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NINTH QUARTERLY REPORT

April 1, 1978 to June 30, 1978

Contract AID/NE-C-1217

DRYLAND AGRICULTURAL DEVELOPMENT - PAKISTAN

September 1978

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NINTH 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 essentially unchanged from the previous quarter and they have furnished 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.

4. William G. Bursch, Vice President - Experience, Incorporated:

Project administrator responsible for Project back stop in the United States. Two weeks were spent in Pakistan reviewing the Project and working with other team members on their plans for the remainder of the Project.

II. SUMMARY

The Barani Implementation Committee, which was set up in early 1978, is now called the Agency for Barani Area Development, with the same responsibilities as originally set forth.

As a part of the plan to increase groundnut production, Dr. Miller participated in a program to provide additional credit to barani farmers. Credit was limited to Rs. 500 per farmer.

Work has begun on surveys in both Punjab and NWFP provinces which will provide basic information on marketing of agricultural and other products in barani areas. The benchmark and farmer profile surveys are nearing completion and information for a survey on the impact of the project is now being summarized and measurable information is being put on a computer.

Training programs in the Punjab included special programs for sunflower production, as well as comprehensive training for effective demonstration plots. About one hundred fifty extension field staff received training. Field testing of the IRRI-PAK thresher, hand-operated planters, and bullock-drawn equipment were part of the efforts to improve the use of appropriate technology. New research work has begun on groundnut and sunflower varieties as well as other crops.

The demonstration programs in the NWFP continue on schedule. An accomplishment this past season was a significantly expanded program

of farmer information meetings. The adaptive research, soil testing, and demonstration programs continue to improve in effectiveness. Agronomic training films and other materials were procured from the United States, a new bulletin on groundnut production was published in the NWFP, and special information meetings were held on rodent and bird control.

The visit of Dr. Bursch in April emphasized a general review of the project, participation with team members in making work plans for the next 12 to 18 months, and a review of the need for other consultants during the remainder of the contract. During the two week period, Dr. Bursch met with personnel from USAID, GOP, and the Barani Project, to discuss the problems and nature of barani agriculture and to learn the views of personnel working with these problems. He also made several field trips to sites in Punjab and NWFP. A report of his observations was submitted to USAID in May, 1978.

III. QUARTERLY REPORT

Clarence J. Miller, Team Leader

A. Activities During the Period

1. Developments in Punjab Province

- a. The revised PC-1 for the Barani Project, giving it a one-year extension, was approved in April.
- b. The organization which has been known as the Barani Implementation Committee was changed in May to the Agency for Barani Area Development (ABAD), with Brigadier (retired) Raja Mansoor Ahmad remaining as Chairman (see Appendix A).
- c. The Project received four new vehicles to provide assistance in upcoming field work.
- d. The Barani Economist prepared a PC-1 which increased the sales depots operated by PAD&SC for seed/fertilizer.

- e. The Barani Economist assisted in the preparation of the following PC-1s:
- (1) Horticultural development
 - (2) Introduction to fractional horsepower technology (through Chinese tillers)
 - (3) Establishment of a training institute for extension field assistants
 - (4) Establishment of intensified rural development program
 - (5) Upgrading of occupational skills for men
 - (6) Upgrading of occupational skills for women
 - (7) Para-veterinary training to serve barani areas
 - (8) Program for installation of tubewells
 - (9) Soil conservation program and storage of runoff water in back of mini-dams.
- f. Several hundred books, reports, and publications on economics, statistics, and analysis of Pakistan agriculture have been added to the Project library.
- g. As a part of the plan to increase groundnut production, the Barani Economist participated in a program to provide additional credit to barani farmers. Forms were prepared which depended only on a personal surety basis for obtaining the loan. Four banking companies gave their branch offices special authority to offer this credit, which was limited to Rs. 500 per farmer, and given only in kind. One bank, Habib, reports serving over 250 farmers.

- h. Four economic investigators reported for work in June and are now being trained.

2. Field Trips

- a. April 12-13. Travel to points in the Punjab with Lawrence Ulsaker, David Lundberg of USAID, and William Bursch.
- b. April 16-17. Travel to Kohat, Peshawar, and Abbottabad with Mr. Ulsaker, Dr. Bursch, and NWFEP staff.
- c. April 8. Visited agricultural officials and markets at Chauntra, Daultala, and Dina.
- d. April 30. Visit to Integrated Rural Development Program (IRDP) and market site, Daultala.
- e. May 3. Visit to Karianwala and Shakargarh market sites.
- f. May 6-7. Visited Barani staff in Peshawar.
- g. May 16-17. Visited Karachi. Met agricultural officials at the Investment Advisory Center of Pakistan (see Appendix B).
- h. May 21. Visited Barani staff in Peshawar.
- i. May 28. Visited Fatchjang with Messrs. Ulsaker, Lundberg; Brigadier Mansoor; Everett Headrick of USAID; and John Sullivan, Assistant Administrator of the Bureau for Asia.
- j. May 30-31. Met with Barani staff in Peshawar. Also visited Pakistan Academy for Rural Development to discuss possible involvement in Marketing Survey.
- k. June 8. Visited Economic Research Institute, Lahore, to discuss possible participation in Marketing Survey.
- l. June 11-12. Visited Barani staff in Peshawar.
- m. June 17. Attended inauguration of rural development program in Chakwala.

- n. June 25-26. Visited Barani staff in Peshawar.
- o. June 27. Attended IRRI-PAK thresher demonstration in Rawalpindi.

3. Visit by Project Administrator

D. . William G. Bursch, Experience, Incorporated Project Administrator for the Barani Project, spent approximately two weeks in the country, conferring with USAID and Pakistani officials, reviewing with the Experience, Incorporated and Barani Project staff the plans for activities, and viewing personally the Barani agricultural activities in the field. Dr. Bursch recently prepared for USAID a report containing a summary of his visit and suggestions for future programs.

4. Impact Survey

- a. A preliminary summary of some of the information was prepared and copies were given to Mr. Sullivan and Brigadier Mansoor.
- b. All measurable data from the Survey was put into the Islamabad University computer, and printouts were made.
- c. Respondents were divided into non-adopters of the new technology, and several groups of adopters. Using a stepwise program for multiple regression, a number of variables were correlated with adoption or non-adoption.

5. Marketing Survey

- a. In order to provide basic information on the marketing of agricultural and other products in barani areas, the decision was made to proceed with a Marketing Survey in both provinces (see Appendix C).
- b. Marketing studies already published in Pakistan were reviewed, and summaries were made of points that might be useful in the planned survey (see Appendix D).

- c. Since it was planned that part of the work for the Marketing Survey would be done under contract, organizations in Peshawar, Lahore, and Karachi were approached to discuss their possible participation. It has been tentatively decided that the Economic Research Institute in Lahore will be the chosen organization.

6. Benchmark Survey

- a. NWFP. Tabulations have been completed for three districts/agencies.
- b. Punjab. The Barani Economist and the statistical staff are working with data from the Agricultural Census and other sources to provide comprehensive descriptions of barani farms and farming practices.

7. Farmer Profiles

- a. NWFP. Summary tables have now been completed both for 1976-77 Rabi and for 1977 Kharif seasons.
- b. Punjab. Post-harvest 1977 Kharif forms have been distributed for completion, and both pre- and post-harvest questionnaires for 1977-78 Rabi season have been prepared for distribution.

8. Improving Market Sites

- a. Punjab Government administrative approval for the release of funds to improve four sites was received in early May. The sites are: Shakargarh, Daultala, Karianwala, and Pinanwal. The Provincial Building Department has completed site plans for these four locations, and prepared financial estimates. Unfortunately, due to a temporary shortage of cement in the country, the construction of platforms at those sites could not be undertaken before the rainy season arrived. While the cement situation has now eased, the new fiscal year for the province is now in operation, and release of funds must again be requested.

- b. Dina and Chakwal are now at the stage where site plans can be prepared.

B. Work Planned for July-September, 1978

1. Assist agronomists and advisors in implementation of plans connected with the Kharif season, including utilization of machinery, field tours of plots, harvesting, and rural development efforts.
2. Maintain liaison with staff and officials of USAID, the provincial governments, the Barani Project, and ABAD.
3. Assist Project agronomists, economists, and statisticians in collection, tabulation, and analysis of yield data for 1977-78 Rabi season and previous seasons during the life of the Project.
4. Complete and release Farmer Profile data for NWFP for Rabi 1976-77 and Kharif 1977.
5. Assist agronomists and advisors in establishing coordinated monitoring procedures for all Project field work.
6. Complete field work on the Marketing Survey and initiate data tabulation from completed questionnaires.
7. Encourage and assist in the preparation of site plans and financial estimates for: (a) Dina and Chakwal; then for (b) Sohawa, Chak Beli Khan, Mongowal, and Choa Saidan Shah, when the necessary site locations, clearing of title, and other preliminary matters are completed.
8. Complete a preliminary report, including computer analysis, for the Impact Survey.

IV. QUARTERLY REPORT

Lawrence G. Ulsaker, Agronomist-Punjab Province

A. Activities During the Period1. Training

- a. Participated in a seminar on wheat rust with Dr. G. Bhatti, Agricultural Advisor to M. L. A.; Dr. S. A. Qureshi, Wheat Breeder, Faisalabad Agricultural Institute; the plant pathologist; and others at the deputy director of agriculture's (DDA) farm in Rawalpindi.
- b. Arranged for donation of books, which are listed in Appendix E, from Asia Foundation to the Barani Project.
- c. Participated in sunflower production training field day at the Pakistan Agricultural Research Center (PARC) with Mr. Sulaiman, USAID, for Government officials associated with agricultural development in barani areas of the Punjab.
- d. A barani sunflower production training handout for field staff was developed and will be printed in Urdu and English for distribution.
- e. Provided addresses of United States agricultural implement manufacturers to Mr. Mohammad Ashraf Mirza, Agricultural Engineer Director, Talagang.
- f. Demonstrated proper seed bed preparation techniques for sunflower production and participated in a training program on sunflower production practices for agricultural field staff in Jhelum district at Choa Saidan Shah.
- g. Presented rat control training materials from the Food and Agriculture Organization (FAO) to Brigadier Mansoor, Chairman, ABAD, and discussed means of utilizing them most effectively.

