination of EPID the ADDP became more closely associated with the objectives of the Minimum Package Program (MPP).

- 1/ USAID funding as project specific support for the ADDP will terminate during the transitional quarter. ADDP will also be eligible for additional development assistance to the extent that it is incorporated into the MPP Phase II.
 - 2/ The original program which provided credit directly to individual farm families was redesigned, after the Proclamation for the Nationalization of Rural Lands, so that credit commodities were made available to farmers through the leadership of the 127 peasant associations.
 - 3/ 18 peasant associations, in addition to the existing 127 are expected to be formed with the establishment of the last project center at Yilmo. The 144 peasant associations will incorporate the entire farming population of the Ada District.
 - 4/ Not included in original project design.
 - 5/ In accordance with experimental function of project, additional water development will be initiated in accordance with need, engineering feasibility, and maintenance capacity.
- 6

IV. B.2.

5. To date there has been limited adoption of Ada Project development techniques in other areas of Ethiopia. This is due primarily to the absence of a suitable facility within the ADDP staffing for recording the successes and failures of project activities. EPID is undertaking to conduct studies of various project components which will facilitate replication in other developing areas.

6. Research conducted by MSU/IDR will measure impact of technologies and inputs in Ada District (final report due 12/76). This research component is also strengthening the institutional capacity of the Institute of Development Research for conducting similar studies, where required throughout the rural sector.

7

PROGRESS TO DATE

1. Credit

	<u>ADDP Credit Program</u>		
	<u>1973</u>	<u>1974</u>	<u>1975</u>
Participating Farmers	412	1,095	21,779
Fertilizer (quintals)	1,464	4,380	9,575
Fertilizer value (Eth.\$)	63,532	191,506	478,750
Seeds (quintals)		402	5,700
Seeds value (Eth.\$)		22,305	174,727
Repayment Record	98%	82%	

The credit program as originally designed, provided for the formation and training of ten loan committees which would determine the credit worthiness of Ada District farmers submitting applications for participation in the program. Farmers were provided credit in kind in the form of seeds and fertilizer, small tools and implements through the Agriculture and Inputs Marketing Service (AIMS), in accordance with standard EPID procedures. Supervision of the use of all inputs and assistance in the application of improved farming practices, technology and innovations are provided by U.S. contract and Ethiopian technicians. The credit program is operational in 6 project centers, and 2 sub-centers.

In 1973 and 1974, a 25% down-payment was required of farmers who wished to participate in the credit program. However, the down-payment requirement for the 1975 crop year was waived in order to stimulate timely planting and to minimize delays in input procurement which were anticipated to result from the implementation of land reform. In 1973 and 1974 the number of farmers participating in the credit program exceeded project goals. In 1975 the method of credit distribution was modified to accommodate the transformation within the Ada District to a communal farming structure, also resulting from the implementation of land reform. Development through Cooperation Campaign workers (Zemecha) organized the farming population of the Ada District into 127 farmer associations with a total of 21,779 members. The National Land Reform objective includes directing farmer's associations in cooperative credit and marketing activities and experiments in production cooperation. It is intended that the farmer's associations will gradually take over the marketing as well as the credit activities of the Ada Project, and the financing and management of the project centers.

Thus, the original program which provided credit directly to individual farm families was redesigned so that credit commodities were made available to farmers through the leadership of the various peasant associations. One of the underlying concepts of the peasant association structure is equity among members. Therefore, the credit distributed by the Ada Project to the peasant associations technically became the collective property of the membership.

Although the volume of credit distributed during the 1975 crop year more than doubled over the previous year, the amount of credit available per farmer was drastically reduced (see chart page 1). The procedure for distribution of credit among the membership of the various peasant associations is not yet clear. However, on the basis of fertilizer response trials conducted by the Debie Zeit Research Station and by the Agriculture Unit of the Ada Project, it is fairly certain that the quantities of fertilizer and seeds made available by the Ada Project during the 1975 crop year to the farmer associations, would have a negligible influence on the quantity of production within the Ada District if it was distributed for use equally among 21,779 individual farmers.

The formation of peasant associations and the transformation to communal farming which took place during the 1975 crop year resulted in major adjustments in farming methods as well as disruptions in the method of input distribution to, and application by Ada District farmers. The ADBP units are re-designing credit and extension activities in order to utilize more effectively the input distribution and information dissemination mechanism now available through the peasant association structure.

