

**AIRGRAM**

**DEPARTMENT OF STATE**

3910296 (6)

1016

UNCLASSIFIED  
CLASSIFICATION

PD-AAD-173

For each address check one ACTION

INFO DATE REC'D.

TO - AID/W TOAID A 344

137 SEP 5 PM 1 50

DATE SENT  
Aug. 28, 1967

19p.

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DISTRIBUTION  
ACTION

SA-4  
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FROM - USAID Lahore

SUBJECT - Preliminary Project Proposal (PPP)

APPC-5

REFERENCE -

NEDP-5

COUNTRY Pakistan

Project No. 391-11-660-296

NEF-1

Submission Date: August 28, 1967

NEPL-2

Project Title: Agriculture Research

NETECS

U.S. Obligation Span: FY 1969 through FY 1971

WOF-3

Physical Implementation Span: FY 1969 through FY 1972

WC-1

Gross Life-of-Project Financial Requirements:

34W

U.S. Dollars ..... 523,000

U.S. owned local currency ..... -

Cooperating country cash contribution ..... -

(Other donor)..... -

Totals \$523,000

OTHER AGENCY

State 8

PAGE 1 OF 14 PAGES

DRAFTED BY

OFFICE

PHONE NO.

DATE

APPROVED BY:

LFHessert

AGR

8/28/67

G. William Kottas, D

AID AND OTHER CLEARANCES

Wfuldoon, AD/DF

JRobinson, AD/DF

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CLASSIFICATION

## 1. SUMMARY DESCRIPTION

A major impediment to continued increases in agriculture production is the lack of an adequate research effort related to the improvement of existing crops and the development of other crops which might be planted as a part of future efforts in crop diversification. As an initial step, the Mission is providing a high-level team of United States agricultural research scientists to assist in a joint study of current agricultural research efforts in Pakistan. Based upon the conclusions and recommendations of this team, future project activities in agricultural research will be determined. It is expected, however, that assistance will be required to further enhance the capabilities of each of the provincial agricultural universities to carry out an active applied research program following termination of current Mission assistance efforts. In addition, assistance to Central Government research activities may also be required. Each of these is described in more detail under the Strategy section below.

Further detail regarding specific project targets, results and outputs and the methods of implementation will be defined during the course of the review to be carried out by the high-level research team. In addition to technical assistance to each of the universities, it is expected that participant training directed toward continued strengthening of faculty research competence will also be required. Such efforts constitute the next logical step beyond current technical assistance projects with the universities and will provide the basis for better definition and expansion of agricultural research programs during the Fourth Five-Year Plan period.

## 2. ENVIRONMENTAL SETTING

Pakistan's agricultural production potential for the Third Plan is, to a large extent, dependent on imported requisites--fertilizer, seeds, insecticides, pumps and know-how. While it is possible to get by on imported technology in the short run, continued growth during the Fourth Five-Year Plan and beyond will be increasingly dependent upon research within the country. Although Pakistan's capability for agricultural research has improved considerably in recent years, it remains inadequate in terms of its capacity to carry out applied research needed for sustained agricultural development. In general, the Central Government and the Government of West Pakistan have a relatively greater capacity in research talent and facilities than has East Pakistan.

Agricultural research is concurrently the responsibility of both the Central and Provincial governments. Central research bodies are the Agricultural Research Council, the Central Cotton Committee, the Central Jute Committee and the Tea Board with the latter three bodies coordinating agricultural and technological research for their respective products. Some research is conducted in their own farms and laboratories and some is financed by the committees but implemented by the Provincial research stations and universities.

The Agricultural Research Council was created during the Second Plan to serve as a central coordinating body for agricultural research efforts that had previously been conducted largely on an ad hoc basis. The Council is provided with funds to be passed on to research institutions to give it some leverage in an effort to determine and guide the kinds of research carried out.

Agricultural research in the Provinces has been conducted primarily by three research institutes in West Pakistan and one in East Pakistan, the Directors of which report to the respective Secretaries of Agriculture. (The second national Capitol is being built on the site of the former research station at Dacca and a new station is not yet established.) Each of the institutes has a number of research substations. In addition, the two agricultural universities have research programs of growing importance and several other agencies and institutions carry on research related to various aspects of agricultural development.

The Agricultural Research Council, which currently has no chairman, needs to be strengthened in terms of both funds and membership. More total resources need to be channeled into research. Salaries of agricultural scientists, while improved, are too low to attract top-level people. The best researchers are often tied up in administrative positions. Many of the best scientists are being lured by agriculturally-related industrial firms for non-research jobs, at salaries two or more times their former salaries. There is little cooperation between the universities and the research institutes with the effect that research results are not used to the best advantage. Too few are published in any form and the extension services are not well enough informed of findings.

Dr. Z. A. Hashmi, Vice Chancellor of West Pakistan Agricultural University and Chairman of a committee appointed to investigate agricultural research, pinpointed some of the main problems of agricultural research in a recent article in the Pakistani Times. The essence of the article is captured in the following

"In Pakistan, current research effort in agriculture and allied fields is dispersed over a large number of small, poorly equipped and inadequately staffed research and experimental stations numbering over 150 which follow uncoordinated programmes covering a multiplicity of research projects of little pointed relevance to an immediate increase in the production of essential commodities. It is a leisurely, 'laissez faire' approach, the choice of research problems being dependent on the whims and fancies of the individual research worker and determined by the facilities that happen to be available at a given centre rather than being developed in pursuance of clearly conceived national goals."

### 3. STRATEGY

The Government of Pakistan recognizes many of the shortcomings of the research system and has invited a high-level team of three or four United States agricultural research scientists, together with two of Pakistan's top research officers, to make a joint study of agricultural research in Pakistan and make recommendations for improvement. The Pakistani members of the team have been named and the United States portion of the team is being constituted.

The primary objective of the joint research team will be to make recommendations for the improvement of coordination and administration of research to assure improved and increased agricultural production. The team will work closely with representatives of Ford and Rockefeller Foundations, as well as with the Mission. The country representative of Ford Foundation has a particular interest in the administration of research and offers full cooperation and assistance in following up on the recommendations of the joint team.