- h. One hundred forty-five agricultural field staff received informal and/or formal training during field trips by William Bursch, Experience, Incorporated Project Administrator for the Barani Project.
- i. The Chairman, ABAD, requested that a section briefly outlining the deterrents to barani area development be included in the PC-1 proposal for Intensified Rural Development Program (Barani Markaz Development Project). "Specific Challenges of Rural Development in Barani Areas" was consequently prepared by Dr. Bursch (see Appendix F). Its aim is to draw attention to some of the major developmental roadblocks which must be overcome. The hope is that it will contribute to the clearance of the PC-1 proposal, thereby allowing work to commence in overcoming these roadblocks.
- j. Several days were spent assisting in the drafting of the PC-1 proposal for Intensified Rural Development Program.
- k. Modified the fertilizer calculator slide rule and distributed it to over 500 field staff.

2. Engineering

- a. Orientation was given to Abdul Razzaq, the new Barani Assistant Engineer (Field), who arrived on June 21, 1978.
- b. Thirty man-hours were spent field testing a new axial flow grain thresher designed by IRRI-PAK and manufactured by Bethlehem Technical Foundation, Rawalpindi, and modifications were recommended.
- c. Assistance was given to Mr. Sulaiman in designing modifications of Earthway's hand-pushed seeder.
- d. Demonstrated the salient features of the Vogal plot thresher and IRRI-PAK's axial-flow thresher to several barani area farmers. Interest among barani farmers for mechanical threshers, reapers, etc. is greater than ever this year.

- e. Several models of Planet Jr. and Earthway seeder were field tested for suitability in planting sunflowers.
- f. Agricultural hand tools and bullock- and tractor-drawn farm implements were arranged for display during the first ABAD meeting on May 27, 1978.
- g. Twenty-five man-hours were spent assisting the PARC research plot engineer in repairing the chisel plow and tractor-drawn field plot planter. This was necessary so these implements may be utilized to put in the tillage research plots on sorghum and sunflowers that were designed in collaboration with Dr. Baz Mohammad Khan, Agricultural Research Council (ARC).
- h. A written tractor-driver examination was designed at the request of the Chairman, ABAD, to be used at tractor driver's training school in Talagang (see Appendix G). Methods of testing practical tractor driver's skills were also discussed.
- i. Assistance was extended to Dr. Homer Hempworth, Agronomist for the International Maize and Wheat Improvement Center (CIMMYT), ARC, in the preparation of a tractor driver's training school to be conducted at PARC.
- j. The Barani Project has received five new jeeps and three motorcycles. One Wagoneer is on the way and five Suzuki pickups have been ordered.
- k. The Vogal plot thresher with rasp bar cylinder was used to demonstrate sunflower threshing at PARC.

3. Research

- a. Two varieties of groundnut (100 pounds of flowrunner and 134 pounds of MC-17) were received from Experience, Incorporated home office in early February, 1978. In March half of each variety was sent to the NWFP Barani Project. In early April the remainder was distributed to the oilseed botanist in Campbellpur and Rawalpindi for seed multiplication and inclusion in variety yield plots.

Extreme drought has had a detrimental effect on the NWFP plots. Most of the Punjab plots are faring better.

- b. Three hundred pounds of Sundak sunflower seed were received from Experience, Incorporated on June 26, 1978 for planting in variety and verification research plots.
- c. Harvested the wheat research plots on fertilizer placement on May 9, 1978. The yield variation due to treatments was non-significant at the 5 percent level. The yield ranged from 2,241.6 kg. per hectare (33.5 bushels per acre) to 4,763.4 kg. per hectare (71 bushels per acre) with a mean of 3,520 kg. per hectare (58.6 bushels per acre).
- d. The Barani Research Liaison Committee met on May 9, 1978 to determine what specific barani agronomic production practices ARC recommends and what experimental trials ARC plans to conduct during the coming Kharif. Since ARC has conducted limited barani crop production research there was little to report.

ARC funds and personnel have yet to be allocated for conducting 1978 Kharif experimental trials but with assistance from the Barani Project Advisor, existing funds are adequate to carry out a deep tillage experiment on sorghum and sunflower.

4. Field Trips

- a. April 5. Traveled to Rewat to evaluate incidence of rust infection on the wheat variety plots and local farmers' fields in preparation for the rust seminar.
- b. April 7. Went to Chowk Pindori to monitor the Bajra-Napier Hybrid forage plots on farmers' fields.

- c. April 12. Visited Rewat, Chowk Pindori, Daultala, Dhudial, Chakwal, Shoun Farm, and Wadala Kas Dam site with William Bursch; Clarence Miller; and Major Aslam, Project Director of the Barani Project, to show representative areas of Barani Project activities to Dr. Bursch.
- d. April 13. Traveled to Chauntra with Dr. Bursch, Dr. Miller, and Major Aslam to show representative areas of Barani Project activities to Dr. Bursch.
- e. April 15-17. Went to Talagang, Kohat, Darra, Peshawar, Tarnab, Nowshera, Abbottabad, Haripur, and Khanpur with Dr. Bursch, Dr. Miller, and William Burgess to visit areas of Barani Project activities in the Punjab and NWFP.
- f. April 24. Visited PARC, Rewat, Dina, and Sohawa, with Brigadier Mansoor and Ali Alam, Assistant Director, Soil Conservation, Lahore, to participate in the sunflower training field day at PARC followed by a tour to observe soil type production potentials and soil conservation problem areas.
- g. May 3. Visited Campbellpur and Massan Abdal with Major Aslam to monitor plot harvest progress, deliver Kharif plot seed and fertilizer, and investigate the possibility of obtaining cooperation from the manager of the Government Bee Farm, Hassan Abdal, in locating beehives near sunflower fields during the coming Kharif.
- h. May 10. Went to Daultala with Brigadier Mansoor and Mr. Lundberg to study the potential of including this area in the pilot rural development program.
- i. May 11. Went to Lala Musa with Brigadier Mansoor and Mr. Lundberg to tour the Lala Musa training institute and assist the director in preparing the PC-1 proposal for Intensified Rural Development.

- j. May 22. Visited Choa Saidan Shah and Jhelum with Major Aslam to observe progress of the sunflower campaign and offer assistance to the Jhelum district extra assistant director of agriculture (EADA) in attending to several unfulfilled obligations.
- k. May 28. Went to the Fatehjang area with Messrs. Sullivan, Headrick, Lundberg; Brigadier Mansoor; and Dr. Miller to observe developmental activities of several GOP agencies.
- l. June 4-6. Went to Choa Saidan Shah with Mr. Sulaiman and Major Aslam to participate in the sunflower training program and seed bed preparation demonstration.
- m. June 10-19. Traveled to Amritsar, Srinagar, Golmarg, and Delhi, India on R&R. The degree of mechanization, especially in tillage and threshing, and of water management in irrigation throughout much of Punjab, India is quite impressive relative to Pakistan. Literature describing all the farm implements and machinery manufactured by Union Forgings, Ludhiana, India, was obtained for use by Barani Project and ABAD personnel.

Informative discussions on farmer cooperatives and credit unions were held in Delhi. A good collection of literature on credit unions from the World Council of Credit Unions, Inc. was obtained for the Barani Project library.

5. Meetings

- a. April 3. Barani Project Director, Barani Agronomist, and Chairman, ABAD, in an attempt to delegate specific areas of responsibility and improve efficiency of operational procedures. Meeting with Messrs. Headrick and Lundberg on alternatives to aborting the 1978 Kharif Project Plan if the required inputs cannot be purchased and distributed in time.

- b. April 4. Brigadier Mansoor and General Rafi Alam, Deputy M. L. A., on Barani Project and ABAD objectives.
- c. April 6. Mr. Skoumal, FAO Community Development Specialist, on cottage industries.
- d. April 10. Dr. Homer Moore, Soil Conservation Service, and Mr. Lundberg, on soil conservation activities to be included in the Intensified Rural Development pilot areas plans.
- e. April 18. Brigadier Mansoor, Dr. Bursch, and Dr. Miller, on pilot area development scheme.
- f. April 19. Brigadier Mansoor and Dr. Shamshad Khan, Oilseed Botanist, Faisalabad, on sunflower production scheme.
- g. April 20. Dr. Bursch, Mr. Lundberg, and Dr. Miller, on pilot areas development scheme.
- h. April 27. D. W. Parry, Marketing Advisor, Massey Ferguson, Switzerland, for Afghanistan, Pakistan, India, and Nepal, on mechanization of barani agriculture.
- i. May 17. Brigadier Mansoor, Mr. Lundberg, IRDP project managers, and Director of Lala Musa Training Institute, on the new PC-1 for Intensified Rural Development of three pilot areas.
- j. May 23. Brigadier Mansoor and Saleem Malik, Consultant to the Edible Oilseed Corporation, on the sunflower production scheme.
- k. June 27. Brigadier Mansoor, Dr. Salimuzzaman Siddiqui, Institute of Chemistry, Karachi, and Saleem Malik, on potential of Peganum harmala as a source of edible oil in the barani areas.
- l. June 28. Invitational machinery demonstration and display field day at IRRI-PAK. Talks were presented by Dr. Amir Khan, Director, IRRI-PAK; Dr. Amir Mohammad, Agricultural Advisor to C. M. L. A.; and Dr. Shamsul Haq, Director, ARC.

B. Operational Situation and Suggestions

1. Situation

- a. Agricultural engineer (design and field) positions are both filled. The Project is still without assistant agronomists or telephone.
- b. Vehicles and motorcycles on board have alleviated most of the transportation shortage. The Wagoneer is expected within a week and five Suzuki jeeps have been ordered.
- c. Seven hundred field plot signs have been delivered.
- d. Most of the fertilizer and seed for the 1978 Kharif Production Plan have been distributed on schedule.
- e. Most of the long outstanding bills have been paid.
- f. A proposal for chisel plow experiments on sorghum and sunflowers has been approved by ARC and will be conducted at PARC under the supervision of the Barani Project Advisor.

2. Suggestions

- a. Barani Project personnel are in agreement to concentrate efforts on assuring that excellent Kharif plots are established and utilized as demonstrations in tours and farmers' field days during the growing season and at harvest.
- b. A good portion of the Barani Project Advisor's time will also be directed toward assisting in the implementation of the Intensified Rural Development Program in the pilot areas upon the approval of the PC-1.

C. Work Planned for July - September, 1978

1. Continue efforts to improve development and efficient utilization of agricultural tractors and implements, both tractor and bullock drawn.

2. Conduct field tours of Kharif plots and rural developmental efforts for USAID and other personnel.
3. Keep the Barani Project Director, ABAD Chairman, USAID Monitor, and Experience, Incorporated Project Administrator briefed on all aspects of Project developmental efforts.
4. Finalize preparations for the Kharif harvest and yield collection and analysis.
5. Continue efforts to collect and analyze the 1977-78 Rabi field plot data.
6. Prepare the 1978-79 Rabi Production Plan and in-service training programs.
7. Prepare preliminary training plans and materials for the assistant agronomists and mobile training teams.
8. Establish coordinated monitoring procedures of all Barani Project field work and those aspects of ABAD field activities in which the Barani Project cooperates.

