



EXPERIENCE, INCORPORATED

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SEVENTH QUARTERLY REPORT

October 1 to December 31, 1977

Contract AID/NE-C-1217

DRYLAND AGRICULTURAL DEVELOPMENT - PAKISTAN

March 1978

TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. SUMMARY	2
III. QUARTERLY REPORT - Clarence J. Miller, Team Leader	3
A. Activities During the Period	3
1. Staff	3
2. Credit	3
3. Scope of Work	3
4. Impact Survey	3
5. Distribution of Farm Inputs	3
6. Farmer Profiles	3
7. Benchmark Survey	4
8. Marketing	4
9. Project Accomplishments to Date	4
IV. QUARTERLY REPORT - Lawrence G. Ulsaker, Agronomist- Punjab Province	4
A. Activities During the Period	4
1. Training	4
2. Engineering	5
3. Research	5
4. Field Trips	5
5. Other Activities	7
B. Operational Situation	7
C. Work Planned for January-March, 1978	8
V. QUARTERLY REPORT - William D. Burgess, Jr., Agronomist- NWFP	8
A. Activities During the Period	8
1. Equipment	8
2. Staff Meeting	9
3. Information Bulletins	9
4. Project Review Report	9
5. Rabbi Adaptive Research Program	10
6. Soil Testing Program	10

TABLE OF CONTENTS (continued)

	Page
7. Rodent Control Training Program	10
8. Analysis of Demonstration Yield Data	11
9. Publication of Agricultural Statistics	11
10. Fruit and Vegetable Show	11
11. Project Funds	11
12. Training	11
13. Fertilizer Calculator	12
 B. Work Planned for January-March, 1978	 12

APPENDIX A

COMMUNICATION ON EXPERIENCE, INCORPORATED
SCOPE OF WORK

APPENDIX B

ACCOMPLISHMENTS OF THE BARANI PROJECT
SINCE THE BEGINNING OF
EXPERIENCE, INCORPORATED PARTICIPATION

SEVENTH QUARTERLY REPORT

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I. INTRODUCTION

The objective of this project is to advise and support the Government of Pakistan (GOP) Barani Project staff in their efforts to plan and implement programs that will improve the efficient production, harvesting, storing, and marketing of crops, and improve the supply of inputs and services in non-irrigated areas of Pakistan.

Personnel serving on the Project were unchanged from the previous quarter and they have furnished most of the information for this report. They are:

1. Clarence J. Miller, Agricultural Economist/Team Leader:

Responsible for overall leadership and coordination of Experience, Incorporated activities in Pakistan, liaison with the Government of Pakistan and USAID officials, and economic studies.

2. Lawrence G. Ulsaker, Agronomist - Punjab Province: Responsible primarily for providing technical assistance for the agronomic program in Punjab Province and administrative support to the Provincial project director.

3. William D. Burgess, Jr., Agronomist - Northwest Frontier Province (NWFP): Responsible primarily for providing technical assistance for the agronomic program in NWFP and administrative support to the Provincial project director.

II. SUMMARY

A highlight of the quarter's activities was the joint evaluation of the Project by the Government of Pakistan and USAID. In its report the evaluation team criticized the slow start: "After two years of implementation, the Project is now achieving the critical output targets planned for the first year."

The report cited the lack of clearly set priorities, though this has been corrected; too wide an area included in the Project; too many farm demonstrations scheduled for the technical personnel available; rapid turnover of staff; financial bottlenecks; too few Project vehicles; and lack of coordination among agencies.

Accomplishments also were cited: farmer awareness of the importance of better seed, fertilizer and cultural practices; new stature for extension agents at the lowest levels; recognition of the production potential of barani areas; and stimulation of research.

The report recommended several actions which are being put into effect. They include: long-range implementation planning; emphasis on studies and surveys of financial and credit needs; better research coordination; curtailing some planned phases of the Project; and continuing the Experience, Incorporated contract to the scheduled termination date, April, 1979.

The accompanying reports by the team leader for Experience, Incorporated and the two agronomists outline the activities for the last quarter of 1977, indicate the progress being made, and list the work plans for the immediate future.

Home office support of the Project included procurement of publications and other supplies for team members and a review of films by Gerald R. McKay, Audio-Visual Specialist. Logos for each province were printed and shipped.