2. Marketing

a. Commodity Loan Program

In 1974 a commodity loan program was initiated which provided participating farmers with 60% of the prevailing market price for their teff produce without the farmer being required to relinquish ownership. The remaining 40% of the teff production would be sold at a later date when grain supplies were being drawn down and prices were rising. The farmer would be the beneficiary of the increased grain value, minus interest and handling charges.

b. Rebate System

In October 1974 meetings of pre-cooperative committee members were held in all the centers to decide between the commodity loan and rebate system for marketing agricultural production. Committee members in all centers favored the rebate marketing system for 1975.

The rebate system is similar to the commodity loan program in that the Ada Project purchases the produce of participating farmers at harvest time. The production is sold at a later date and the profits are distributed to the farmers less handling and storage charges. With the rebate system, however, the farmer relinquishes ownership of the commodities immediately after they are sold to the project. If the sale price of the commodities remains the same or falls below the price paid by the project, the project absorbs the loss.

The rebate system was intended to reduce the risk to the farmers in order to stimulate increased participation by Ada District farmers, and to build the confidence of the farmers in the overall development activities of the Ada Project. At the beginning of the year purchase of agricultural production for the rebate system progressed smoothly. However, the government shortly thereafter implemented a new commodity pricing policy which fixed price ceilings at a level lower than that at which the project had been making purchases. Farmers stopped selling their produce to the Ada Project staff at the various centers and much of the production was eventually sold at blackmarket prices considerably higher than government established price ceilings.

The ADDP has not, as a result of the price ceiling, continued to promote the rebate system or found it feasible to initiate alternative marketing programs.

3. Cooperative Formation - (See PAR page 4, Item IV, B-2)Ada District Peasant Associations

<u>Location</u>	<u>Number of Associations</u>	<u>Number of Members</u>
Adulala	9	1,956
Bekojo	13	1,945
Denkaka	5	931
Dire	10	1,909
Dukem	10	1,688
Garbicha	9	1,613
Godino	13	1,716
Gongo	14	3,054
Kajima	6	1,404
Koftu	7	998
Hidi	13	1,695
Wenker	9	1,689
Debre Zeit	9	1,181
Total	127	21,779

Fundamental changes have emerged in the approach to development of cooperatives in the wake of the land reform proclamation. The formation of development center committees and pre-cooperative committees were taken over by peasant associations. However, activities for the development of pre-cooperative societies into registered cooperatives have been suspended in the Ada District until a new cooperative policy is formulated by the GOE.

4. Extension

The agricultural extension unit operates through one hectare fenced demonstration fields located at each of the project centers, each staffed with one extension agent and/or one assistant agent.

Extension methodology, as originally conceived, involved dissemination of improved practices through the model farmer approach. 45 farmers who are fairly representative of the area were selected to become examples of improved farming practices for the area. Extension agents worked closely with the model farmers demonstrating improved seeds and the complete package of practices. Also, central to the extension methodology was promotion of innovations through field days where demonstrations are conducted at demonstration plots at each of the project centers.

In 1975 the total number of field days conducted exceeded the annual target. 35 field days were scheduled and 40 were conducted. Extension activities were disseminated to 4,200 farmers through field days.

In FY 1976 fewer field days were scheduled than in the previous year, but the annual target of participating farmers was increased. 21 field days were programmed for 5,000 participating farmers. To date, 18 field days have been held with the total number of farmers participating amounting to 6,810.

In addition to demonstrations through the one hectare fenced fields at the project centers, approximately fifteen sites within each project center measuring about 10 x 50 meters each have been selected for demonstration of alternative farming practices. The sites are established in fields under cultivation by farmer's associations in order to emphasize, through improved product quality and volume, the advantages of selected agricultural methodologies and inputs. These simple demonstration sites are selected to provide a wide geographic distribution within project centers in order to enable exposure of extension methodologies to the largest possible segment of the farming population.

Since the land reform proclamation with the formation of farmers associations and the shift to communal farming, the method for dissemination of improved agricultural practices has, as a matter of necessity, been modified. The model farmer approach was discarded in favor a strategy of model associations. In addition to his responsibilities involving the one hectare demonstration plots and dissemination of information to all the associations in his area, the extension agent concentrates on establishing one or two **association in his** area as collective examples of good farming.