V. QUARTERLY REPORT

William D. Burgess, Jr., Agronomist - NWFP

A. Activities During the Period

1. Project Position Paper

A project position paper was prepared, containing a brief history of agricultural development in the Province. The paper further describes the objectives, accomplishments, and the program of work being followed, as well as the scope of the Project.

2. Adaptive Research

The results from adaptive research carried out under the Barani Project sponsorship by the Agricultural Research Institute of NWFP have been received and are under study at the Project office. These trials included variety,

fertilizer rate, and seed rate trials. Crops studied included wheat, gram, oilseeds, and fodder. The results from these trials, as well as results from 1976-77 trials will be reviewed and will serve as a guide for practices in varieties to be demonstrated in the Project on-farm demonstration program in the 1978-79 Rabi season. Adaptive research trials being conducted under the Project sponsorship by the Maize and Millet Research Institute (MMRI) during the current Kharif include:

	<u>Fertilizer Rate Trials</u>	<u>Varietal Trials</u>	<u>Seed Rate Trials</u>	<u>Total No.</u>
Maize	4	12	4	20
Sorghum	4	12	4	20
Millet	4	12	4	20

In support of this adaptive research the Barani Project has supplied input requirements, field equipment, and incidental needs.

3. Farmer Information Meetings and Field Days

Both pre-harvest field days and farmer information meetings were held during the quarter. The quality as well as the numbers of these educational programs have helped in furthering the attainment of the goals of the Project. The farmer information meetings which were conducted for the first time during the life of the Project by extension agents have, it is believed, made significant progress toward informing farmers of all aspects of the demonstrations established in their community. These meetings were held at the demonstration sites. To guide the extension agent in his presentation, a mimeographed sheet giving steps to be followed in conducting farmer information meetings was sent to all extension agents (see Appendix H).

It is estimated that hundreds of these information meetings were held and that attendance was good and farmer enthusiasm for this level of assistance, rewarding. Extension agents, many of whom were conducting this type

of educational activity for the first time with the farmer, have reported that they were great benefactors as a result of these meetings and expressed the feeling they had received self satisfaction from this teacher-farmer experience.

4. Rodent and Bird Control Training Program

The Project Rodent and Bird Control Training Program, which had previously been carried out in the southern districts, was given over a period of nine days in nine northern districts. Cooperating in this program were two specialists from the Vertebrate Pest Control Centre, University Campus, Karachi. These programs were well and enthusiastically attended by extension agents. Their active participation with questions and in discussions indicated their genuine interest in the subject matter and their appreciation for the quality of the presentations made by the visiting experts. Good handout materials were prepared by the Project office. Not only are extension agents better informed and thus better able to assist farmers with the problem of rodents, but these training meetings have shed considerable light for all concerned regarding the magnitude of losses being borne by the farmer that can be attributable to rodents and birds.

5. Soil Testing

The ongoing soil testing program in the Rabi season was responsible for the collection, processing, and delivery to the Agricultural Research Institute Soil Testing Laboratory of 1,618 soil samples from a potential of 1,931 demonstrations established during the period. Periodic visits to the laboratory confirm the fact that concerned laboratory technicians are heavily involved in processing these samples and the goal of August 1, 1978 for completing the task seems likely to be met.

6. Groundnut Bulletin

The groundnut production bulletin, of which 500 copies were printed in the previous quarter, was printed in Urdu during this quarter. Five thousand Urdu copies were printed and widespread distribution in quantity was completed.

7. International Rain Gauge

To supply needed accurate rainfall measurement for the Province, the Project procured from the Meteorological Service, Karachi, 20 international-type rain gauges. At present, this data is not being collected by any other organization on a province-wide basis. A comprehensive scheme for collecting and recording the rainfall of each district will be implemented by the Barani Project.

8. Training Materials

Three films, four training pamphlets, and one wall chart were procured from the Fertilizer Institute, Washington, D. C., to be used in future training programs and displayed on bulletin boards of extension offices.

9. Collection and Tabulation of Rabi 1977-78 Demonstration Plot Yield Data

The return of yield data sheets from 1,931 established demonstrations has been good. Some yield data sheets have been returned to the districts for clarification and completion. It is expected that all yield data sheets will be collected, tabulated, and reported at the forthcoming Barani Council Meeting scheduled in August, 1978.

10. Distribution of Kharif Seed and Fertilizer

The Project achieved in an orderly manner and on a timely basis the distribution of all seed, fertilizer, and other inputs for Kharif demonstrations. Of noteworthiness this Kharif has been the procurement and distribution of 200 pounds of gypsum for each of the Project's 272 groundnut demonstrations. The gypsum was acquired in D. I. Khan and delivery made to each district and agency.

B. Work Planned for July - September, 1978

1. Establish rain gauges in locations according to Project schemes.
2. Develop scheme for replacing in the 1978-79 Rabi season the traditional wheat variety with improved variety. Seed supplied will be treated.

APPENDIX A

ARTICLES REGARDING ABAD

Barani area uplift Short-term action plan prepared

By Our City Staff costing Rs. 25,000 will be supplied to farmers for Rs. 16,700 as the Government would pay a subsidy of Rs. 8,300 per power tiller. Applications for power tillers will be received till May 31 on the prescribed forms available from the offices of Soil Conservation, Agriculture Departments and Rural Development Marakes.

The Government of the Punjab has set up an Agency for Barani Area Development to implement the recommendations of the Punjab Barani Commission for the development of Barani areas.

Brig (Retd.) Raja Mansoor Ahmed, Chairman of ABAD, said the agency, which is to work as an attached department of Planning and Development Department, will be responsible for implementing uplift projects in Barani areas of the Punjab and the area of its operation will include Sialkot, excluding Daska Tehsil, Mianwali district, Khushab tehsil, D. G. Khan and parts of Muzaffargarh district.

The ABAD Chairman further said that plans have also been taken in hand to construct mini dams for irrigation purposes. A special survey has also been completed in connection with the ground water and three project areas for sinking of shallow tube-wells have been selected. The areas are Milot and Sangohi in Jhelum, Nila Dullah, Dudial around Chakwal and the areas around Chakri. The Government will give 50 per cent subsidy for the sinking of these tube-wells, he added.

He said ABAD had prepared a short-term action programme for increasing farm income and developing water resources and checking soil erosion. To overcome the shortage of manpower in rural areas, a scheme has been introduced in which 300 Chinese power tillers will be supplied to the cultivators. These power tillers will be supplied to the cultivators for booking of rigs so that the work on their tube-well could be started.

The Chairman has asked the farmers to contact Assistant Agriculture Engineer at Jhelum, Chakwal and Rawalpindi for booking of rigs so that the work on their tube-well could be started.

SOURCE: The Pakistan Times, May 22 1978.

Barani areas uplift stressed

The Punjab MLA's Adviser for Agriculture, Dr. Abdul Ghafoor Bhatti, has stressed the need for making all-out efforts to fully mobilise the development potential of barani areas to raise the production of foodgrains in the country.

He was presiding over a high-level meeting in the office of the Chairman, Agency for Barani Area Development, in Rawalpindi on Tuesday. The meeting was called by him to assess the feasibility of projects for the speedy uplift of the barani areas.

Dr. Bhatti stated that crop yields in the barani tract could be doubled and even tripled by just using balanced chemical fertilisers, good quality seeds and better cropping patterns. He stressed the need of introducing tractors to supplement bullock power required for land preparation and timely sowing of crops particularly Kharif crops. The introduction of tractors would be done on a large scale through co-operatives or Government operated tractor centres, he added.

He asserted that the present

regime was determined to provide all possible assistance for improving the economic lot of the people living in the barani areas. He directed that a comprehensive survey should be carried out to indicate the areas where concrete projects could be undertaken for stepping up the agricultural production. He called upon the staff of ABAD to do their duties with devotion and in a diligent manner.

He, however, warned the unwilling workers and said they would not be tolerated in the department. He said the officials should give up the practice of misleading the Government and the public through false and exaggerated reports.

SOURCE: The Pakistan Times, June 8, 1978.

APPENDIX B
REPORT ON FIELD TRIP
TO KARACHI

1. Discussion with S. M. Ishaque, Deputy Director-General, Central Statistical Division (Telephone: 433448, offices located adjacent to USAID offices).

The Division has full-time market reporters in 12 urban centers, and part-time reporters in approximately 34 other centers. Some information is only published since 1972. Data is published on a monthly summary basis, though received weekly. Cost is published for four income groups and three occupational groups. No index of inflation is published.

"Normal" and "harvest" prices are published by the Directorate of Land Records -- only for the Punjab. These are separate from those the Division publishes.

2. Discussion with Sirajul Hassan, Deputy Agricultural Advisor, Department of Agricultural and Livestock Production, Marketing & Grading, Ministry of Agriculture (Telephone: 516201, located at Jamil Chambers, Fourth Floor, behind the Cooperative Market, Saddar Bazaar). The Agricultural Marketing/Grading Advisor is K. A. Siddiqi (Telephone: 510483).
3. The Department has three functions: commodity research, grading (for export only), and market intelligence services. Grading services cover: wool and animal hair, dry salted fish, oil cake and meal, lamb skins, hides and skins, animal casings, potatoes, eggs, chillies, citrus (oranges, lemons and limes). The Agricultural Produce Grading and Marketing Act of 1937 covers this area.
4. Market surveys have been completed and published recently on: pulses, potatoes, onions, and chillies. Forthcoming reports will be on milk and bananas.
5. Prices (wholesale) are received weekly on over 200 commodities in 40 markets, and published as monthly prices.
6. Daily wholesale prices on over 180 commodities are received for the Karachi market, and issued daily to specified agencies. Prices on 80 commodities are broadcast daily over Radio Pakistan.
7. Daily wholesale and retail prices for 15 essential items of consumption from 10 markets are compiled on a weekly basis and sent to specified agencies.
8. Proformas used by market reporters and by the Department were obtained. (Discussion also with: Khurshid Ali, Deputy Assistant Director, Marketing Intelligence.)

9. Accompanied by Dr. Chaqtai, USAID Liaison, Lahore. Discussions with: Mohammad Abdul Qayyum, Senior Consultant; Aftab Ahmad, Consultant; A. Q. Ali, Managing Director of Investment Advisory Center of Pakistan. (Location: State Life Insurance Building No. 3, Dr. Ziauddin Ahmad Road, Karachi. Telephone: 511542, 512086). Results of this discussion are contained in another report.