This preliminary project proposal is being submitted prior to the team's visit because of the extreme importance of agricultural research. Tentatively, the project is divided into three sections: a. applied research for the improvement of technology in agriculture, b. improvement of research competence of West Pakistan Agricultural University (WPAU), while focusing on a specific problem area, using the team approach, and c. improvement of the research competence at East Pakistan Agricultural University. After the recommendations of the joint review team are available, it is anticipated that the project proposal will be refined and submitted as a PROP.

**a. Research to Improve Technology of Agricultural Production**

Through the Agricultural Research Council, the Mission will endeavor to have research oriented as much as possible toward obtaining results that will facilitate shifts in cropping patterns commensurate with the goal of crop diversification upon the attainment of self-sufficiency in foodgrains, and toward more adaptive research designed to upgrade technology of agricultural production. Tentatively, it is planned that a senior level technician with a strong background in research administration will be assigned to work with the Agricultural Research Council to assist in defining important problem areas, writing project outlines, and coordinating research. The following list is suggestive of some areas in which research is needed:

**(1) Technology of Increased Agricultural Production**

**(a) Optimum use of fertilizer.**

**(i) Among different crops and soils.**

**(ii) Rates and combinations of nutrients.**

**(b) Improved plant protection measures.**

**(c) Development and testing of farm tools, including small tractors.**

**(d) Development of improved production practices.**

**(2) Improvement of Crop Varieties**

**(a) Selection of high-yield varieties now existing in Pakistan.**

**(b) Breeding of higher yielding, disease-resistant varieties.**

**(c) Testing varieties from outside Pakistan for possible introduction.**

**(d) Breeding of short-growing-season varieties, to permit more double cropping.**

**(3) Water Management and Salinity Control**

- (a) Optimum water rates among different crops and soils.
- (b) Effects of timing and mode of application of irrigation water.
- (c) Yields as a function of amount of water applied for different salt and sodium contents.
- (d) Studies of techniques of reclamation of saline soils.

**(4) Economic Relationships**

- (a) Price and income elasticities of demand for various crops.
- (b) Effects of changing subsidies on inputs.
- (c) Analysis of floor price and buffer stocks policy.
- (d) Farm operating costs for various crops.
- (e) Effects on cropping patterns of changing relative prices for crops.

**b. Agricultural Research, West Pakistan Agricultural University**

The Inter-College Exchange Program between Washington State University (WSU) and West Pakistan Agricultural University was started in November, 1961. AID/WSU were charged with the responsibility for establishing an agricultural university which would include all disciplines relating to agriculture in its broadest sense. Five faculties have been established: Agriculture, Animal Husbandry, Veterinary Science, Agricultural Engineering and Technology, and Agricultural Economics and Rural Sociology. In addition, a division of Basic Sciences and Arts and an Institute of Teacher Training and Extension Short Courses have been established. Teaching, research and extension all were included as functions and responsibilities of the University. The WSU/WPAU project is scheduled to terminate in FY 1969.

The institution has shown substantial improvement and growth. It is now capable of turning out the kinds of graduates needed to upgrade the extension service and to fill the requirements of agriculturally related industry. However, it has not reached the point that it can continue to upgrade its own staff in some fields without external assistance, or produce the quality of scientists needed to carry on the research necessary to keep West Pakistan's agricultural growth rate at a desirable level.

Pakistan's capability for agricultural research has improved considerably in recent years, due largely to scientists having been trained abroad. However, a high proportion of the research talent in West Pakistan is with the three research institutes which are an integral part of the Department of Agriculture. Since it is the function of the University to train agricultural scientists for the future, an improvement must be made in the research capability of the University. The alternative, which is not attractive as a long-run solution, is to continue to send the bulk of the scientists abroad for advanced training.

While the bulk of the agricultural research in the Province has been conducted by the three research institutes and their substations, the WPAU has a research program of growing importance. Considerable room for improvement exists throughout the research set-up. One of the most critical faults is lack of cooperation among research institutions and lack of coordination and direction of research efforts.

Subject to the recommendations of the joint team, which is to review agricultural research this autumn, it is envisaged that the project herein proposed will be a vehicle for helping to foster better cooperation between the University and the research institutes and for helping to focus research, through the team approach, on problems of greatest importance.

In formulating a tentative program to help improve research competence at WPAU, it is considered important to propagate a technical interchange of personnel between West Pakistan Agricultural University and a United States university--perhaps Washington State University--on a voluntary and continuing basis after the formal project is closed. Efforts designed to enhance the mutual acquaintance of sister departments in the two institutions should broaden and stimulate both institutions. Invitations by the United States university for lectures, research consultants, etc., would greatly enhance the dignity and self-confidence of the WPAU staff members.

A cooperative developmental research undertaking between WPAU and a United States university would have many advantages, viz.:

- (1) Improve the subject-matter and research competency in critical areas at the host institution.
- (2) Stimulate research efforts directed toward increasing food and fiber yields in a shorter period of time, since the necessary equipment and facilities will not be available at WPAU until 1970 or later.
- (3) Demonstrate to the general public that adequately financed and adequately staffed research will provide the information necessary for formulating agricultural development programs.
- (4) Concentrate both indigenous and foreign scientific manpower into inter-disciplinary research teams which will enable the University to concentrate on a few selected and interrelated agricultural research problems of national importance.

A team of senior scientists will be organized from scientists at WPAU and a United States university to write a master project and supporting activities in one of three suggested areas: (a) improvement of the quality and yield of food legumes; (b) the interaction between quantity and quality of water and its influence on soil characteristics; and (c) the interaction between plants, animals and their environment.

Tentatively, a team of three senior scientists from a United States university will come to Pakistan for eight weeks during the summer of 1968 (funded under Technical Support) to study local conditions prior to preparing the master project and supporting projects. Research responsibilities by the United States university and WPAU will be finalized; phases of research WPAU cannot handle because of a lack of trained manpower or a lack of necessary scientific equipment to be done at the United States university will be identified.

Early in the project, a team of three senior scientists from WPAU will spend three months at the United States university. During this study tour they will learn new techniques, collect library materials and make a listing of research equipment and materials needed to handle the advance phases of this project at WPAU.