To date, however, little has been done to coordinate extension activities through the peasant associations in the Ada District. The ADDP staff are currently in the process of formulating an extension policy designed to utilize the peasant associations as the vehicle through which new agricultural technologies will be disseminated. Education seminars are to be conducted by the project staff to educate peasant association leaders in matters relating to general extension objectives, with an emphasis on fertilizer use methodology. Based on the geographic area administered by a peasant association and the amount of arable land within that area, the ADDP staff will coordinate the distribution of fertilizer credit-in-kind to conform with the tested mixes and quantities for the amount and types of land under the administrative control of each peasant associations.

5. Home Economics

In FY 1974, a home economics component was added to the Ada Project activities and incorporated into the Agriculture Division. The home economics program is intended to focus attention on increasing the participation of rural women in development programs. Activities of the home economics unit are conducted by a home economics agent at each of five project centers under the guidance of a home economics supervisor based at the project headquarters. The home economics program emphasizes health services, literacy, gardening, food preparation, poultry raising, and self-help promotion.

a. Health Service

In early FY 1975 the home economics agents participated in a 20 day theoretical and practical training course at the Debre Zeit Health Center. The agents were provided instruction on sanitation, vaccination, first aid, and causes and prevention of communicable diseases. This training equipped the agents with sufficient background to make medical treatment available to the villagers free of charge. In excess of 10,000 individuals have been vaccinated against smallpox and other diseases.

b. Poultry

Improved poultry houses have been built at five project centers with the objectives of introducing new, more efficient methods of poultry raising. These houses are constructed from inexpensive, local materials. Demonstrations involving improved poultry raising and maintenance operations are scheduled for this year.

c. Gardening

16 fields demonstrating vegetable gardening techniques have been prepared by home economics agents in recognition of the significance of home gardening activities within the Ada District. The importance of vegetable cultivation in terms of raising incomes and improving dietary levels is emphasized, in addition to improved gardening techniques. Various vegetable dishes are prepared and introduced to the participating women.

d. Self-Help Promotion

In order to attract additional participants two self-help promotion activities have been established. The activities involve the formation of organizations which generate contributions from the members for use in the event of sickness or death, and for purchasing simple household utensils which are utilized in practicing the improved cooking techniques which the home economics agents promote. Some of the participants from the meetings have applied for loans from the project to start community shops for the sale of consumer items such as soap, oil, salt, coffee, sugar, etc.

6. Engineering

Warehouse and Office Construction

The project goal of establishing seven multi-purpose project centers within the Ada District has been achieved. Warehouses with a 300 MT fertilizer capacity and four room office buildings were constructed separately at each of the first two centers in accordance with plans suggested in the original project proposal. This design was later modified to provide one building which encompassed both the warehouse facility and a two room office. The modified design resulted in a 4 to 6 week saving in time required for construction, in addition to a cost reduction of US\$2,500 to US\$3,500 per center.

Warehouse and office construction has been completed at five project centers, and construction is under way at the sixth and final center. Existing warehouse and office facilities have been utilized by the project at the seventh center and also at 2 sub-centers.

Water Development

Deep Wells - Construction of deep wells has been completed at Dire, Dire Bute, Bekojo, and Adulala. In order to cover operating expenses a fee of Eth.\$0.05 is charged for filling 3 medium sized water containers. The need for deep well construction in the district has been considerably reduced due to the availability of a previously owned private well and other wells which can be used after provision of repairs. In some areas, particularly during the rainy season, project staff have noted that some of the wells are not being fully utilized. Provision of hygiene and health education to communities within the project area emphasizing the advantages of clean water supplies is expected to increase the use of deep water wells. Management of all the project operated deep wells has been transferred to the farmers associations.

Hand Dug Wells - In the southwestern section of the project area the water table is within 5 to 7 meters of the surface. In this location the project is able to cut costs drastically by utilizing manual labor rather than drilling equipment for the provision of wells.

Spring Development and Protection - There are a limited number of natural springs within the project area. They generally provide small quantities of water and are full of leaches and dirt. Two springs have been developed by the project, protected by masonry walls and are yielding about 10 liters of water per second. The project is presently collaborating with the Veterinary Laboratory in order to successfully develop a means of controlling leaches.

Ponds - The project has constructed four ponds along the all weather road connecting Debra Zeit with Bekojo. These ponds have become one of the more popular sources of water for the population of the area. This is largely due to the fact that the farmers are not required to pay operating costs for the pond water they use. To date, area farmers have contributed a significant proportion of the labor and money required for pond construction.