APPENDIX C

TERMS OF REFERENCE
FOR MARKETING SURVEY

I. Scope of Work

The survey to be carried out for the Barani Project is intended to obtain appropriate information in order to describe all principal elements of the marketing system, including its agents and activities, in barani areas. In general, the functions of buying and selling, transportation and storage, pricing, grading and the use of credit will be studied. Views of their marketing problems will be solicited from both merchants and farmers. Farm family consumption of all major food products, and associated purchase costs, will be obtained. The market channels for farm inputs--fertilizer, seed, small tools, insecticides, herbicides and pesticides--will also be described. Prices will be obtained at the farm for: harvest-time, mid-season, and sowing-time.

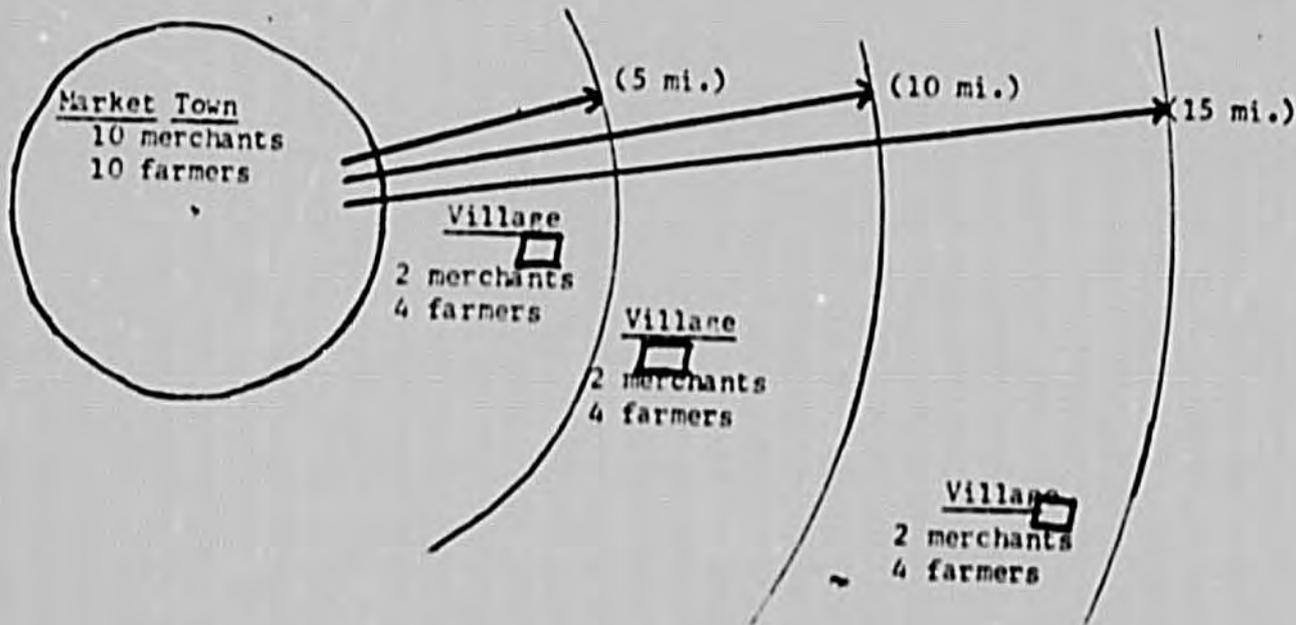
II. Special Emphasis

Marketing channels will be especially sought in the study for the major barani crops, which may vary by district, and may include wheat, gram, oilseeds for processing, maize, vegetables, groundnuts, bhusa and green fodders. The type of information needed is outlined in the chart entitled "Prototype of Groundnut Marketing Cycle".

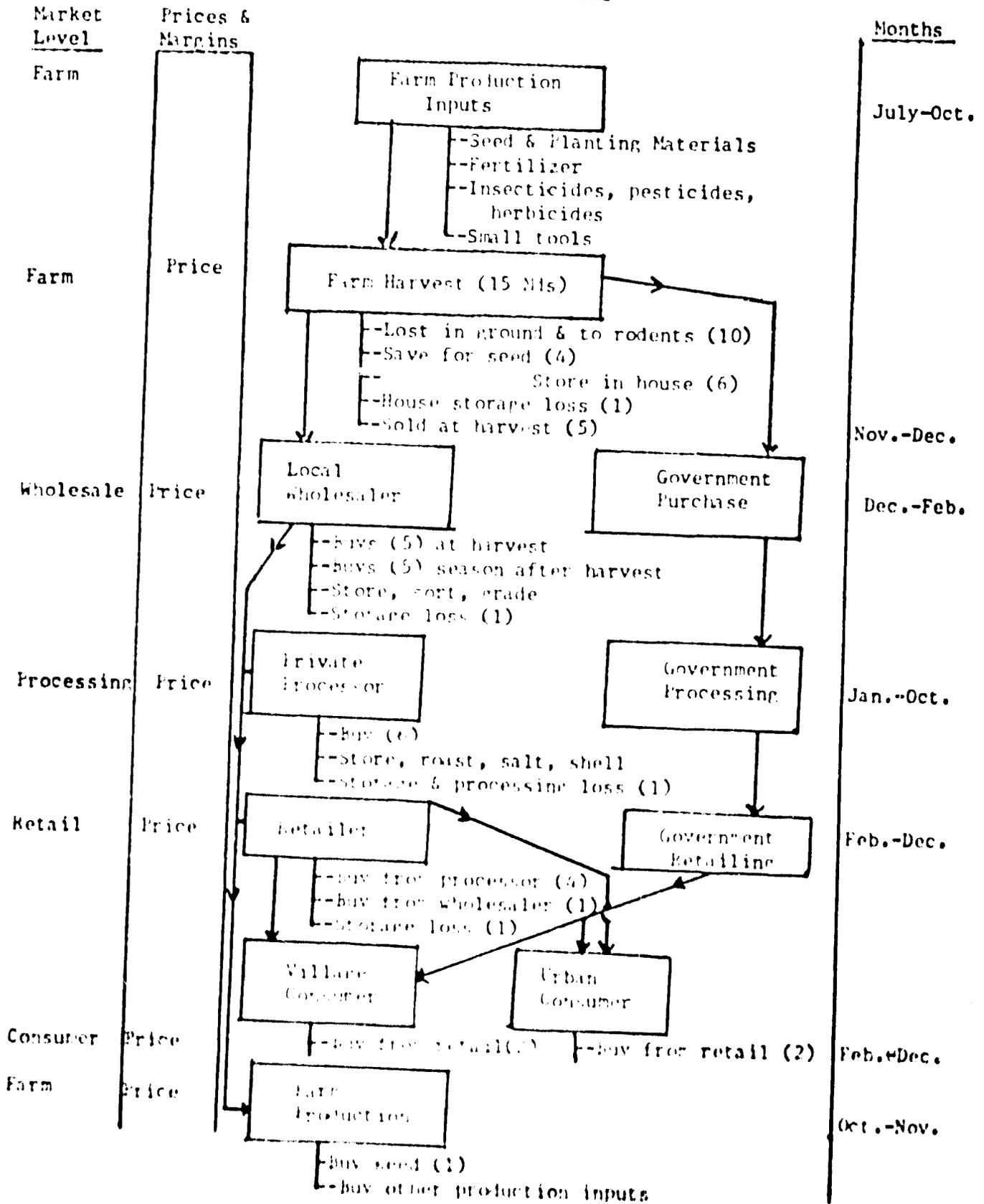
III. Sampling Design

Four "Market Towns" are to be selected. Tentatively, they will be: Chak Beli Khan and Daultala (both in Rawalpindi District, the Punjab), Haripur (Abbottabad District, NWFP) and Lakki Marwat (Bannu District, NWFP).

On a random basis, 3 villages subsidiary to the above market towns must be selected (3 for each market town). One village must be located within a five-mile radius of the town; one must be within a five- to ten-mile radius, and one must be within a 10- to 15-mile radius. Village location may be either on a kacha or pucca road. (see diagram below)



Prototype of Groundnut Marketing Cycle



APPENDIX D

AGRICULTURAL MARKETING;
CONCLUSIONS AND SUGGESTED HYPOTHESES
FOR STUDY

1. (MAP) Margins. Market imperfections and injustices to growers arise mainly from farmer's lack of knowledge and lack of facilities, rather than as a result of collusion on the part of market middlemen and functionaries.

2. (MAP) Regulations. It may be desirable to adopt:
- a) A clear definition of market charges; reduction of excessive charges; prohibition of unauthorized additions to charges.
 - b) Licensing of market functionaries--including buyers, brokers, weighers(tolas), and retailers.
 - c) Enforce the use of standard weights and measures.
 - d) Evolve machinery for settlement of disputes--concerning quality, weight, and various charges and deductions.
 - e) Farmers need advice to forge a closer link between producers and the marketing system. (Possibly a cooperative organization, too.)

3. (MAP) Survey. Covered pulses, vegetables and fruits.
Done in Lahore, Lyallpur, Multan, Rawalpindi and Jhelum.
- a) Supplier Stage--farm gate to primary/wholesale markets.
 - b) Wholesale stage--arrival and disposal of products to retailers.
 - c) Retail stage--movement from wholesale market to consumers.

3. (MAP) Recommendations. General: a) Import seeds of high-yielding varieties, well-adapted, and arrange distribution to growers as well as increase.
b) Municipalities should reduce Octroi fee to the minimum for products coming into the markets from outside the Market Committee's jurisdiction areas.

- Pulses: a) Research needed to evolve disease-resistant varieties, and improve techniques for preserving moisture from rains.
b) Suitable government price support, announced well before sowing time.
c) Producers' Cooperative Societies needed in villages to return fair prices to farmers, through supplying main market.
d) Price Control Board, to stabilize prices, and reduce difference between wholesale and retail prices.

- Vegetables/Fruits: a) Build basements for storage, when building new markets; refrigerate during summer months but expensive.
b) Direct sales by producers to consumers; licensing of Pharias(middlemen) and petty wholesalers.
c) Cooperative Marketing Societies with their own retail shops.
d) Seeds of early, mid-season and late-season varieties should be acquired and planted so that the peak-season glut of vegetables is not so short and sharp, and wide price fluctuations are reduced.
e) Government should establish a vegetable/fruit grading mechanism for storable perishables.
f) Railway transport of perishables from far-off distances at nominal rates; expand rail refrigerated transport facilities.
g) Train farmers in simple techniques of vegetable preservation through drying.