An exchange of advanced graduate students will be planned. Three or four students per year from the United States university who will

have completed all course requirements for a Ph. D. will do their thesis research on a specified phase of the master project. Each student will be assigned a local counterpart and as a consequence local staff members will be trained in new techniques and procedures.

Ten advanced students per year from WPAU will do both graduate studies and research at the United States university. Each will be assigned a thesis topic on the phases of the master project being undertaken at the United States university.

The chief of the contract party will reside at WPAU and supervise research activities on a continuing basis. Three full-time research advisors will also reside at WPAU. In addition, three highly qualified scientists (consultants) will make short-term visits to hold seminars, give lectures, and give technical guidance to the research.

A condition precedent to assistance under the proposed contract will be a commitment from the Government of Pakistan assuring cooperation of all research institutions, particularly regarding the research program upon which this project will focus.

Commodity financing will be needed for certain items of equipment and supplies not otherwise available.

c. Agricultural Research, East Pakistan Agricultural University

Considerable progress has been made in the development of East Pakistan Agricultural University (EPAU) during the course of the Texas A&M contract. However, the capacity of EPAU to do research is even less well developed than that of West Pakistan Agricultural University. Substantial external assistance will be required after the present project of assistance to the University terminates in 1979 to develop the University's research capability to the point that it can train well-qualified scientists in various phases of agriculture.

Since the EPAU/Texas A&M contract is due to terminate one year later than the WPAU/WSU project, plans for assistance to EPAU in research after the present project terminates are less well developed than those for WPAU. Several areas exist in which effective agricultural research should be carried out in East Pakistan. Depending somewhat upon recommendations of the joint research team, it is planned to select one major problem area that requires research effort and use this as the focal point for assistance to the University, employing technical services

of a United States university under contract. Details of the project will be worked out during the course of this fiscal year.

Following is a list of areas in which effective research could be carried out through team research efforts at the EPAU:

(1) Oil Seeds:

East Pakistan is confronted with a growing deficit in edible oils. At the present time East Pakistan produces about 27,000 tons of oil annually. In the past several years Pakistan has been importing from 60,000 to 100,000 tons per year. Recently signed PL 480 agreements with the United States Government call for--importation of 150,000 tons of edible oil during the current fiscal year. While the 150,000 tons is for all of Pakistan, it is expected that perhaps 100,000 tons may be used by East Pakistan. However, even with imports the total available edible oil is far short of the quantity needed for an acceptable diet. To meet the dietary requirements more than one million tons of oil are needed. There has been little change in the production of oilseed per acre since Independence of 1947-48. There is an over dependence on mustard and only limited amounts of other oilseed are now being produced. However, there is considerable evidence that there is great potential in "switching" oilseed acreage from mustard to peanuts which would give both an increase in yield per acre of seed as well as a much higher percentage of oil in the seed. Additionally, peanuts would provide another source of protein needed in the East Pakistan diet. There is some evidence that soybeans may also be a possibility in some areas of East Pakistan. No doubt other oil-producing crops might also be found if research in this field were carried out.

(2) Pulses:

It is quite generally agreed that one of the basic deficits in the human diet in East Pakistan is the lack of protein. The extremely heavy land pressure would seem to prevent any appreciable expansion of livestock production and therefore the protein for human consumption in East Pakistan would of necessity be primarily from pulses. During the past twenty years, the yield per acre of pulses has been more or less static. The average annual per acre yield since partition is as follows:

1947-50	607 lbs.
1950-55	631 lbs.
1955-60	601 lbs.
1960-65	602 lbs.

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The acreage has remained more or less constant, but with the population increase the available protein from pulses on a per capita basis has shown a marked decline. A wide variety of pulses can be grown in East Pakistan; however, it is essential that increased production per acre be obtained either through new pulse crops or improved production of the varieties now being grown.

(3) Sugar Cane:

Until recently sugar cane research and the sugar cane research station of East Pakistan were under the control of the Central Government. In early 1967 the control of this station was transferred to the Provincial Government of East Pakistan.

Acreage of sugar cane has increased but the yield of cane per acre has been more or less static with an annual yield of cane per acre of 33,000 pounds. Hence, the increased acreage has not enabled production to keep pace with the growing population. Additionally, the yield of sugar per ton of cane is quite low as is borne out by a comprehensive study made by American Factors, Inc., of Honolulu, Hawaii, on both the production and processing of sugar production in East Pakistan through a contract with East Pakistan Industrial Development Corporation (EPIDC). The study is available, and in recent discussions with the East Pakistan Secretary of Agriculture, it was recommended that the possibility of a contract with American Factors be considered to conduct research in variety, production requirements, disease and insect control and also field demonstration with the sugar cane producers. This research could be followed by work with the processing plants when a higher quality of production is available for processing. The suggestion is now under study by the Secretary but no firm request has been received.

(4) Citrus:

There is evidence that citrus could be grown on a fairly large area of the Hill Tracts and other hill areas of the eastern part of East Pakistan. Such production would not compete with rice, jute or other food crops now being grown.

Indigenous varieties are of good hand-eating quality but yields are low under present management conditions. Therefore, research is needed on varieties, fertilizer and general improved cultural practices such as rootstock selection, minor element sprays, disease and insect control.

**(5) Palms:**

**General research on coconut production is necessary. Coconuts do well under conditions prevailing in the Province and are an excellent crop in the extensive coastal saline areas. At the present time a large percent of the crop is consumed as green coconut and little mature coconut or fiber is therefore available. Betel nut, a highly commercial palm in East Pakistan, is suffering from an unknown disease; research on its cause, cure and prevention is needed. Experimental plantings of oil palms indicate there is good potential for African varieties. However, no research has been done on varieties, cultural methods, or acceptability of the palm oil in East Pakistan. In view of the increasing shortage of fats and oils in East Pakistan and the yield potential of oil palms, research in this area could provide means of increasing farmer income on small plots of land around homesteads and on lands otherwise unsuitable for cropping.**

**(6) Rice:**

**At present varietal trials, studies on cultural methods and limited studies on herbicides, insect and disease control are being conducted. Research is needed in plant breeding to adapt known improved varieties to Pakistan conditions, develop improved varieties for the five million acres of deep water rice or alternate cropping systems for parts of this area and identify and plan the use of mechanical and aerial means of application of seed, fertilizer, insecticides, fungicides and herbicides.**