III. QUARTERLY REPORT

Clarence J. Miller, Team Leader

A. Activities During the Period

1. Staff

The two assistant agricultural engineers associated with the Project in the Punjab have been transferred to duties elsewhere. A new assistant statistical officer, Haque Dad Khan, has been added to the NWFP staff.

2. Credit

Interviewing of bankers in the Dina area continued, to find out if agricultural loans are being made.

3. Scope of Work

Suggestions for changes in the Experience, Incorporated scope of work were written and forwarded to other Experience, Incorporated team members and USAID staff for their reactions (see Appendix A).

4. Impact Survey

Plans have been initiated for this measurement of impact of the Project. It should be completed early next spring.

5. Distribution of Farm Inputs

Experience, Incorporated will not have a major involvement in studies of this nature. USAID now has a monitoring program for fertilizer distribution. The World Bank is setting up organizations to handle the production and distribution of HYV seed, so it appears that the present system will be corrected.

6. Farmer Profiles

Several visits to Peshawar have been made to assist Project staff with the tabulation of Farmer Profile data for Rabbi 1976-77. Thirteen hundred questionnaires have been tabulated and will be taken to Islamabad.

7. Benchmark Survey

Dr. Miller has been setting up tables based on the tabulated data for the Punjab. The Peshawar University contract team is finishing tabulations for the NWFP.

8. Marketing

Extra assistant directors of agriculture (EADAs) from barani districts met at Project headquarters to discuss marketing problems. They were asked to obtain data relating to markets with which they are concerned and send the information to Afzal Shah in Rawalpindi. Marketing surveys are expected to be initiated early in 1978 for dryland areas of both provinces.

9. Project Accomplishments to Date

At the request of the USAID Evaluation Team, a report on the accomplishments since the beginning of Experience, Incorporated participation was prepared (see Appendix B).

IV. QUARTERLY REPORT

Lawrence G. Ulsaker, Agronomist-Punjab Province

A. Activities During the Period

1. Training

- a. The 1978 Kharif Production Plan has been submitted and revised; approval is expected at a January, 1978 meeting.
- b. Training pamphlets have been prepared on barani groundnut production, harvesting instructions for Rabbi crop plots, and instructions for laying out Kharif crop plots.
- c. Training pamphlets on barani sunflower, soybean, and forage production are in various stages of preparation.
- d. One hundred field assistants (FAs); 53 agricultural officers (AOs), development assistants, and conservation assistants; 6 EADAs and project managers; and one deputy director of agriculture (DDA) received informal training during field trip visits.

2. Engineering

- a. The groundnut sheller, sizer, and splitter; and the rasp bar cylinder for the Vogel plot thresher arrived. A cast iron belt pulley wheel on the splitter was broken and is being repaired.
- b. The two assistant engineers were transferred and have not been replaced to date. Consequently, Mr. Ulsaker has taken on additional responsibility for the most pressing agricultural engineering jobs.
- c. The improved bullock-drawn groundnut lifter prototype was completed. Mr. Ulsaker spent 32 man hours field testing and altering it, and also spent 42 man hours on another bullock-drawn groundnut lifter design in cooperation with IRRI-PAK. It is difficult to reduce the draft enough for any implement to perform well under adverse soil conditions.
- d. Two groundnut lifting demonstrations with bullock and tractor-drawn implements were conducted.
- e. The rasp bar cylinder has been installed.

3. Research

The experimental plot showing fertilizer placement on wheat was planted on November 20, 1977.

4. Field Trips

- a. November 7. Mr. Ulsaker accompanied Mohammed Amin, Barani Project Agronomist and David Lundberg of USAID to Dougal Farm to evaluate the potential of that site for a permanent Barani Project office.
- b. November 9. Mr. Ulsaker went to Pakistan Agricultural Research Council (PARC) Research Station to field test the prototype groundnut lifter.
- c. November 12. Mr. Ulsaker and Mr. Amin conducted a groundnut digging demonstration for Integrated Rural Development Program (IRDP) project managers, field workers, and cooperating farmers in Dhudial.