4. (MAP) Pulse Consumption. Annual per capita in Punjab: Moong--14 oz.; Mash--17oz; gram--198 oz.; Masoor--14 oz. (1974-75)

5. (MAP) Cost of Pulse Production	Moong	Mash	Gram	Masoor
Cost per acre (Rs)	186	376	255	368
Yield " "(Mts)	3.9	4.8	6.2	8.5
(- byproduct value) Cost/Maund	43	74	38	41
Grower harvest price (Rs)	60	88	45	50

6. (MAP) Intermediary Margins--Pulses.

Intermediary	% Share Retail Price
Village dealer	7%
Beopari	11%
Commission Agent	2
Miller	19
Wholesaler	11
Retailer	43
Transport labor	7
(Price: Rs 53/Md)	100%

7. (MAP) Pulses Market Channels.

Commonest channel:

Grower
 Village Dealer/Beopari
 Commission Agent
 Wholesaler/Miller
 Retailer
 Consumer

8. (MAP) Pulses Market System.

- There are two marketing channels--one for gram; one for other pulses.
- 50% of gram growers sell in the nearest grain market; other 50% sell to village dealers/shopkeepers who then sell to Beoparies.
- Other pulses: marketable surplus is small for each grower. 90% of growers sell to village dealers/shopkeepers, who then sell to larger grain mandies. The 10% who have larger amounts, sell through Commission Agents in nearest market.
- In Mianwali, village dealers/beoparies set up temporary roadside purchasing centers at time of gram harvest. They purchase gram, store in straw huts packed in gunny bags, accumulate a truckload to sell in the wholesale market of a large neighboring town.

9. (MAP) Middlemen Margins. Usual complaint about (a) large number of intermediaries who earn undue profits by their numbers as well as their large margins, and storage for off-season demand.

10. (MAP) Pulses Processing. Moong and Mash are usually used in split form, washed or unwashed. Gram and Masoor are used in whole and split form. Loss of husk and other inedibles after washing is 14-16%.

11. (MAP) Marketing Malpractices.

- Commission Agent authorized to take deduction of 1.71%; may take up to 2% (authorized charges include Palaydari, weighing, etc.).
- Underweighing grower's produce, and "watta" per maund is common practice. Watta rate and weighing levies are 1-2 seers per maund.
- Actual weight of gunny bag is 18 Chttk; deduction made is 20 Chttk.
- Other charges--voluntary donations, such as Masjid fund.
- The P.A. Produce Market Act provides for open auctions, but this is not done in any of the markets.

12. (MAP) Consumption(Pulses). An estimated 30% of gram production goes for livestock feed. Gram sales are 71% of total pulse sales.
13. (MAP) Supply Sources(Pulses). Both local areas and other producing districts.
14. (MAP) Sorting & Grading Pulses. Not done at field/grower level.
15. (MAP) Packing. a) If producers sell to beoparies, latter use their own bags.
 b) Producers who sell in nearest markets, use the Chhat (3-Md bag) and are charged Rs 1.00 as transport and rental cost by camel/donkey owner.
 c) Stockists and millers also pack in jute bags, purchased from depot-ration holders, also ussd for wheat flour and sugar. Bag is 2.5 mds; lasts 4 seasons; cost Rs 6,00.
16. (MAP) Storage. a) Producers store small quantities of pulses for seed and for domestic consumption, in earthen pitchers.
 b) Commission agents only store for up to one week, so do not have godowns separate from their shops.
 c) Village shopkeepers often store in bags for 2-4 months for sale in the wholesale market. They retain some inventory in their godowns for local sale before next harvest.
 d) Stockists and millers store in pucca godowns in gunny bags.
 e) Large landholders may retain 20% of production for storage, to get benefit of the rise in post-harvest prices.

17. (MAP) Cost of Pulse Storage(Gram).

	3 mo. (Rs)	6 mo. (Rs)
Price of 1 md of gram in village at harvestime	45.00	45.00
Allocated cost of bag	.60	.60
Rent and maintenance of building	.08	.16
Interest on inventory cost	.90	1.80
Total Cost	46.58	47.56
Price at time of sale	48.56	52.00
Profit on storage	4.4%	9.9%

18. (MAP) Pulse Wastage. a) Wastage during harvesting, threshing and winnowing was 2-4%. Rains and dust storms (unusual) could increase it to 5-10%.
 b) Grower storage in dust bins and "chaties" is almost nil.
 c) Millers, stockists and beoparies estimate 1% is normal wastage.
 d) Wastage during transport is only occasional.
 e) Wastage during processing is high, but results from this study are difficult to interpret.

19. (MAP) Pulse Retail Prices. (Rs per Seer)

	Mash	Noong	Gram	Masoor
Dec.	4.2	3.0	1.7	2.3
Mar.	4.1	3.2	2.0	2.2
June	3.9	3.0	2.4	2.2

20 (MAP) Pulse Wholesale Price (Rs per Md)

	Mash	Moong	Gram	Masoor
Dec.	147	88	54	63
Mar.	138	98	77	61
June	132	99	58	66

21. (MAP) New Pulse Crop. Mash arrives in Nov.; Moong in Oct.; Gram in May; Masoor in June. Price control on Moong reduced wholesale prices.

22. (EVM) Price Settlements. Staff of market committees paid short visits to the market to watch price settlements; auctioning not usually taking place under their direct supervision. In most markets, price settlements taking place under cover, through chits, or price predecided when grower is indebted to commission agent.

23. Price Settlement. (EVM) Replies per 100 respondents:

City Markets	<u>Village Markets</u>	<u>City Markets</u>
Open Auction	3	7
Open agreement	98	12
Underhand cover	3	84
Advance contract	2	2

For those in debt to the commission agent, price is settled at the time of issuing the loan; the agent has full control over price settlement. Prices are usually substantially lower than prices received by producers who are not in debt.

24. Producer selling. (EVM) Even the fixed price floor for wheat and procurement by the Food Department has not improved the situation. Despite sieving/cleaning by the Food Department, farmers were not able to get full price fixed. Overweighing, sampling and non-payment of 3% of the value retained on account of high moisture, resulted in low producer price. Delayed payments for the goods compelled many producer to sell through commission agents; none of the producers received payment before the commodity was either stored in bins or loaded on wagons; produce deterioration pending storing or loading was borne by producers.

25. Weighing. (EVM) Many producers suffer a weight shortage, even when they independently weigh their own products. In other cases an additional weight, called "batta", is attached to the scale to compensate for moisture content, dirt and other impurities, but the price then is not paid for first-quality.

26. (EVM) Market Charges & Deductions. (Rs per Rs 100 of produce sold.)

	Range in unregulated markets:	
Commission Charges	1.00	- 1.56
Brokerage	.13	- .19
Weighing	.13	- .34
Palledari	.15	- .34
Changrai	.15	- .15
Rolai	.14	- .19
Karta	1.25	- 1.56
Dryage	2.50	- 3.75
Other Charges	1.25	- 2.13
Total	6.70	- 10.21

27. (EVM) Other Deductions. The Commission Agent often gives away part of the unsold produce of the producer ("Chungi") to market functionaries such as weighman, waterman, chaukidars and "Changars" for their services, in this way saving the agent's paying them 60-70 paisas per Rs 100 of produce deducted.

a) The agent's cashier also makes deductions (mosque funds, development fund, Quaid-i-Azam fund, etc.) out of sale proceeds--such deductions are enough to pay for cashier's services.

28. (EVM) Payment for Sale. Partial, delayed or non-payment of sale proceeds is worst tactic of agent. A small part is usually paid within a period of a month, while the major part is paid after 4-6 months. Delayed payment is one way of tying producer to the agent while the producer's marketing is going on; if farmer stops delivering, agent delays or refuses to pay what he already owes.

a) Volume of loans agent extends to producers bears no relation to the amount he owes farmers; ratio may be 1:4 or more. Agent charges no interest on loans and thus poses as friend of farmers.

29.(EVM) Payment for Sale (con't). Many farmers, big and small, prefer to sell to roving traders in the villages at 15-20% lower price, to avoid the irregularities in the nearest regulated market, cited above.

30.(EVM) Price Reporting. Sources of price information (replies per 100 respondents):

Personal visit	65
Friends/relatives	33
Beopari	48
Village shopkeeper	28
Radio	23
Newspapers	9
Village tonga driver	6

Recorded price goes to certain government offices, radio, newspapers, and Ministry of Agriculture. Price information never reaches producer, or arrives so late as to be of no value. Radio prices are only broadcast for 1-2 minutes daily.

31. (EVM) Octroi and Toll Rates. a) High octroi rates in some cities encourage the diversion of farm produce to other markets where the rates are lower.

b) Imposition of taxes on carts, camels, donkeys etc. and restrictions on their movements in cities and markets also encourage diversion of shipments elsewhere.

32. (EVM) Use of trucks by beoparies allow the bypassing of small markets, helped by modern communication.

33.(EVM) Commission Agents. Where areas are affected by disasters regularly--floods, crop diseases--agents do not establish permanently. A major crop failure in an area thus results in fewer active markets and functionaries located there.

34.(EVM) Place of Sale. 70% of the wheat, 80% of the maize and 90% of the gram--of the salable surplus--was disposed of in village markets. Reasons given by producers: a) timely payments by beoparies; (b) better weighing and no deductions such as "batta", "chungli", etc. (c) less bothersome and time saving; (d) better prices. Reasons for not taking produce to major markets (replies per 100 respondents):

Avoid botheration	83
Time consuming	76
Small lot	64
No price difference	46
Poor transportation	42
Bad roads	32

35. (EVM) Selling to Village Beoparies. Producers appear more satisfied with village prices than with prices from the markets; they say beoparies pay the same or slightly better. There are a combination of likely reasons: (a) beoparies are better informed about prices than producers, and can sell at better price in a given market; (b) they can take the produce to the highest-price market; (c) handling large lots, they can save on transportation costs; (d) they can sell where octroi rates are lowest; (e) they can sort and mix qualities and grades, and sell the resultant mixtures at higher prices; (f) they can avert the usual malpractices and deductions against which the producer is usually caught.

36. (EVM) Cooperative Commission Shops. These shops do not seem to offer the members who sell through them, any special advantages over producers selling to the beoparies.

37.(EVM) Government Buying. Except for big landlords, no farmers patronize the government purchasing outlets; the general pattern of wheat marketing out in the villages has not changed.