**(7) Agricultural Marketing:**

**Increased agriculture production will require increased expenditures for fertilizer, pesticides, irrigation and farm implements. These are heavily subsidized at the present time but eventually farmers may have to bear the entire cost and risk. As subsidies are reduced, it becomes increasingly more important that the income from the sale of their products be sufficient to cover costs and risks and to give enough profit to serve as an incentive to continue making investments in improved practices. This will require a greatly improved marketing system.**

**To obtain a sound base for improving agricultural marketing, an expanded research program is needed. To date, marketing studies have been limited to only a few commodities, particularly jute.**

These studies have been mainly concerned with market channels and costs. The ever increasing quantity of perishables needed to improve the diet along with the increasing urban population point up the need for studies to determine means of reducing marketing losses of perishables occurring in transportation, handling, packing and storing or through lack of facilities for preserving them at or near the point of origin. Studies are also needed to determine ways of reducing storage, milling, processing and handling losses of the non-perishables and means of reducing costs of transportation, storage, packing and other marketing costs for all crops, livestock and fish.

Investigations are needed to devise grades and standards to exploit the domestic and foreign markets fully and to formulate means of assuring farmers honest weights and prices consistent with the quality of their product. Investigations are also needed on means of linking credit and marketing to permit farmers to take advantage of the off-harvest season higher prices.

(8) Inland Fish:

Evidence suggests that the fish in public waters, such as rivers and beels, are being utilized at rates below optimum levels. Inefficient and outdated fishing gear and methods is one reason; the lack of knowledge on what these waters can produce is another. Joint research in these two areas may reveal sizeable potentials for greater fish production.

Low availability of fish for food is a serious problem in many areas of East Pakistan. This problem is caused by lack of storage, cooling and transportation facilities. Market research is needed to establish the supply, demand, distribution, and availability of fish to improve consumer availability and lower retail prices.

(9) Water Hyacinth as a Crop:

The abundance of water hyacinth, a floating lily-like plant, in tanks, canals and beels of East Pakistan suppresses fish production and harvest and inhibits many forms of boat transportation. This plant is

little used and is a province-wide nuisance. Research to develop industrial uses for water hyacinth, such as for compost, paper, cardboard, or other material, may result in a sizeable industry that would provide multiple benefits.

OENLERT

NONCAPITAL PROJECT FUNDING (OBLIGATIONS IN 0000)

Mo/Day/Yr.

Table 1  
Page 1 of 1

COUNTRY: PAKISTAN Project Title: AGRICULTURE RESEARCH Project No. 391-11-660-296

Fiscal Years	AP	L/G	Total	1/ Cont.	Personnel Serv.			Participants		Commodities		Other Cost	
					AID	PASA	CONT.	US	Dir	CONT	Dir &	CONT.	
								Agencies	CONT	US Ag	US Ag		
Prior through Act. FY _____													
Oper. FY 1968													
Budg. FY 1969	TC	G	162	162			116		36			10	
B + 1 FY 1970	TC	G	174	174			117		47			10	
B + 2 FY 1971	TC	G	187	187			120		57			10	
B + 3 FY 1972	TC	G	-	-									
All Subs.													
Total Life	TC	G	523	523			353		140			30	

1/ Memorandum (nonadd) column.

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IA-344

USAID/Lahore

DRAFT:HBuckley:meh 10/4/68

Pakistan FY '70 PBS - Ag. Research

- [Project is aimed at (a) strengthening Pakistan Ag Research Council ( PARC) and (b) continuing assistance to EPAU and WPAU in research area through TA&M and Washington State U.]
- Point is strongly made in PBS that PARC must be strengthened if research is to be successful in Pakistan. Reform of PARC depends on salary increase and larger, more competent staff. These in turn depend on new legislation. "The Mission is urging the GOP to implement this recommendation as soon as possible."  
  
Question: Despite the warning that a second failure to reorganize the PARC would be a negative contribution, do we assume Mission efforts will be successful and proceed with project implementation plans?
- Proposal to use U.S. graduate students for research is not sound. If we are to invest money in this area it should be spent on high quality, short-time consultants whom Paks know and respect. Build around seminars, lectures, etc., that one man might handle at all major research institutes.

Comments on Agricultural Research - PROP

1. Page 11 of PROP - Planning and Coordination of Research. This project will be significant only if the two direct hire advisers are of top caliber. I doubt that two such ag research advisers are available in AID at the present time.

Question: How do we find the quality that these positions demand? Do we recruit new direct-hire? Is this possible in view of current restraints on personnel? Could this Agency really attract such people? *YASA ?*

— Present structuring of projects calls for two contract units, one at EPAU and one at WPAU. These contract employees are to stimulate and supervise the research activities of their respective institutions. In turn, the contractors are to be supervised by the direct hire technicians noted in (1) above.

Question: Who will be the top man on their totem pole? It may be assumed that the Mission will give this spot to a third direct hire man in the Agriculture Division. This third man, the only link between the two provinces, will be either (a) a strong research man or (b) an administrative link primarily charged with carrying the paper work required by AID/W and the USAID. It is safe to assume that (a) and (b) are mutually exclusive, i.e., that no top technical should be wasted on administrative matters and no program — type project manager will be capable of exercising any professional judgement in research field.

— There could then be two more direct hire positions if technical and administrative control of this activity is to <sup>be</sup> CON CENTERED above the provincial level.

Question: What shape should project control take? What benefits derived from central control? What benefits from lack ~~of~~ of control above the provincial level?

2. Research at Ag Universities

We are trying admittedly, to kill three birds with one stone:

- (a) Strengthen Ag. research capabilities and programs at both EPAU and WPAU
- (b) Finish the training of staff and development of curriculum for EPAU
- (c) Subsidize a continuing university-to-university relationship between TA&M/EPAU and Washington/WPAU.

There must be tighter control of this activity if (a) is not to be sacrificed to (b) and (c). The tendency of both contractors will be to continue business as usual, i.e., to regard this new project as merely an extension of other earlier activities.

Question: ~~What~~<sup>What</sup> action is required to clearly demonstrate to all involved that this is not a termination phase of the 2 ag. university projects but the initiation of a major research effort? Are we ourselves convinced?