- d. November 14 and 15. Mr. Ulsaker went to PARC Research Station to field test the groundnut digger after alterations.
- e. November 28. Mr. Ulsaker went to Chauntra with Mr. Amin to discuss the proposed Groundnut Development Scheme with the IRDP project manager and staff, and to monitor Rabbi plots.
- f. December 4, 5, and 6. Mr. Ulsaker and Mr. Amin flew to Lahore and then drove to Yousafwala with Dr. Dale Sechler and Dr. Herbert Lionberger to discuss with Rehman Chaudry the maize, sorghum, and millet varieties to include in Kharif plans and to arrange for the seed. Drs. Sechler and Lionberger were on TDY from University of Missouri, exploring project possibilities under title 12. Mr. Amin and Mr. Ulsaker met with Malik Afzal, Director-General (Field) in Lahore on Project implementation problems. On the return flight from Lahore they met Dr. Robert C. McGinnis, Associate Director of ICRISAT and gained a better understanding of their training program, which is of special interest to Mr. Amin.
- g. December 6. Mr. Ulsaker went to Dina with Mr. Amin to monitor Rabbi plots, especially the deep chisel plow plots.
- h. December 7 and 8. Mr. Ulsaker and Mr. Amin met with the Director-General of Murree-Kahuta Development Authority (MKDA) in Murree on the Incentive Scheme and the 1978 Kharif Production Plan. They also monitored Rabbi plots in the area.
- i. December 11. A field tour of the Chauntra and Dhudial areas was arranged for Lewis Gulick, House International Relations Committee, accompanied by David Lundberg and Everett Headrick of USAID, Mohammed Amin, and Lawrence Ulsaker.
- j. December 22. Mr. Ulsaker and Mr. Amin went to Campbellpur to monitor plots and check out the tractor and implements before transferring them to Fateh Jang.

- k. December 28. Mr. Ulsaker visited the DDA's farm to field test the groundnut lifter designed and built in cooperation with IRRI-PAK.

5. Other Activities

- a. On November 16 Mr. Ulsaker returned a two-wheeled tractor, which had been borrowed by PARC, to the Pakistan Tobacco Company in Nowshera.
- b. Mr. Amin and Mr. Ulsaker submitted the Incentive Plan and Groundnut Production Plan to USAID. The plans received approval and were discussed with Dr. Miller.
- c. The field plot seeder was calibrated.
- d. Mr. Ulsaker met with Jeffery Malick and Tony Wertz of USAID to discuss the evaluation report.
- e. Mr. Ulsaker discussed the Groundnut Production Plan with Everett Headrick and Ken Lyvers of USAID.
- f. Mr. Ulsaker met twice with Col. Mumtaz Ali Khan and Lt. Col. Syed Akhtar Ali Gilani on implementing the Punjab Barani Commission Report's recommendations.
- g. On December 27 Mr. Ulsaker met with General Mohammad Iqbal Khan, Chief Martial Law Administrator, Punjab, on Barani Project activities. He promised to create a high-powered committee to help coordinate the Barani Project operations by the first part of January.

B. Operational Situation

- 1. The Project office continues to be without telephone service.
- 2. Preparation of good training materials for Rabbi harvest and Kharif planting is on schedule.
- 3. The Oilseed (groundnut, sunflower, and soybean) Production Plan has been incorporated into the Kharif Production Plan.
- 4. The Incentive Plan and Groundnut Production Scheme await final approval from the Chairman of the Barani Implementation Committee.

5. Additional personnel required for the Project include four assistant agronomists with vehicles and a qualified agricultural engineer.

C. Work Planned for January-March, 1978

1. Continue design and development of an improved bullock-drawn groundnut lifter.
2. Conduct a field tour of Rabbi plots and discussions with barani farmers for Everett Headrick and David Lundberg.
3. Follow up on interest expressed by some Barani Commission Report members of implementing more of its recommendations.
4. Brief the Chairman of the Barani Implementation Committee on all aspects of Barani Project activities to date and on future plans.
5. Finalize preparations for Rabbi harvest and Kharif planting inservice training programs.
6. Continue plot monitoring.
7. Train field staff on how to plan and conduct Farmers' Field Days by holding preliminary Field Days in which they participate.
8. Continue efforts to get 1,000 plot identification signs purchased.
9. Replace generator and starter stolen from the tractor located at Dina.
10. Transfer the tractors and implements to their new locations.