38. (EVM) Improvements. a) Commission agents and all title-taking middlemen should be licensed on the basis of their assets and necessary operating capital--indicating ability to pay their debts; sale proceeds should be paid at time of sale.

b) Octroi rates should be abolished, or made uniform for all markets.

c) To finance purchases from producers, all middlemen badly need additional lines of credit.

d) Market prices--daily prices in important regional markets should be compiled by commodity, grade and market, and furnished the radio station regionally by 2:00 PM daily, for broadcast that day.

e) Grading. Price information must be related to grades and standards. Indifferent quality may be due to: poor seed, poor harvesting methods, lack of good storage, or natural calamities--most of these are controllable.

f) Road improvement to connect to markets.

39. (PLB) Losses in Standing Wheat Crop. Average losses in 1972 as follows:

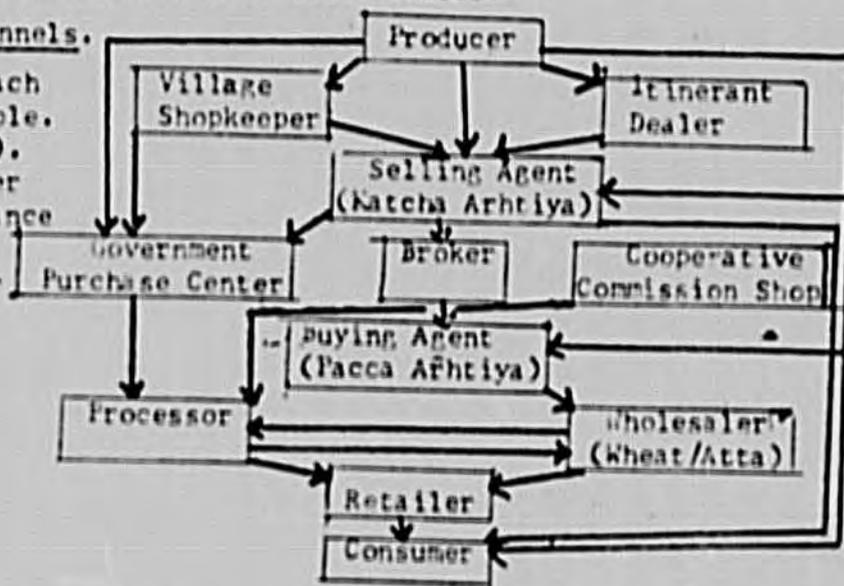
Birds	2.26%
Rodents	.02%
Farm Animals	.07
Smut	.11
White ant	.15
Missing ears	.34
Shredding of grains	.20

(Harvesting--) Falling down of ears .93
4.08

40. (MWP) Market Places. Markets near production areas (village markets) are usually used by the population nearby, and also by agents of large outside traders. Market place belongs to a local authority or an individual; a charge is collected for use of the place. Wholesale markets (Mandies) are fewer in number and usually perform marketing functions such as storage, financing, etc. Most markets are unregulated; most are known for a common set of trade abuses.

41. (MWP) Wheat Marketing Channels.

- Data on volumes for each intermediary not available.
- Itinerant dealer (beopari).
- Both village shopkeeper and itinerant dealer advance loans to farmer.
- Wheat trade is a sideline for these petty traders.



42. (MWP) Selling Agent. He sells mostly on behalf of the grower. He advances loans to dealers and growers, receiving interest and commission; he also stores for the farmer. In unregulated markets, commission and brokerage are paid in cash; other charges in kind--all paid by seller.

43. (MFP) Selling Agent charges. Lyallpur, per 100 rupees sales:

Commission ("Arhat")	1.00
Brokerage ("Dalai")	.16
Weighing produce (Tulai)	.22
Dressing produce (Rolai)	.02
Filling scale pan (Charhai)	.16
Keeping bag mouth open (Otai)	.08
Portering (Palledari)	.22
Total	1.86

44. (MFP) Sales channels. Selling agent sells through broker (Dalai) to buying agent. Broker sells information only to buyers and gets his fee from them. When broker sells information to sellers also, he charges another fee from them. Buying agents are on commission, but deal in large lots--mostly buy for wholesalers and processors. Buying agent standard fee is 1%.

Charges of pacca arhitya per 100 rupees sales:

Commission (arhat)	Rs 1.00
Sewing/handling bags	.12
Porterage to truck	.06
Loading	.06
Total	1.24

45. (MFP) Retailing. Wholesaler sells mostly to processor; some to retailer. Processor sells to atta wholesaler, to retailer or to consumers. Retailer sells mostly wheat flour; some grain. Consumer buys wheat and grinds it into flour with hand-driven grinder, or goes to local processor. Processor may charge either cash or kind.

46. (MFP) Hand harvesting and bullock threshing add impurities to grain.

47. (MFP) Transport. Grain packed in gunny bags of 75-93 kg to go to market.

In 1958, modes of transport: (% families taking produce to market):

	owned	hired	total
Bullock cart	30	31	61
Pack animals	6	33	39
Motor lorry	--	0.2	0.2

48. (MFP) Storage. Direct benefit of improved storage is reduction of losses. Indirect benefits include: higher prices in lean supply period; maintaining continuous flow to consumers and processors through year; widening of market areas.

a) Improvised storage, especially at farm level, result in losses of 5-10% of total volume. Primary markets do not usually provide storage; secondary markets sometimes provide storage at high costs, high risk and high wastage.

49. (MFP) Marketing Margins. Farmer (1970) selling to purchase centers, out of the guaranteed Rs 17 per maund, receives 16.70 after expenses of sifting and cleaning. But sales from farmers are low, because: a) Food Department buys only in lots of 10 bags (b) distance is far to centers (c) poor public relations (d) farmer often indebted to arhitya, or other social considerations.

If farmer sells through arhitya, pays Rs .31 per maund for commission and other charges. Food Department buys 75% of marketable wheat, so remainder has price rise in open market even in flush season--but farmer gets lower price than in sale to government.

Government incurs charges of procurement, storage and distribution of Rs 3.50 per maund, but sells to miller at Rs 17. Marketing margin in center is 10% of consumer price, but rise to 22% of government subsidies are included.

50. (CCM) Margins. Wheat margins (1965-70), Rs per Maund:

	Gross Margin	Cost	Profit
Village beopari	1.61	0.97	0.64
Kacha arhatiya	0.43	0.21	0.22
Pacca arhatiya	0.61	0.32	0.29
Processor	1.27	0.93	0.34
Retailer	1.57	0.97	0.60
Av. for all intermed.	0.64	0.38	0.26

51. (CCM) Marketable Surplus. As % of production, 25-30% for the province; 62% for interviewees.

52. (CCM) Sales Periodicity. Wheat sold--% of total:

Immediate 4-month post harvest (May-Aug.)	53%
Mid 4-month period	38
4 pre-harvest months	8
	<u>99</u>

53. (CCM) Wheat Disposal. Reasons for disposal in 4 immediate post-harvest months:

Urgent need of money	88%
No better price expectation later	4
Storage problems	22
Religious factors	2
Transport problems later due to rush	3
Lack of labor	5

Reasons for disposal in 8 months after 4 post-harvest months:

Better price expectations	90
Prestige	13
Adequate storage	10
Transportation problems in glut period	10
Lack of labor	6

54. (CCM) Wheat Sales. Disposal by producer:

Village beopari	27%
Kacha arhatiya	53
Pacca arhatiya	9
Govt purchase center	8
Consumer	3
	<u>100</u>

Reasons for sale at village:

Low marketable surplus	48%
Transport problems	55
Lack of market information	10
Village price reasonable	18
Credit ties	14
Avoid bother of taking to market	28
Market delays payment of sale proceeds	29
Observes fraud in market	8
Village social ties	18
Lack of time or of labor	12

55. (CCM) Wheat Sales. Reasons for farmer sale at market (beyond village):

Better price expectation	100%
Market is near	29
No had debt in market	39
Village beopari not available	9
Owms transport facilities	30
Quick payment of sale proceeds	34
Credit ties	28
Social ties	24

56. (CCM) Sales Costs. Selling costs incurred by farmers in selling wheat:
(Rs per maund)

To village beopari	0.23
Kacha arhatiya	1.00
Pacca arhatiya	1.13
Govt purchase center	0.63
Consumer	0.25

57. (CCM) Prices. Net prices received by producers in sales to (Rs per maund):

Village beopari	14.5
Kacha arhatiya	16.1
Pacca arhatiya	16.2
Govt purchase center	15.7
Consumer	16.1

58. (CCM) Village Beopari. Average quantity of major crops purchased:

Wheat	996 maunds
Cotton	456
Rice	1107
Desi-sugar	570
	<u>3129</u>

Wheat Costs incurred in sales (to kacha arhatiya):

Labor	0.10 Rs/Md
Storage	.07
Transport	.40
Octroi	.08
Cleaning loss	.03
Transit loss	.02
Touch	.004
Chungi	.02
Market charges	.28
Visit to collect sale proceeds	.003
Loan interest	.04
Interest--mode of payment	.05
Benefit--mode of payment	-.04
Misc.	.003
	<u>1.04</u>

Disposal of Wheat to intermediaries by village beopari:

Kacha arhatiya	71%
Pacca arhatiya	10
Govt purchase center	18
Consumer	1
	<u>100</u>

59. (CCM) Quantities Transacted. (Maunds per intermediary) Kacha arhatiya.

Kacha arhatiya disposal		Kacha arhatiya :	
of wheat:		Wheat	4432
Pacca arhatiya	61%	Cotton	6970
Govt purchase	33	Rice	2056
Retailer	4	Desi-sugar	8217
Consumer	<u>2</u>		<u>21,685</u>
	100		

60. (CCM) Quantities Transacted (pacca arhatiya). Maunds per intermediary:

Wheat on commission:	17,618 (38%)	Quantity transacted:	
" on own behalf:	<u>28,547 (62)</u>	Wheat	46,060
	46,165 (100)	Cotton	12,176
Total wheat sold to:	15,698 (34%)	Rice	21,476
Merchant/outside buyer	18,550 (40)	Desi-sugar	31,368
Govt purchase center	11,360 (25)		<u>111,080</u>
Processor	345 (0.7)		
Retailer	213 (0.5)		
Consumer	<u>46,166 (100)</u>		

61. (CCM) <u>Processor-wheat.</u>	Purchased from:(av.)	kacha arhatiya	5094 mds
		Pacca arhatiya	<u>12593</u>
			17,687

62. (CCM) Retailer. Total wheat received (av. per retailer)--Mds:

Kacha arhatiya	138 (31%)
Pacca arhatiya	17 (4)
Processor	<u>284 (65)</u>
	439 (100)
Rice(pacca arhatiya)-----	13
Desi-sugar(katcha arhatiya)--	<u>2</u>
Commodities	454

63. (CCM) <u>Consumers.</u>	Consumption from own farm (Mds/family)	11.1 mds. (43%)
	Purchased wheat (rural consumers)	<u>14.6 (57)</u>
	Total consumed	25.7 (100)
	Adult units per family	7.5
	Per capita consumption of wheat per day	20.1 oz.