~~—~~ Insofar as the provisions short-term contract consultants is concerned, I believe this is an excellent time to allow both the U.S. and Pak universities to demonstrate their interest in long-term relationships. As proposed in Circular XA 1792 (12/14/67) the universities should begin to pay a reasonable share of the costs. The PROP does not face this issue. The above circular should be carefully reviewed and made to stick.

Participant problem will further reviewed during the first week of April. Costs in the PROP are excessive. A reduction of between 50-60% may be anticipated.

-- Question: PROP, Page 12, final paragraph is completely vague. Having already invested nearly \$4 million on participant training alone, why should five additional programs now become essential? It appears that the five staff members are to be sent to the U.S. for exactly the same type of training the contractors are intended to provide. This <sup>IN THE FIELD</sup> item is indefensible and should be dropped completely.

Commodity funds total \$40,000 over life of project. This sum equals only \$5,000/year/institution. It is also a questionable item given the following:

(a) TA&M still has \$17,000 in contract for purchase of commodities and plans to use it only in 1970, if at all.

(b) Washington State has \$30,000 still in contract for purchase of commodities as of FY '69.

3910296 (7)  
PD-A ID 173

PROJECT AUTHORIZATION

1. PROJECT NUMBER 591-17-110-295.2	3. COUNTRY PAKISTAN	4. AUTHORIZATION NUMBER A.I.D.
2. PROJECT TITLE Agricultural Research, West Pakistan		5. AUTHORIZATION DATE 5/28/71
		6. PROP DATED 12/24/70

7. LIFE OF PROJECT

a. Number of Years of Funding: 6  
Starting FY 19 69; Terminal FY 19 74

b. Estimated Duration of Physical Work  
After Last Year of Funding (in Months): 6 1p.

8. FUNDING BY FISCAL YEAR (in U.S. \$ or \$ equivalent)	DOLLARS		P.L. 480 CCC + FREIGHT	LOCAL CURRENCY Exchange Rate: \$1 =			
	GRANT	LOAN		U.S. OWNED		HOST COUNTRY	
				GRANT	LOAN	JOINTLY PROGRAMMED	OTHER
Prior through							
Actual FY 1970	240						
Operational FY 1971	136						
Budget FY 1972	335						
B + 1 FY 1973	400						
B + 2 FY 1974	240						
B + 3 FY							
All Subsequent FY's							
<b>TOTAL</b>	<b>1,351</b>						

9. DESCRIBE SPECIAL FUNDING CONDITIONS OR RECOMMENDATIONS FOR IMPLEMENTATION, AND LIST KINDS AND QUANTITIES OF ANY P.L. 480 COMMODITIES

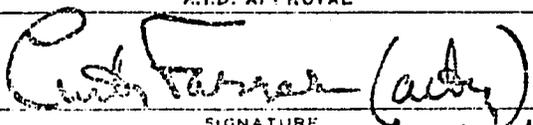
10. CONDITIONS OF APPROVAL OF PROJECT

(Use continuation sheet if necessary)

11. Approved in substance for the life of the project as described in the PROP, subject to the conditions cited in Block 10 above, and the availability of funds. Detailed planning with cooperating country and drafting of implementation documents is authorized.

This authorization is contingent upon timely completion of the self-help and other conditions listed in the PROP or attached thereto.

This authorization will be reviewed at such time as the objectives, scope and nature of the project and/or the magnitudes and scheduling of any inputs or outputs deviate so significantly from the project as originally authorized as to warrant submission of a new or revised PROP.

A.I.D. APPROVAL		CLEARANCES	DATE
 SIGNATURE		NESA/PR, RBirnberr <i>for</i>	5-26-71
AA. NESA, D. G. MacDonald	5/28/71	A/CONT	
TITLE	DATE		

Prop. Pak

PRO AG  
3910296 (8)

PD-ADD-173

PROJECT AGREEMENT  
BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),  
AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND  
ECONOMIC AFFAIRS DIVISION

AN AGENCY OF THE GOVERNMENT OF PAKISTAN

FY 69

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below.

1. PROJECT/ACTIVITY NO.

391-11-660-296

PAGE 1 OF 2 PAGES

9p.

2. AGREEMENT NO.

69-35

3.  ORIGINAL OR

REVISION NO.

4. PROJECT/ACTIVITY TITLE

Agricultural Research

PROJECT DESCRIPTION ANNEX A  FOREIGN CURRENCY STANDARD PROVISIONS ANNEX

STANDARD PROVISIONS ANNEX  SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE 2/9/57 AS amended & supplemented

5. PROJECT DESCRIPTION AND EXPLANATION

(See Annex A attached)

ECONOMIC COOPERATION AGREEMENT DATE

6. AID APPROPRIATION SYMBOL

72-1191GOL

7. AID ALLOTMENT SYMBOL

954-50-391 00-69-91

AID FINANCING  LOCAL CURRENCY

PREVIOUS TOTAL (A)

INCREASE (B)

DECREASE (C)

TOTAL TO DATE (D)

(a) Total

555,000

55,000

(b) Contract Services

55,000

55,000

(c) Commodities

(d) Other Costs

COOPERATING AGENCY FINANCING DOLLAR EQUIVALENT

(a) Total

(b) Technical and other Services

(c) Commodities

(d) Other Costs

FUNDS AVAILABLE  
*Shahbaz* 7/7/69  
Signature. Date.

10. SPECIAL PROVISIONS (Use Additional Continuation Sheets, if Necessary)

In order to carry out the project jointly agreed upon and described in Annex A of this Agreement, the Governments of Pakistan and

11. DATE OF ORIGINAL AGREEMENT

June 30, 1969

12. DATE OF THIS REVISION

13. ESTIMATED FINAL CONTRIBUTION DATE

June 30, 1972

14. FOR THE COOPERATING GOVERNMENT OR AGENCY

*Vaqar Ahmed*  
Vaqar Ahmed

DATE

Secretary, Econ. Affairs Division

15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

*C. William Kontos*  
C. William Kontos

DATE

Minister-Director, USAID/Pakistan

AD/DP *W...*  
AGRI *...*  
DP/PV *...*  
AD/C *...*  
AD/M *...*  
DO *...*

See Page 11 of this Agreement for signature of Project Director and Project Officer

AID 1510-1A  
(9-69)

**PROJECT AGREEMENT**

1. Project/Activity No.  
391-11-660-296

PAGE 1A OF 8 PAGES

FDOAG  
CONTINUATION  
SHEET

BETWEEN AID AND  
ECONOMIC AFFAIRS DIVISION

2. Agreement No.  
69-35

3.  Original or  
Revision No.

ANNEX

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

3. Project/Activity Title

Agricultural Research

West Pakistan and the Government of the United States will provide the contributions described in Sections IV and V. Agreement in detail regarding contract services provided in this project is contained in PIO/T 391-296-3-90343.