V. QUARTERLY REPORT

William D. Burgess, Jr., Agronomist-NWFP

A. Activities During the Period

1. Equipment

The locally manufactured prototype tractor-mounted groundnut harvester received final modifications and field testing and was placed in the Kohat District

for farmers' use. It is intended that this groundnut harvester will be demonstrated in the principal groundnut growing areas of the Province. Arrangements have been made with Engineering Services, the manufacturer in Peshawar, for additional units as orders are placed by farmers.

2. Staff Meeting

A staff meeting was called by the Project Director during the quarter, principally for the purpose of reviewing the work of the five newly assigned assistant agronomists. The assistant agronomists gave progress reports for their respective divisions on the Rabbi season of 1977-78. In general discussions, all activities relating to the field work of the Project were reviewed. This meeting was visited by the Secretary of Agriculture and the Director of Agriculture who talked with the group briefly. The Project Director hosted the group for lunch at his home following the meeting.

3. Information Bulletins

The November and December Information Bulletins respectively entitled, "How to Determine Fertilizer Needs" and "People, Food and Fertilizer", were prepared and distributed to extension workers throughout the Province. The subject area theme, "Fertilizer Mathematics", has been selected for the January 1978 bulletin. Plans were made for the Information Bulletins to be carried (in Urdu) in the monthly "Ziratt-e-Sarhad", Peshawar. The recently begun monthly publication of the Directorate of Extension was reviewed.

4. Project Review Report

Copies of the draft report of the Joint Evaluation by the Government of Pakistan and the Agency for International Development were received at the Project and carefully studied. Following staff discussion, it was deemed desirable for the Director and Mr. Burgess to hold discussions with the Evaluation Team leader in Islamabad. The report was thoroughly reviewed, which resulted in a clearer understanding on both sides of what the final report should reflect.

5. Rabbi Adaptive Research Program

Efforts were continued to encourage and assist the concerned sections of the Agriculture Research Institute, Tarnab, in laying out adaptive research trials of varietal, fertilizer, and seeding rates for the major Rabbi crops. When financial need was indicated procedures were instituted to provide 10,000 rupees (Rs.) to be used to pay costs for transportation, fertilizer, seed, etc. An additional Rs. 3,300 were granted to purchase chemicals needed by the laboratory for testing the estimated 2,000 soil samples to be submitted during the next 12 months.

6. Soil Testing Program

The soil testing program continued to progress. The procedures for handling samples have been established and approximately 800 samples have been processed through the Project headquarters, which includes cataloging, preparation of performer, and packaging for delivery to the soil testing laboratory at Tarnab. Over 1,400 samples were collected for testing in 1977. Target for the Rabbi program is a soil sample from each Project demonstration established, approximately 2,000 samples.

7. Rodent Control Training Program

A four-day rodent control training program was carried out in the three northern districts of Kohat, Bannu, and Dera Ismail Khan. Assisting in the training were two rodent control experts of the Vertebrate Pest Control Centre, Karachi, and the Food and Agriculture Organization of the United Nations. Rodent control is viewed as a major problem in these areas, especially as the acreage devoted to groundnut growing expands. About 175 extension staff members, researchers, soil conservation and IRDP officers received training in this program. A seminar was arranged to be held at the Agriculture Training Institute, Peshawar, but had to be cancelled because of travel demands on the part of the trainees.

8. Analysis of Demonstration Yield Data

An in-depth analysis of results of the Project's crops demonstration program was begun at the Project headquarters by the newly established statistical cell. This is a three-man statistical staff working under the guidance of Dr. Clarence Miller.

9. Publication of Agricultural Statistics

A compilation of agricultural statistics of NWFP for the past five years was submitted to the Government Printing Office. A pamphlet will be produced for general distribution to agriculturists and concerned Government officials throughout the Province. A first proof of this publication has been reviewed and the final publication is expected in the first quarter of 1978.

10. Fruit and Vegetable Show

The Project was invited, along with several departments of the Ministry of Agriculture, to prepare a booth which depicted the work of the Project. Displayed in the booth were artistically prepared district-wide maps showing locations of established Rabbi demonstrations, examples of crops produced by the Barani Project in different districts, Project-produced literature, and field tools used to carry out Project work. The booth was selected winner in "setting and display of special stall".