References

- MAP: Marketing of Agricultural Products in the Punjab, Sattar, Yasin et al, 1976.
- EVM: Evaluation of Agricultural Marketing, Chaudhry, Khan & Rauf, Lyallpur, 1970.
- PLB: Produce Losses by Birds in Standing Wheat Crop in the Punjab Province, West Pakistan Agricultural University, Lyallpur, 1972.
- MBP: The Marketing of Wheat in West Pakistan, Rashid, West Pakistan Agricultural University, Lyallpur, 1971.
- CCM: Costs and Contributions of Market Intermediaries, Rashid et al, West Pakistan Agricultural University, Lyallpur, 1973.

APPENDIX E

BOOKS RECEIVED FROM
ASIA FOUNDATION

THE ASIA FOUNDATION

ایشیا فاؤنڈیشن

NOTICE OF BOOK SHIPMENT/PRESENTATION:

ہدیہ/ترسیل کتب کی اطلاع

TO: DIRECTORATE OF AGRICULTURE, 175 WESTRIDGE, RAWALPINDI

Re: Following books requested by Mr. Larry Alsaker on April 6, 1978.

1	tufte	grammar as style	1
2	charbliss	nobility tragedy and naturalism	1
3	...	declaration of independence and the constitution of the united states	2
4	wagner	undersiege man, men, and earth	1
5	wodin	introduction to family housing	1
6	say	may - decorative stitchery	1
7	a sunset book	how to grow house plants	1
8	" " "	vegetable gardening	1
9	heilbroner	worldly philosophers - cliff's notes	1
10	rolvaag's	giants in the earth - cliff's notes	1
11	...	cliffs notes on new testament	1
12	anderson	cultural context - introduction to cultural anthropology	1
13	turnbull	developing knowledge and skill in emergency health care	1
14	a sunset book	sculpture with simple materials	1
15	a sunset book	macrame' creative knot-tying	1
16	" " "	garden work centers	1
17	logan	techniques of athletic training	1
18	espenshade	goode's world atlas	1
19	brinker	elementary surveying fourth ed.	1
20	schultz	chemistry and physiology of flavors	1
21	brink	dairy lipids and lipid metabolism	1
22	a sunset book	entryways and front gardens	1
23	" " "	garden pools fountains & waterfalls	1
24	thomas	dairy farming in south	1
25	harris	plant diversity	1
26	tisdale	soil fertility and fertilizers	1
27	gardner	basic horticulture	1
28	...	voices of earth - man's environment	1
29	kleber	rare earth research	1
30	edmond	sweet potatoes: production, processing, marketing	1
31	pyle	fundamental accounting principles	1
32	niswonger	accounting principles	1
33	peterson	food technology the world over	1
34	sivetz	coffee processing: technology vol 1	1
35	sivetz	coffee processing technology vol 2	1
36	peterson	the birds - life	1
37	grobstein	strategy of life	1
38	christensen	the molds and man - introduction to the fungi	1
39	van ripper	man's physical world	1

40	chinnici	animal and plant survey	1
41	janowitz	military in political development of new nations	1
42	hochman	science experiences in early childhood education	1
43	maddox	how to study	1
44	aronson	readings about social animal	1
45	stapley	world crop protection	1
46	huff	how to lie with statistics	1
47	numan	composition: models and exercises - 7	1
48	benton	manual of field biology and ecology 5th ed.	1
49	tinbergen	animal behavior - life	1
50	gilluly	principles of geology 3rd ed.	1
51	hamblin	exercises in physical geology 4th ed.	1
52	greig	economics of food processing	1
53	a sunset book	gifts you can make	1
54	" " "	crafts for children	1
55	" " "	basic gardening illustrated	1
56	canoboll	science of animals that serve mankind	1
57	hardin	politics of agriculture - soil conservation and struggle for power in rural america	1
58	lee	handling barriers in communication conferee's handbook	1
59	hormann	effective small group communication	1
60	ravner	parent's guide to sex education	1
61	warner	axerian conditions in modern european history	1
62	labuza	food for thought	1
63	beavers	population processes in social systems	1
64	milller	developing reading efficiency - third ed.	1
65	robertson	physical geology manual of laboratory exercises 2nd ed.	1

Total: 66

cc: Major Mohammad Aslam Khan

Tel: 64490

Mr. Mohammad Yaqub, Librarian

MH.

Collected

APPENDIX F
REPORT ON
SPECIFIC CHALLENGES OF RURAL DEVELOPMENT
IN BARANI AREAS

Five specific challenges to intensifying the rural development program in the proposed Barani Areas will be encountered. They must be thoroughly understood and met head-on. Otherwise the attached Pilot Project, like so many other past Barani developmental efforts, will be of questionable value.

These challenges are listed and briefly discussed below. It must be understood that this is only an introduction to the specific hurdles that challenge Barani area development. The first step to overcoming these hurdles is to identify them and begin developing an understanding of all their aspects. That is the objective of this paper. Hopefully the " Proposal for Intensified Rural Development Program in Baran Areas" will be accepted by individuals who fully understand the enormity and complexity of the challenges and will totally support efforts to overcome them:-

Challenge 1. Soil Erosion has seriously contributed to lower fertility and lower water intake capacities of most Barani fields and pastures thereby decreasing their productivity. An estimated 40% of the Barani High Plains has already been destroyed by sheet and gully erosion. The silt from these lands is being deposited in reservoirs, irrigation canals and streams.

The Barani has substantial intensive food production potential if sound land management practices are adopted. Productivity could be doubled or tripled

on several million acres. This challenge has been ignored far too long. Recognition must be given to the fact that the effectiveness of proper fertilizer use, improved varieties, weed control, and the pest protection measures is dependent upon good soil and water conservation practices.

A few examples of where comprehensive land development projects should yield benefits several times their costs already exist. To learn from these examples and reproduce them in the pilot areas a special cell should be brought under the Barani Implementation Committee. The special cell is needed to develop and coordinate an extension and soil and water conservation program for each pilot area.

Challenge 2. Development, Conservation, and Utilization of Available Water Resources has never been attempted in a comprehensive, coordinated manner over a large enough Barani area to successfully reverse the inefficient water utilization trend which has existed far too long.

One of the main limiting factors to agricultural development in the Barani is the wide variation in precipitation between years as well as within a year. The undependable nature of the rains creates a high degree of risk to Barani farming. Still, a Barani watershed management program could be designed to improve vegetative cover and provide other erosion control practices that would increase production of crops and protect the land in the watershed. This would improve the water quality of the Barani area as well as reduce the sedimentation.

Also several million Barani acres in Punjab have soils and topography suitable for irrigation. Here, water use efficiency will be greater than in the plains because water losses are lowest where irrigation is nearest the water source.

A comprehensive program for hydrologic research and data collection in the Barani area is urgently required. This includes determining the effectiveness of water conservation methods on cultivated land and obtaining data on rainfall-runoff relations as affected by soils, topography, land use, evaporation, seepage, sedimentation, etc. Such research should receive high priority.

Studies of water requirements for irrigation and related practices to increase water use efficiency is necessary before the various irrigation systems can be intelligently researched.

A pre-requisite to the success of any intensive soil and water conservation effort is farmer acceptance of the need for such a program. Part of this can be developed via an effective education-information program which points out the benefits to individuals and communities of new conservation programs. Especially if the farmers are personally involved in these programs. They will only be interested in programs they help organize, operate, and can understand.

Challenge 3. Small and Fragmented Land Holdings too often result in unsound, uneconomic, and unproductive cropping practices which also increase the danger of soil erosion. The difficulties in dealing with people and animals in such a situation usually results in the failure of an otherwise sound soil and water conservation program. Consolidation of fragmented holdings is essential for effective water control and soil management. From the standpoint of Barani agricultural development, the most important thing about farms is that they need to change, both in size and in arrangement, to utilize changing methods of farming more efficiently.

For example if new implements, conservation practices, or irrigation methods work better on larger fields, the farmer with all his land in one place has the advantage of being able to change the size and shape of his fields, enabling him to adopt more efficient methods of farming.

Whenever a group of land-owners are ready to improve their farming operations through consolidation of their holdings, assistance must be immediately available to help them plan the best field arrangements for improved terracing, bunding, and water disposal structures, or irrigation systems that will improve their farming efficiency.

Such an effort requires a high degree of practical understanding by both landowners and the consolidation staff. It should also be combined with an educational program based on specific economic, social, political, and cultural requirements of the community involved. Agricultural development is as much dependent upon the ability of people to work together as it is upon the natural resources with which they have to work.

Challenge 4: The inefficient Productivity of Livestock in the Barani areas of Punjab seriously restricts its total economic development. The livestock sector provides most of the draft power for agricultural operations, all the meat and milk for human consumption, the skins, hides, wool, hair, bones, and manure for local use, or industry, and /or export. Still the production and marketing problems of livestock and their products have been largely neglected. The most fundamental production problems are:

1. Livestock (cattle, buffaloes, sheep, goats, camels, horses, mules, donkeys) numbers exceed available feed and forage.
2. Forage production on range and cropland is

is extremely low- much below the potential.

3. The genetic potential of most breeds has degenerated due to poor selection .
4. Poor parasite and disease control practices.

The basic marketing problems include:

1. A chain of marketing intermediaries which increases marketing costs.
2. Long marketing channels.
3. Inefficient transportation.
4. Milk collection and processing facilities and slaughter-houses are too few and of poor quality .

Good quality feed is basic to the development of productive livestock. Therefore production of sufficient quality forage should logically receive priority attention during the initial stages of implementing the attached proposal. In addition information will be extended to farmers, to encourage:

1. Culling 20% of the adult buffalo and cattle females each year on the basis of reproduction, milk production, and health.
2. Selling 5-year old bullocks for meat and replacing them with younger, stronger bullocks.
3. Culling 30% of the adult sheep and goat females each year based on reproduction, milk production, and health.
4. Growing buffalo male calves out for 1 year and sell for beef.
5. Improved disease and parasite control.
6. Cross-breeding of cattle, sheep, and goats.

Challenge 5. The Development of Vocational Training and Cottage Industries in rural Barani areas must receive as much consideration as developing improved agricultural production because economic growth should occur in the non-farm rural sector at the same time it is occurring in the farm sector. It is very important to maintain balanced growth in both sectors to ensure equal distribution of economic gains.