(Copy signed 6/23/69 on file in  
in U.S.A.I.D.)  
Leon F. Hesser  
Project Advisor  
Asst. Director  
Agricultural Policy  
USAID

(Copy signed 6/23/69 on file  
in U.S.A.I.D.)  
M. Yamin Qureshi  
Principal Project Director  
Joint Secretary (Agriculture)  
Ministry of Food and Agriculture  
Government of Pakistan

(Copy signed 6/23/69 on file  
in U.S.A.I.D.)  
Iqbal Masud  
Project Director  
Secretary of Agriculture  
GOWP, and  
Chairman, West Pakistan  
Agricultural Research Board

(Copy signed 6/27/69 on file in  
U.S.A.I.D.)  
Malik Abdul Latif Khan, T.P., C.S.P.  
Secretary of Education  
Government of West Pakistan

(Copy signed 6/27/69 on file  
in U.S.A.I.D.)  
Dr. Z. A. Hashmi  
Vice-Chancellor  
West Pakistan Agricultural  
University

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

AID 1980-13 13-621	PROJECT AGREEMENT BETWEEN AID AND	1. Project/Activity No. 391-11-660-296	PAGE 2 OF 5 PAGES
PROG CONTINUATION SHEET	ECONOMIC AFFAIRS DIVISION	2. Agreement No. 69-35	3. <input checked="" type="checkbox"/> Original or Revision No.
ANNEX	AN AGENCY OF THE GOVERNMENT OF PAKISTAN	3. Project/Activity Title Agricultural Research	

Annex A

PROJECT DESCRIPTION AND EXPLANATION

I. PROJECT PURPOSE

The purpose of this project is to make sound agricultural research a foundation for sustained growth in agricultural production by (1) developing the government's capacity to administer, coordinate and direct research efforts toward relevant problems and (2) improving the capacity of West Pakistan Agricultural University (WPAU) to produce top-level research scientists.

The key to sustained agricultural growth in Pakistan lies in improved agricultural research capability and administration. Interdisciplinary research efforts are needed to improve existing crops -- to develop greater disease and insect resistance, for example -- and to develop new crops and improved livestock husbandry to facilitate diversification in agricultural production.

The country has an agricultural research base on which to build the type of research institutions and programs needed to assure continued agricultural growth. The elements in the research system which need strengthening are (1) the present system of administration and coordination of research does not efficiently focus the limited research talent and facilities on the most important problems, and (2) the graduate level programs of West Pakistan Agricultural University, while having shown remarkable development since established in 1961, suffer from inadequate infusion of ideas and lack of confidence among the researchers (teachers and students alike) in the techniques of carrying out the research on which graduate degrees and the future agricultural scientists are based.

II. BACKGROUND

Pakistan's agricultural production increases in recent years have, to a large extent, been dependent on imported inputs -- fertilizer, high yielding varieties of seeds, insecticides, pumps and know-how. The most dramatic element, sometimes referred to as the catalyst in the "Green Revolution" in Pakistan are the high yielding varieties of seeds which are the result of research performed largely in the international research centers -- rice in the Philippines and wheat in

For the Cooperating Government or Agency	For the Agency for International Development
SIGNATURE: _____ DATE: _____	SIGNATURE: _____ DATE: _____
TITLE: _____	TITLE: _____

AID 1000-1A (10-03)  PROAG CONTRIBUTION SHEET  ANNEX	PROJECT AGREEMENT BETWEEN AID AND ECONOMIC AFFAIRS DIVISION  AN AGENCY OF THE GOVERNMENT OF PAKISTAN	1. Project/Activity No. 391-11-860-296  2. Agreement No. 69-35  3. Project/Activity Title Agricultural Research	PAGE 3 OF 6 PAGES  3. <input checked="" type="checkbox"/> Original or Revision No.
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Mexico. While it is possible to get by on imported technology such as the improved seeds in the short run, continued growth in agricultural production will be increasingly dependent upon more adaptive research within the country. Pakistan's capability for agricultural research has improved considerably in recent years, but it remains inadequate particularly in two respects; (1) the institutions for administering, coordinating and directing research lack capacity to focus the country's limited research resources on important problems in an efficient manner, and (2) the level of sophistication in research techniques at the two agricultural universities, which are the primary centers for training agricultural research scientists in Pakistan, is below the standard necessary to produce the quality of scientists needed to upgrade agricultural research competence in Pakistan.

In recognition of the shortcomings of the research system, the Government of Pakistan invited the USAID to furnish four specialists in research administration and coordination to do a joint review of Pakistan's agricultural research in cooperation with three Pakistani officials with various responsibilities for agricultural research. The team's terms of reference, observations and recommendations are described in "Report of the Joint Pakistan-American Agricultural Research Review Team," Islamabad, April 6, 1968.

In sum, the recommendations of the joint team call for a broad revision in current procedures for administering and coordinating agricultural research. The team's conviction was that a central coordinating body such as a strengthened Agricultural Research Council (ARC) is absolutely necessary for identifying priority research needs and should have power to influence the mobilizing of limited research resources into coordinated and integrated work in the priority areas. The Provincial Agricultural Research Boards should also play a key role in improving research, and to do this they will need higher status, broader functions, increased funds and expanded technical staff.