11. Project Funds

To help meet expenses in the districts for carrying out the programs of the Barani Project, the Project Director received sanction and allocated Rs. 31,000 to the five Provincial EADAs. A similar amount was awarded in the past year.

12. Training

To improve the quality of assistance to farmers growing groundnuts Mr. Burgess undertook the preparation of a farmer bulletin and an extension training manual dealing with the various considerations for production of groundnuts. Both deal with all aspects, from field selection to harvesting and storage.

This undertaking is expected to be printed and ready for distribution to the extension staff and growers prior to the planting season, which starts in mid-March.

13. Fertilizer Calculator

A fertilizer calculator has been prepared with capability of calculating the pounds of fertilizer required to supply nutrients at varying rates per acre. The calculator has been shown to suppliers in Rawalpindi, but unfortunately the paper stock available would not be durable for this purpose. Therefore, consideration is being given to having the calculator produced in the United States. Intentions are to provide the calculator to extension field staff, research agronomists, and to the fertilizer dealers.

B. Work Planned for January-March, 1978

1. Hold Barani Council meeting in February and review Kharif 1978 program of work.
2. Develop a sunflower demonstration scheme and establish demonstrations in 8 to 10 districts in the Province.
3. Take necessary steps leading to the procurement of all seed required for establishing Kharif demonstrations beginning with sunflower and groundnut seed.
4. Conduct district-wide training programs covering establishment of sunflower and groundnut demonstrations.
5. Have 200 pounds of groundnut seed inoculum produced by the Agriculture Research Institute, Tarnab, and distributed to farmers in major groundnut growing areas, through the extension service.
6. Procure and distribute gypsum (Ca SO_4) to each district for application on 280 groundnut demonstrations.
7. Procure from the United States and distribute groundnut seed inoculum for 280 groundnut demonstrations.

8. Finalize with Maize and Millet Research Institute the maize varieties to be used in Kharif demonstrations according to ecological zones.
9. Commence establishment of at least ten chisel plowing trials in each district prior to the Kharif planting season.
10. Hold agronomy staff meeting.
11. Deliver 1,000 demonstration plot soil samples for chemical analysis to the soil testing laboratory at the Agriculture Research Institute, Tarnab.
12. Order training aids from the Fertilizer Institute, Washington, D. C.

APPENDIX A

COMMUNICATION ON EXPERIENCE, INCORPORATED
SCOPE OF WORK

COMMUNICATION ON EXPERIENCE, INCORPORATED
SCOPE OF WORK

Memorandum from Dr. Clarence J. Miller to: David Lundberg,
Lawrence G. Ulsaker, and William D. Burgess, Jr.

Now that the AID Evaluation Team has left us its preliminary recommendations, it is time to begin thinking about modifying the Experience, Incorporated Contract Scope of Work. As noted by Larry Ulsaker, "I believe we are simply spread too thin." Following are the points I made in a letter to the Experience, Incorporated home office:

1. Contract Scope (1a)

a. Crops. Limit the crops on which we concentrate, perhaps to wheat, maize, groundnuts, and sorghum/milletts.

b. Types of practices. Limit the types of practices to a few -- perhaps fertilizer, improved seed, row cultivation, weed and pest control, and moisture conservation.

c. Agent training. Continue to improve agent training.

d. Demonstrations and other techniques. Continue to reduce numbers of plots; concentrate more on utilizing those remaining for more field days and audio-visual messages such as cassettes and radio.

e. Agent incentive. Recommendation is being considered for implementation through monetary prizes in the Punjab, but this method is not favored in NWFP.

2. Contract Scope (1b)

a. Benchmark Survey. Dr. Plunkett and I are preparing tables and a brief writeup for this data. The Report suggests that this task "was not required by the terms of the contract", but my interpretation of (1b) has been that this work fits into that category.

b. Impact Survey. This survey of farmers who have cooperated in barani demonstrations is being planned by USAID and Experience, Incorporated. To lessen the anticipated burden of other Project work on the Experience, Incorporated team, I suggest the lead in this survey be taken by USAID, with Experience, Incorporated staff assisting as needed.