Women do much of the work involved in Barani subsistence level farming. As new agricultural production technology is introduced a larger share of the farm work is usually done by men and the demand for female labor tends to become more seasonal. Therefore they should receive special attention in order to improve the productivity of their labor.

Many jobs in appropriately scaled industries which emphasize use of local materials, labor, and capital to provide better housing and furnishings, clothing, processed foods, transportation, farm to market link roads, health, education, etc. can just as well be located in rural as urban areas. Products of wood, leather, clay, milk, grain and other locally available materials can be the basis for development of cottage industries if adequate markets exist or are developed.

This helps to provide supplementary employment for seasonal agricultural labor. Productive rural employment in the slack season will also stimulate the demand for agricultural output and reduce marketing, transportation, and storage costs of locally produced farm commodities.

The same educational institutions used to promote appropriate agricultural technology can be used to

help create these non-farm rural jobs thereby helping to increase the output of rural non-farm workers as well as farm workers in the Barani areas. By including this objective in the attached proposal the Barani Implementation Committee's strategy for developing balanced growth in Barani areas will more likely succeed.

APPENDIX G
TRACTOR DRIVER
EXAMINATION

To Check the Driver's Understanding of Proper
Operation and Care of a Tractor

1. Explain how to service both an oil-type air cleaner and a dry-type air cleaner.
2. Demonstrate how to check the crankcase oil level.
3. Explain how to check the cooling system.
4. Point out the grease fittings that require daily attention.
5. Point out the grease fittings that require lubrication every 10 hours.
6. Demonstrate how to remove the daily deposit of water and sediment from a Diesel tractor's fuel system.
7. Discuss how to read the instrument panel of a tractor.
8. Tell what to do if the oil pressure gauge does not show the proper amount of pressure with the engine running.
9. What does the charge indicator tell you ?
10. What should you do if the water temperature gauge shows the engine running too hot
11. Where is the engine speed indicator? the ground speed indicator ?
12. How do you change the front and rear wheel spacing?
13. What should you do if your tractor fails to start immediately ?
14. Show how to stop a moving tractor and shut it off for the night.
15. Demonstrate how to attach equipment to the drawbar.
16. Demonstrate how to hitch rear-mounted equipment.
17. Demonstrate how to connect the power take-off.
18. Demonstrate how to hitch belt-driven equipment.

19. Demonstrate how to check the hydraulic system before starting field work.
20. Show how to match the gear and engine speed with the load.
21. Demonstrate how to check and correct tire slippage.
22. Discuss how to properly pull out of a mud hole or ditch.
23. Show how to make a short turn while pulling equipment.
24. Discuss safety precautions of operating on the highway at night and during the day.
25. Show how to safely tow a tractor
26. Discuss safety precautions of refueling a tractor.

APPENDIX II
**STEPS TO BE FOLLOWED IN CONDUCTING
FARMER INFORMATION MEETINGS**

H

No.1066-83/PD.
Dated Pesh the 24.4.78.

To

All the Extra Asstt:Directors,
of Agriculture in N.W.F.P.

Subject:- STEPS TO BE FOLLOWED BY THE FIELD STAFF IN
CONDUCTING FARMER INFORMATION MEETINGS.====

Memorandum:-

Copies of instructions to be followed by
the Field Staff in conducting farmer information meetings are
enclosed for distribution among all the AAs/F.As. to whom duties
relating to Barani Agriculture Development Project have been
assigned.

(Encl: For each Distt:60 Copies.
For each Agency 30 -do-)

L.M.K.
(LAL MOHAMMAD KHAN)
Project Director.
Barani Agri Dev:Project
N.W.F.P.Peshawar.

No. 1084-96 /PD.
Dated 24.4.1978.

Copy alongwith 5 copies of the enclosure are forward-
ded to:-

1. The Director of Agriculture, N.W.F.P., Peshawar.
2. All the Deputy Directors of Agriculture in N.W.F.P.
3. All the Assistant Agronomists, in N.W.F.P., Peshawar
for information.

L.M.K.
(LAL MOHAMMAD KHAN)
PROJECT DIRECTOR,
BARANI AGRICULTURE DEVELOPMENT PROJECT
N.W.F.P. PROVINCE, PESHAWAR.

(SAFLY)
24/4/78
.....

یوم داشت کاران کے موقع پر زرعی کارکنوں کی رہنمائی کے اجلاس نکات

نمائندہ پلانٹ پر زمینداروں کے اجتماع کے موقعہ پر فلیڈ اسٹاف کے ذریعے اور

عمل سے لائے

- ۱- کاشت کاروں کو بعد از سلام فرسٹ آئیڈ کیے۔
- ۲- کاشت کاروں سے مختصر آئیڈ اپنی تعارف کراؤ کیے اور ہر موقع پر موجود انٹرن کا تعارف کراؤ کیے۔
- ۳- نمائندگی پلانٹ گھانے کے مقصد کی وٹھارت کرتے ہوئے ترقی دادہ زرعی طریقوں کے تعارف، اچھے ٹیم اور

دھڑکی گھاد کے استعمال کے فوائد پر روشنی ڈالی۔

- ۴- اس کے بعد نمائندگی پلانٹ کے ضمن میں اکتھار کردہ طریقے حسب ذیل ترتیب سے بتائے جائیں۔
- (۱) - کھیت کی تیاری اپنی کھیت پر کیے۔ زمین کو سوار کرنے یا بالابیرنے کی تفصیلات بتائیں۔
- (۲) - وقت کاشت اور تخم ریزی کے وقت و ترقی حالت۔
- (۳) - تخم میں نہ انہوں کا استعمال اور ان کے دعویات۔
- (۴) - گھادوں کا استعمال ان کی قسم ورن اور طریقہ استعمال کے طرح اور پ گھاد ڈالی گئی۔
- (۵) - تخم کی قسم، اور شرح استعمال۔
- (۶) - طریقہ کاشت جو استعمال کیا گیا، (اپنی پیرا یا امیر)۔
- (۷) - بیج کے بیج اور قیاس سے کیا گیا یا صد اور اس کے فوائد۔
- (۸) - جڑی بوٹیوں کی کافی خواہ زرہ سے لے کر پھو یا کوریہ سے۔
- (۹) - کپڑوں اور بیماریوں کا نفاذ اور ان میں اپنی اختیار کیا گیا ہو۔
- (۱۰) - فصل کی ترھوئی کے زمانہ میں سوکی حالت۔
- (۱۱) - کوئی اور قابل ذکر بات یا طریقہ جو پلانٹ میں استعمال کیا گیا۔ ہونو مان میں۔
- (۱۲) - اگر زمینداروں کا یہ اعلان موقع کی براداری کے وقت ہو تو براداری یا کٹائی کے طریقہ بتائے لیں اور پھر آپ
- دونوں جانوں سے ۱۹۷۷ء میں ۱۰۰۰ کے دو طریقے متب تک کرتے ہیں۔ اور سولج اپت اور کٹائی کرتے ہیں۔ اور پھر
- ان کے ذہن کا پروفیوٹو کے ساتھ اور پھر سولج اور ان کا اور۔
- (۱۳) - پھر اپنی پروفیوٹو کے ساتھ انہوں کو بتائی گئی۔ ان میں نمائندگی اور انہوں کی پروفیوٹو کے ساتھ انہوں کو بتائی گئی۔
- (۱۴) - دونوں جانوں سے پروفیوٹو کے ساتھ انہوں کو بتائی گئی۔ انہوں کو بتائی گئی۔ انہوں کو بتائی گئی۔
- دادہ طریقوں کو اختیار کرنے کے بعد انہوں کو بتائی گئی۔ انہوں کو بتائی گئی۔ انہوں کو بتائی گئی۔
- (۱۵) - آخر میں زمینداروں کے لیے کوئی اور بات بتائی گئی۔ انہوں کو بتائی گئی۔ انہوں کو بتائی گئی۔
- (۱۶) - آخر میں نمائندگی کے ساتھ انہوں کو بتائی گئی۔ انہوں کو بتائی گئی۔ انہوں کو بتائی گئی۔

STEPS TO BE FOLLOWED BY THE FIELD STAFF IN CONDUCTING FARMER INFORMATION MEETINGS.

- I- GREET THE FARMERS.
- II- INTRODUCE YOURSELF AND ANY OF THE VISITING OFFICERS TO THE FARMERS.
- III- EXPLAIN THE PURPOSE OF THE MEETING, I.E. THE PURPOSE OF LAYING OUT DEMONSTRATION PLOTS- TO INTRODUCE IMPROVED TECHNOLOGY, GOOD SEED, USE OF FERTILIZERS ETC:
- IV- DESCRIBE STEP BY STEP THE MEASURES TAKEN IN THE LAY OUT AND HARVESTING OF PLOTS, VIZ:-
 - i- SEED BED PREPARATION- NO.OF PLOUGHINGS, LEVELLING ETC:
 - ii- TIME OF SOUING AND MOISTURE CONDITION.
 - iii- SEED TREATMENT FOR SEED AND SOIL BORNE DISEASE CONTROL.
 - iv- FERTILIZER USED, KIND, QUANTITIES AND MODE OF APPLICATION -i.o. (ALL AT ONE TIME BEFORE SOUING).
 - v- SEED VARIETY AND RATE OF SEEDING USED.
 - vi- METHOD OF SOUING I.O. BY DRILL OR BY HAND (PORA OR KERA).
 - vii- SEED AND ROW SPACING.
 - viii- WEED REMOVAL- TELL WHETHER WEEDS WERE CONTROLLED BY WEEDICIDE OR MECHANICALLY.
 - ix- PLANT PROTECTION MEASURES USED.
 - x- STATE MOISTURE CONDITIONS DURING GROWTH SEASON.
 - xi- ANY OTHER TECHNIQUE OR PRACTICE EMPLOYED.
 - xii- HARVESTING (WHEN THE MEETING IS HELD AT THE HARVEST TIME). MODE OF HARVESTING, CROP CUTTING AND MEASUREMENT OF AREAS HARVESTED, WEIGHT OF CROP, WEIGHT OF GRAIN.
 - xiii- DIFFERENCE IN YIELD BETWEEN PLOTS.
 - xiv- COMPARASION OF EXPENDITURE AND YIELD INCREASE IN THE DEMONSTRATION PLOTS IN TERMS OF MONEY WHERE POSSIBLE.

V- INVITE FARMERS TO ASK QUESTIONS.

VI- ADJOURNMENT OF MEETING BY WISHING THE PARTICIPANTS GOOD-BY.

- EACH AGRICULTURAL ASSISTANT AND FIELD ASSISTANT ARE EXPECTED TO HOLD AN INFORMATION MEETING AT EACH DEMONSTRATION PLOT.