In West Pakistan one field of agricultural research in which technical assistance can have substantial impact is oilseed crops. In 1968 Pakistan produced only 55% of its 360,000 metric tons annual edible oil needs, and West Pakistan accounted for 70% of this total domestic production. Oilseed crops fit well into the crop rotation patterns in West Pakistan and can contribute a food self-sufficiency.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PROJECT AGREEMENT  
BETWEEN AID AND  
ECONOMIC AFFAIRS DIVISION**

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

1. Project/Activity No.  
**391-11-660-296**

2. Agreement No.  
**69-35**

3. Project/Activity Title

**Agricultural Research**

PAGE **4** OF **8** PAGES

3.  Original or  
Revision No. \_\_\_\_\_

USAID has provided previous assistance related to agricultural research through two projects: Since 1961 USAID has assisted East Pakistan Agricultural University by providing the services of a Texas A&M University contract team under the East Pakistan Universities Project (391-11-660-144). This assistance will terminate June 30, 1970. Additionally, USAID has assisted West Pakistan Agricultural University since 1961 by providing the services of a Washington State University contract team under the West Pakistan Agricultural University Project (391-11-660-146). This project will terminate June 30, 1969.

III. COURSE OF ACTION

The Government of Pakistan has expressed a desire for advice and assistance in improving the efficiency of its agricultural research efforts. The Government of Pakistan has made a decision to implement, with only minor changes, the recommendations of the Joint Agriculture Research Review Team.

This project will provide technical assistance through direct hire, university contract advisors and short-term consultants with related participants combined in the following manner:

A. Planning and Coordination of Research Objectives

1. Central Government

a. The Agriculture Research Council and the Provincial Agricultural Research Boards will assist in identifying problems confronting Pakistan agriculture and plan with the appropriate agencies a coordinated research program for the solution of these problems.

b. The Agricultural Research Council will establish an adequate staff headed by a Director General with six Directors plus sufficient supporting staff, to furnish capable/fields of agricultural research and development. Leadership in the

c. A Board of International Agricultural Science Consultants will be established and will be meeting at least once each year with the Agricultural Research Council for continuing assessment of progress in developing Pakistan's improved research organization and programs and to advise regarding new developments abroad.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

AID-1220-1A (2-6-69)  PROGRAM CONTINUATION SHEET  AINSH	<b>PROJECT AGREEMENT          BETWEEN AID AND          ECONOMIC AFFAIRS DIVISION          AN AGENCY OF THE GOVERNMENT OF          PAKISTAN</b>	1. Project/Activity No. 391-11-660-296  2. Agreement No. 69-35  3. Project/Activity Title Agricultural Research	PAGE 2 OF 6 PAGES  3. <input checked="" type="checkbox"/> Original or Revision No.
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2. Provincial Government (GOWP)

a. The GOWP Agricultural Research Board will define those problems peculiar to the province on which research is required. Appropriate action will be taken to implement planning and coordination of research within the scope of cooperation with the ARC. The Board will develop a small supporting staff to assist in identifying and assessing the major agricultural research problem areas and in meeting those problems with research resources and capabilities.

b. The GOWP Provincial Agricultural Research Board will meet on a definite schedule and will take appropriate action to correct procedures for planning and implementation of research, including the arrangements for financial sanctions and such other factors which limit the effectiveness of research in the provinces.

c. An Agriculture Research Administration Advisor provided by USAID for four years beginning in FY 1970 will work closely with the GOWP Provincial Agriculture Research Board, coordinating as required with the Central Agriculture Research Council. The Agriculture Research Administration Advisor will be responsible for coordination and directions of this project.

d. USAID short-term consultants from the U.S. Department of Agriculture will assist the Agricultural Research Council and the GOWP Research Board to establish improved personnel procedures, a national documentation center to facilitate exchange of information among research workers in Pakistan and between Pakistani researchers and the international research community, and to develop systematic procedures for the introduction of plants and the maintenance of germ plasma.

e. Selected research administrators, scientists and directors of staff of the Agricultural Research Council and GOWP Agricultural Research Board will observe abroad the methods of organization and administration of research.

f. A coordinated oilseed research project will be developed in West Pakistan coordinating all research facilities in this field. This program will be directed toward increase of yields of existing oilseed crops and to conduct research on such new crops as soybeans, safflower and sunflower.

For the Cooperating Government or Agency		For the Agency for International Development	
SIGNATURE: _____	DATE: _____	SIGNATURE: _____	DATE: _____
TITLE: _____		TITLE: _____	

**PROJECT AGREEMENT  
BETWEEN AID AND  
ECONOMIC AFFAIRS DIVISION  
AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN**

1. Project/Activity No.  
**391-11-660-296**

2. Agreement No.  
**69-35**

3. Project/Activity Title  
**Agricultural Research**

PAGE 6 OF 6 PAGES

3.  Original or  
Revision No.

2. One direct-hire Oilseed Research Advisor will help develop the potential for expanded oilseed production in West Pakistan. Within the context of the professional research program and under the guidance of the Agricultural Research Administration Advisor, this advisor will assist the GWP Agricultural Research Board to develop a coordinated crop improvement program for oilseeds similar to the existing programs for wheat, rice and coarse grains.

B. University Research - Objectives

1. West Pakistan Agricultural University

a. West Pakistan Agriculture University will make significant move in the direction of the interdisciplinary approach to research, focused on problem areas deemed by the ARC and the Agricultural Research Board to be of high priority. That the major objectives of the research effort will be the contribution to be made to increasing efficiency of agricultural production and a secondary objective will be the turning out of graduate theses.

b. One full-time contract resident research advisor provided by USAID for three years at West Pakistan Agricultural University beginning in FY 1970 will assist in the structure and design of research and help establish an interdisciplinary research effort focused on a problem area of major significance.

c. Short-term consultants provided by USAID in specialized research areas will assist in the design, analysis and interpretation of results of research at WPAU and selected agricultural research institutes in West Pakistan as coordination among these institutions increases.

d. Selected research staff members now at WPAU will be sent to the United States for training in the design and techniques for research and the analysis and interpretation of results.

IV. United States Contribution

In order to carry out this project A.I.D. will provide the following contribution:

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

AID-1000-77A (2-4-63)  PROAG CONTRIBUTION DOCUMENT  ANNEX	PROJECT AGREEMENT BETWEEN AID AND ECONOMIC AFFAIRS DIVISION  AN AGENCY OF THE GOVERNMENT OF PAKISTAN	1. Project/Activity No. 391-11-660-296 2. Agreement No. 69-35 3. Paper/Activity Title Agricultural Research	PAGE 7 OF 8 PAGES 3. <input checked="" type="checkbox"/> Original or Revision No.
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I. Advisors

1. Direct-hire

One Agricultural Research Administration Advisor for West Pakistan to be located in Lahore.