3. Contract Scope (1c)

Increased effort will be expended on these studies in the coming year, but on a carefully delimited set of tasks.

a. Credit. Dr. Riaz Khan and I will complete a survey of agricultural credit offered through banks in the Dina Intensive Development Area. It is anticipated that Dr. Riaz Khan will continue with other aspects of the credit problem.

b. Farm inputs. I will not study the distribution of farm inputs. Of the most important ones, USAID is taking an active interest in fertilizer and is now monitoring its seasonal distribution. The distribution of improved seed is in a state of confusion, but the World Bank is now initiating a program for improved seed.

c. Marketing. In one or more important barani areas in each province, I will study the buying and selling, pricing, transportation, and storage of barani crops, and prepare plans for needed improvements.

4. Contract Scope (1d)

Eliminate the training aspect, as recommended in Report Point 9.

APPENDIX B

ACCOMPLISHMENTS OF THE BARANI PROJECT
SINCE THE BEGINNING OF
EXPERIENCE, INCORPORATED PARTICIPATION

ACCOMPLISHMENTS OF THE BARANI PROJECT
SINCE THE BEGINNING OF
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<u>1. Plots Installed:</u>	<u>Punjab</u>	<u>N.W.F.P.</u>	<u>Total</u>
Kharif 1976	2379	892	3271
Rabi 1976-77	11102	2175	13277
Kharif 1977	2500	678	3178
Planned Rabi 1977-78	2210	2167	4377
			24,103

2. Input and Yield Data for Plots:

a) Report on wheat by C.J. Miller for 1975-76 and several previous years, for Pre-Project plots set up on farmers' fields, in both provinces.

b) Director's report and simple analysis of plot results for Rabi 1975-76, Kharif 1976, and Rabi 1976-77, for both provinces.

c) The Agent's Field Book provides a record of local and plot happenings, and visits by Barani or other personnel.

3. Farmer Profiles:

Descriptive data for cooperating farmers-- over 300 for Kharif 1976 and 1300 collected for N.W.F.P. for Rabi 1976-77. Collection planned for both provinces for Kharif 1977.

4. Training programs implemented in how to plant, handle and harvest the plots, for both provinces for each season (500 Field Staff in the Punjab). Major Rabi crops selected have been wheat, gram (chickpeas) and oilseeds (rape and mustard). Major Kharif crops selected have been maize, sorghum, millet, forages, soybeans and groundnuts.

5. Field Days

A limited number of Field Days based on the trial plots have been held in each province. Participants in these events, which include farmers, local and provincial officials and representatives of the public, number only in the hundreds over the life of the Project. There is also continuous ongoing training in the field by EI and Barani personnel.

6. Training Materials:

a) A movie on wheat plot operation has been completed with Urdu accompaniment and used in the training program.

b) A slide series on laboratory procedures to use for soil samples was completed, with accompanying cassette in Urdu, and has been used in the training program.

c) Training booklets for use by the Extension Field Staff, and containing information on plot techniques as well as technical information on the crops dealt with under the Project, have been published and used each year, and are being improved and updated.

d) A slide series on how to take a soil sample, with accompanying cassette in Urdu, has been completed and used in the training program.

7. Introduction of Crops

a) Soybeans are showing popularity of adoption in adapted areas of the N.W.F.P. Sunflower appears ready to move from the research laboratories to demonstrations and adoption. Groundnuts appear ready for re-introduction in many areas where they are suitable, if certain problems of variety, culture and harvesting can be solved simultaneously. EI imported 2 US groundnut varieties for trial during the past Kharif season, and has informally been involved with the other crops. Farm operation versatility is helped by the variety of new crops and practices which the Project is bringing to the Barani farmer.

b) Over 30 species of perennial legumes and grass cuttings have been introduced and propagated, and an equal number have been introduced through seeds. Close liaison with the provincial Forage Botanists will be needed to make the most from increase of the better adapted varieties.

8. Provision of Machines and Equipment:

a) Extension Field Staff have been promised, and in some cases actually provided with various items making it easier for them to take soil samples, plant seed in plots, and harvest cuttings from the plots.

b) Each province now has several tractors, chisel plows and plot threshers to enable easier handling of large numbers of plots (the purpose of these tractors is not to emphasize diversion of field work from draft animals).

c) Equipment for soil testing in laboratories has been imported, as well as soil probes for use in the field.

d) Machines for moisture testing of grain and oilseeds have been imported, as were small hand planters for planting seed in rows. Office machines imported or purchased in both provinces include typewriters, photocopy and mimeograph machines, pocket calculators and a Polaroid camera.

e) 5 small jeeps were furnished to the 5 Assistant Agronomists in N.W.F.P. who are posted in the field as liaison men with the Project.

f) Four pickup trucks and one carryall vehicle were furnished the Project primarily for use of EI personnel in their official capacities.