Road Construction - The project goal is to construct 105 kms. of all weather penetration road within the Ada District. The road is to connect all seven project centers thus providing an all weather transportation infrastructure sufficient for supplying improved agricultural inputs throughout the project area, and for transporting production to marketing centers both within the district and the Debra Zeit and Addis Ababa. To date, 44 kms. of all weather penetration road have been completed.

1. Increase in Production

It is unlikely that the project goal of increasing yields by 100% on 30% of the farms in the Ada District will be met by the end of year five. Although the number of farmers participating in the credit program has exceeded each year's targeted objectives, the credit program, as well as the extension component has been active for only three crop years due to delays in project implementation. At the end of FY 1974, the second project year, only 1,095 farmers (which exceeded project goals) were participating in the credit program. Even if the participating farmers all followed the recommended package of practices advocated by the extension unit and increased production by 100%, the number of participants was not large enough to affect 30% of the project farming area. During the succeeding crop year, the implementation of land reform resulted in the formation of farmers associations in the Ada District and in the transformation from individual farming patterns to communal farming. Due to delays in seed bed preparation, excessive amounts of rain fall during seeding, inadequate weeding, lower than normal temperatures, and questionable rates of fertilizer application, the agricultural yield of the Ada District is estimated to have fallen 40% from the average. With only one crop year remaining in the five year project period it is unlikely with the delay in project implementation, and the complete transformation in the traditional farming methods, that the production goals will be achieved.

However, the package of practices developed by the ADDP in collaboration with the Debre Zeit Research Station and the other package projects has been demonstrated to be sufficient for achieving project production objectives. The original project 10 year goal for yields of teff (the primary crop of the project area) utilizing improved package of practices plus custom mechanization was to produce 20 quintals per hectare. When the project was launched teff yields in the project area were averaging 10 quintals per hectare. At the end of the 1974 crop season the average teff yield from 39 demonstrations throughout the project area already amounted to 19.3 quintals per hectare. The 39 locations included project area demonstration fields in which crops are grown under controlled conditions that differ greatly from conditions which prevail in the typical farm plot. However, a significant portion of the 39 locations were in areas cultivated by model farmers which, although exposed to the project extension service, were subject to traditional farming practices. Note should be taken that the yield from the

39 locations was achieved only three years after the ADDP was launched, yet approached the yield expected after 10 years of project activities. In addition, the plots from which the yields were obtained were located throughout the project area, on varying types of soils, at different altitudes, and were subject to varying temperatures and other climatic conditions. It is clear that the ADDP has developed a package of practices which is capable, with sufficient utilization by Ada District farmers, to double production within the Ada District of the primary cereal grain crop of Ethiopia.

2. Increase in Net Income

The original project proposal anticipated an increase of 31% in farmers net incomes at the end of year five of project activities. The projection was based on aggregate production increases which were expected to have materialized after the completion of the fifth year of project activities. As indicated in the preceding section, for various reasons, the increases in agricultural production which were expected to result from project activities will probably not materialize within the allotted time frame. Therefore, the desired increase in farmer net incomes, also will probably not be achieved on time. Annex III illustrates the economic value of fertilizer to the Ada District farmer per dollar invested. The statistics are taken from the results of fertilizer demonstrations performed in 39 locations throughout the Ada District, under a variety of differing conditions. Yields in the 39 locations are significantly increased in almost all cases through the application of the fertilizer package, net returns to the farmer (not counting additional labor costs) are in most cases less than remarkable using the rule of thumb: every dollar expended for fertilizer should yield a four dollar increase in production. However, some of the lowest returns to the farmer are for field peas and horse beans which together account for but a small proportion of the hectareage cultivated by Ada District farmers. In contrast to the rather limited land area used in the production of field peas and horse beans, approximately 37% of the roughly 59 thousand hectares of land cultivated in the project area is used to produce teff.

In addition to the teff production potential demonstrated by the project developed package of practices, an encouraging economic rate of return to the participating farmer adopting the package is also indicated. To double production with improved inputs which cost more than the value of the increased yield, has limited development potential. However, after the value of 2.4 quintals of teff is deducted to pay for the cost of the fertilizer, there remains considerable potential for raising net incomes when applying the project package of practices to teff. As an indication of the income increasing potential of the ADDP package of practices, if the scope of application had been expanded to the 37% of the Ada District hectareage devoted to teff production, and the same increase in yield had been

generated, the value of the increase in teff production at the current GOE wholesale price ceilings would be sufficient to increase the net income of 15,000 participating farmers by ETH.\$315.00 each (an aggregate net increase in income of Eth. \$4,727,546).

Although it is unlikely that the ADDP will actually be able to claim such increases in net incomes for Ada area farmers, by the end of the next crop year it is evident that the project is making significant inroads toward the development of a package combining inputs and techniques which can result in the achievement of project goals. Additional project activities will be required, however, in order to increase the rate of adoption by area farmers.

3. Experimentation

Along with the income and production increasing objectives of the ADDP is the equally important project component designed to test and develop improved development technology. As stated in the 1974 project modification the ADDP, under the direct leadership of EPID, is to serve as an experimental arm of the MPP.

The project has made significant progress in developing and introducing to Ada area farmers feeder roads, extension and credit services, storage facilities, and a program designed to integrate rural women into development activities. However, the project staff has not documented or evaluated all the various project components, with the result that no records of experimental activities are available. The agricultural unit with its staff of field extension agents however, has recorded the results of fertilizer and variety trials which were conducted extensively throughout the district, and the extent to which farmers participated in extension field days.

The absence of trained manpower resources suitably equipped to document and evaluate project activities was and remains the most serious constraint to establishment of the experimental characteristic of the project. Moreover, some units within the ADDP have been hard pressed, because of manpower shortages, just to accomplish project targets. In short, capability for recording data as it related to experimental activities has simply been non-existent.

EPID, in recognition of the lack of institutional capability on the part of project staff to generate experimentally oriented data, has undertaken to assign EPID staff to conduct, in concert with ADDP staff, research studies of various project activities. These activities include: hand-dug wells for irrigation; small pump irrigation farm activity; a river diversion/irrigation project; and documentation of the ADDP road construction program. The formats for the scheduled studies include the gathering of data describing project methodology, cost analysis, technical feasibility, and overall impact on the affected population. Although the experimental nature of the project has not, to date emerged, the completion of the EPID scheduled research studies will generate data of significant utility, suitable for formulating decisions regarding application of similar project components in other developing areas of Ethiopia.

4.0 Local Farmer Participation

In developing and testing new techniques, institutions, and delivery mechanisms for rural development in the Ada District and other areas selected for development in Ethiopia, a necessary component is adoption by the agrarian population. Under what conditions will project beneficiaries begin to share increasing burdens of project costs, participate in project decision making, and assume responsibility for the administration of project facilities and activities? In order to achieve sustained growth that is self-perpetuating, effective mobilization of rural community resources and personnel is mandatory. This involves voluntary participation by the citizenry and contribution of time and resources.

The primary constraint to achievement of increases in net incomes and agricultural production is wide-spread adoption on the part of Ada District farmers of the ADDP package of inputs and practices. The project has already shown that the application of tested combinations of fertilizer, improved seeds and scientific farming methods within the varied climatic conditions and soil types of the Ada area presently has the potential to increase yields and net-incomes to levels that were expected to be achieved only after 9 to 10 years of project activities. To what extent can participation and adoption of improved practices on the part of local farmers be expected?

Participation of Ada area farmers in ADDP extension activities has been encouraging. The number of farmers voluntarily participating in demonstrations of improved agricultural practices has increased each year (see extension section). Of particular interest is the fact that the number of field days scheduled last year was reduced in response to the increasing number of farmers in attendance per scheduled field day.

The credit program has also been well received in the Ada District. The actual degree of farmer participation in the credit program during last crop year is somewhat obscure due to the formation of peasant associations and the change to communal farming. However, in the last three years of project activities the amount of fertilizer taken from the credit department as credit-in-kind has at least doubled each year, and the quantity of fertilizer issued by the project during the third crop year exceeded that of the first crop year by 550%.

Participation on the part of farmers has been solicited by the ADDP concerning construction issues. Prior to construction of penetration roads or center warehouses farmer meetings were held to determine farmer's priorities, building sites and road locations. Such collaboration between project staff and local farmers has yielded beneficial results for both the farmers and the project. Knowledge on the part of the farmers regarding soil quality, location of swampy areas, etc. has been found by ADDP engineering staff to be very useful in selecting areas which result in lowering construction costs. Although original plans to eventually transfer road maintenance responsibilities to the local farmers have not materialized, participation by farmers in road construction activities has been significant. During May and June 1974 fifteen laborers per day contributed to the construction of the Godino road. Residents living in the vicinity of the village of Koftu worked closely with project management in selecting the location of the bridge to be constructed along the road from the Godino area. The interest generated among the local farmers through this collaborative effort resulted in contributions from local residents in labor and materials which reduced construction costs by Eth.\$2,720.00.