9. Machine Modification

a) A chisel plow designed by a local manufacturer in NWFP was field tested and found to be deficient in several ways. In addition, the tractor driver was not fully trained to handle this machine. By now, each tractor in both provinces has a chisel plow and deep plowing plots have been arranged for testing in many locations.

b) A tractor-drawn groundnut lifter was field tested, modified, then further field tested, where it proved minimally adequate in sandy soil.

c) Several animal-drawn groundnut lifters have been repeatedly tested and modified in both provinces. Work is still going on because groundnut harvesting is such a crucial operation and so costly.

d) Trials and modifications of the planters are proceeding since it would be desirable to have one adapted to being drawn by animals.

NOTE: The rationale for trials with tractors and tractor-drawn equipment is that even small Barani farmers often find they can justify the cost of renting a tractor to plow or harvest.

10. Increased Inputs.

a) Due in large part to the effect of the Barani Project program, use of and demand for improved seed varieties and chemical fertilizers has increased markedly in Barani areas. Estimates of this increase can be made but we have not done so. Pesticides on a smaller scale have also had their use increased.

b) Use of tractors in demonstrations has apparently increased the demand by small farmers for access to both small and medium-sized tractors for selected field tasks. Such increased demand need not diminish the use of draft animals for many routine field tasks. The change in demand has not been estimated quantitatively.

11. Soil Testing:

Several hundred soil samples have been taken from Barani plots in farmers' fields, and forwarded for testing to the official soils laboratories in Rawalpindi and Peshawar. Unfortunately, while these samples eventually get tested, the delay in obtaining results has made them less valuable than would a prompt response.

12. Cultural Practices:

In planning and operating test plots, it is always emphasised that proper methods of cultivation must be maintained. Thus, all crops are (a) planted in rows, (b) weeded at intervals, and (c) have applications of balanced fertilizer. It can be observed that some farmers follow these practices in their own operations but that many remain to be convinced that such methods are superior to their more traditional ones.

13. Visits of Specialists:

a) Gerald R. McKay, August 28- September 30, 1976.
Report on communications and extension activities ,
with recommended program.

b) Harold A. Kramer, September 9 - October 16, 1976.
Report on grain storage, farm machinery, bullock-drawn
equipment and the Barani Project office building.

c) Paul Carson, October 1 - October 29, 1976.
Report on a recommended soil testing program, including
details on laboratory analysis and recommendations.

d) Peter H. Van Schaik, November 2 - December 3, 1976.
Report and recommendations for a program to improve
production of oilseeds and pulses .

e) Howard W. Ream, January 24-February 1977. Report
and recommendations for improving forage crop production.

f) William G. Bursch, 10 days, February 1977. Project
Administrator for Experience, Inc. Report entitled
" Barani Project Approach & Operational Plan (Experience,
Inc.) , April 25, 1977.

g) H.Fischer, November - December 1976 (sponsored by AID). Herbicide control experiments in wheat on PARC plots, with Barani Project cooperating.

14. Benchmark Survey:

2600 completed questionnaires were assembled in the two provinces, describing the typical Barani farmers and their farming operations, as well as giving some information about Barani families. Tabulations of data are well along in both provinces, and the analysis and write-up is commencing.

15. Credit Survey:

A study of credit needs and credit provisions is under way in the Dina Intensive Development Area. As the first phase, a questionnaire on institutional credit is being completed by the 11 branches of the Muslim Commercial Bank that serve the area.

16. Market Improvement:

Information is being collected on prices, storage needs and volume of movement in established markets serving the Barani areas. When a need for specified improvements in any market is established, it would be possible for the Project to intervene and supervise the making of such improvements, supported by some financing from the Project.

17. Market Development:

The Province has finalized procedures for acquiring land for 4 new market sites on which to develop feeder markets to serve important Barani areas. The Project proposes an economic feasibility study for each of these markets, followed by an engineering study of the site if the market appears feasible (see my reports on the Daultala market sites).