The farmers of the Ada District are participating in project activities in increasing numbers, and are demonstrating encouraging interest in adopting improved practices and inputs. The support which area farmers have provided road construction and building construction efforts both in decision making and in actual construction assistance is also an encouraging indication of the development awareness which is prevalent among the rural population. Thus, farmers of the Ada District are demonstrating increasing interest in project activities. The extent to which this interest will be transformed into adoption of improved inputs and practices remains to be seen.

Reaching the poorest of the poor: one of the underlying precepts of the rural development effort throughout Ethiopia is that the small scale peasant farmer shall be the primary beneficiary.

The tenant farmer has traditionally been among the poorest of the rural peasantry in Ethiopia. Now that the land reform measures are being applied within the Ada District and the traditional tenancy relationships have been dissolved, the former tenant farmer, although now on a more equal footing with rest of the rural farming population, still composes the most depressed segment of the peasantry. Within the Ada District it has been estimated (Ministry of Agriculture, 1970; Ellis, 1973) that about 78% of the farmers are tenants (or now former tenants). The following table shows the distribution of credit to farmers in the Ada District during the years 1973 and 1974. There is no such breakdown for 1975 due to the implementation of the land reform and the abolition of private land ownership.

Year	Value of Loan (Eth.\$)	Number of Borrowers			
		Total Borrowers	Per cent Landowners	Per cent Tenant-Owners	Per cent Tenants
1973	43,660	412	31.55	10.2	58.25
1974	157,636	1,095	44.50	1.7	53.80

It is clear from the above table that the ADDP is reaching the poorest of the poor, i.e., the tenant farmers. This segment of the population is generally and quite understandably the most reluctant to risk meager accumulations of disposable income on unproven innovations. Yet, despite the fact that the percentage of tenant farmers participating in the program declined during the second year, the fact that over fifty per cent of those who borrowed from the project in both the initial and second project year were tenant farmers illustrates that the impact of the ADDP development credit activities is reaching the proportion of the population most in need of development assistance.

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THE ECONOMIC BENEFIT OF FERTILIZER USED IN
GENERAL CROPS GROWN IN DEMONSTRATION AND TRIALS IN 1974

Crop and Area	Soil Type	Number of Demonstra- tions or Replication	Quantity & Kind of Fertilizer Used/Ha.	Yield in Qt. Per Hectare		Increase in Qts. Due to Fertilizer Use	Qts. of Crop Required to Pay for Fertilizer	Return to Farmer Per \$ Invested **
				Check	Ferti- lizer			
Teff, Ada Area**	Light	39	100 kg DAP+ 50 kg Urea	11.6	13.3	7.7	2.4	3.20
Teff, Ada Area**	Black	18	150 kg Urea	9.7	14.6	4.9	2.4	2.00
Bread Wheat, Ada Area**	Light	17	150 kg DAP+ 200 kg Urea	9.6	21.0	11.6	7.7	1.50
Field Peas	Light	3	75 kg DAP	13.2	15.4	2.2	1.1	2.00
Bokojo		3	150 kg DAP	13.2	13.6	4.4	2.2	2.00
Field Peas, *	Medium	3	75 kg DAP	9.7	11.3	1.6	1.1	1.45
Bankaka	Black	3	150 kg DAP	9.7	11.4	1.7	2.2	0.77
Field Peas	Light	3	75 kg DAP	5.2	7.5	2.3	1.1	2.03
Godino	Black	3	150 kg DAP	5.2	6.6	1.4	2.2	0.75
Horse Beans	Light	3	75 kg DAP	10.6	12.3	1.7	1.7	1.00
Godino	Black	3	150 kg DAP	10.6	16.2	5.6	3.4	1.69
Horse Beans	Light	3	75 kg DAP	16.3	19.9	3.6	1.7	2.11
Bokojo		3	150 kg DAP	16.3	20.8	4.5	3.4	1.33
Horse Beans	Heavy	3	75 kg DAP	12.4	17.8	5.4	1.7	3.18
Dukem	Black	3	150 kg DAP	12.4	20.7	8.3	3.4	2.44

* Badly damaged by a hail storm on August 25.

** Based on crop return without consideration of additional labor costs.