One Agronomy Advisor (Oilseeds) for West Pakistan

Short-term consultants - Up to 3 man-months per year in fields to be mutually agreed upon by the Project Director and A.I.D.

2. Contract

One Resident Research Advisor for West Pakistan Agricultural University to be located in Lyallpur

Short-term consultants for West Pakistan Agricultural University - Up to 10 man-months per year.

B. Participant Training

1. Observation and study tours abroad will be arranged for selected research administrators, scientists and directors of staff of the Agricultural Research Council and the GOVP Agricultural Research Board.

2. Participant training under contract will be arranged for up to 3 staff members of West Pakistan Agricultural University during the life of the project.

C. Commodities

Equipment, seeds, books and journals will be provided to support the contract advisor at West Pakistan Agricultural University. A total of \$5,000 is obligated for this purpose by this Agreement.

D. Funding

A total of \$ 55,000 is obligated by this Agreement for the contract services listed in Section IV 4.2, B.2 and C above and described in PIO/T No 391-296-3-90343.

For the Cooperating Government or Agency  SIGNATURE: _____ DATE: _____ TITLE: _____	For the Agency for International Development  SIGNATURE: _____ DATE: _____ TITLE: _____
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**PROJECT AGREEMENT**  
BETWEEN AID AND  
ECONOMIC AFFAIRS DIVISION

1. Project/Activity No.  
391-11-660-296

2. Agreement No.  
69-35

3.  Original or  
Revision No. \_\_\_\_\_

3. Project/Activity Title

Agricultural Research

PROAG  
CONTINUATION  
SHEET

ANNEX \_\_\_\_\_

IN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

V. Government of Pakistan Contribution

In order to carry out this project the Government of Pakistan and the Government of West Pakistan will provide in accordance with the terms of this Agreement research facilities, staff, office space, equipment, transportation for local staff and sufficient rupee support for the efficient execution of project activities. They will also provide funds, materials and equipment required for demonstration and training programs to be mutually agreed upon.

The Government of Pakistan and the Government of West Pakistan also agree to select appropriate candidates for United States and third country training and to provide for the placement and utilization of all of the participants in positions which will further the objectives of the project. During the course of training abroad, the GOP and the GOWP agree to continue paying the participants' salaries or some part thereof.

VI. Evaluation

The USAID Project Advisor or his designee will develop jointly with the cooperating agencies a Project Implementation Plan (PIP) which will be approved by U.S.A.I.D. and the cooperating agencies.

The project will be reviewed jointly by U.S.A.I.D. and the cooperating agencies annually to evaluate progress, identify problems of implementation and agree on further joint action.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

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(9-64)

PROJECT AGREEMENT

BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),  
AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND

PRO AG

ECONOMIC AFFAIRS DIVISION  
PAKISTAN

FY 1970

IN AN AGENCY OF THE GOVERNMENT OF

The above-named parties hereby certify their agreement to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

1. PROJECT/ACTIVITY NO. 391-17-110-296 PAGE 1 OF 2 PAGES

2. AGREEMENT NO. 70-10 3. ORIGINAL OR COPY NO. 24 p.

4. PROJECT/ACTIVITY TITLE  
Agriculture Research - West Pakistan

PROJECT DESCRIPTION ANNEX A  FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX  SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE FY 1951 as amended

ECONOMIC COOPERATION AGREEMENT DATE

(other) DATE

5. PROJECT DESCRIPTION AND EXPLANATION  
(See Annex A attached)

6. AID APPROPRIATION SYMBOL 72-1101004 7. AID ALLOTMENT SYMBOL 054-50-391-00-69-01

8. AID FINANCING  DOLLARS  LOCAL CURRENCY PREVIOUS TOTAL (A) INCREASE (B) DECREASE (C) TOTAL TO DATE (D)

(a) Total \$39,600 \$39,600

(b) Contract Services

(c) Commodities

(d) Other Participants \$39,600 \$39,600

9. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT \$1,000=

(a) Total

(b) Technical and other Services

(c) Commodities

(d) Other Costs

FUNDS AVAILABLE  
Signature: [Signature] Date: 3/11

10. SPECIAL PROVISIONS (Use Additional Confidentiality Sheets, if Necessary)  
This Project Agreement provides for participant training to be carried out as a part of the Agricultural Research project, West Pakistan. Agreement on further details of this project will be incorporated in a subsequent Project Agreement Revision. Subject to the availability of funds a total of \$39,600 obligated to finance the following participant training: will be

11. DATE OF ORIGINAL AGREEMENT Feb. 27, 1970 12. DATE OF THE REVISION February 27, 1970 13. ESTIMATED FINAL COMPLETION DATE January 31, 1973

14. FOR THE COOPERATING GOVERNMENT OR AGENCY  
Signature: V. qar Ahmad DATE: 26.2.1970 TITLE: Secretary, Econ. Affairs Division  
15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT  
Signature: Joseph C. Wheeler DATE: 2/13/70 TITLE: Director, USAID/Pakistan

For signa- Sd/- Curry C. Brookshier on 2/12/70 Sd/- Mian Anwar Hussain on 2/13/70  
 tures see (Signed copy on file in USAID)  
 also page 2. Curry C. Brookshier Mian Anwar Hussain  
 Chief Agriculture Division Chairman, West Pakistan  
 USAID/Lahore - Project Advisor Secretary of Agriculture  
 Project Director - COWP

AD/AP [Signature]  
DP/P [Signature]  
AD/C [Signature]  
DD [Signature]  
AD/DP [Signature]

**PROJECT AGREEMENT  
BETWEEN AID AND**

Project/Activity No.  
**391-17-110-296**

PROAG  
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**ECONOMIC AFFAIRS DIVISION**

2. Agreement No. **70-10**

3.  Original or  
Revision No. \_\_\_\_\_

AMIRK

AN AGENCY OF THE GOVERNMENT OF  
**PAKISTAN**

3. Project/Activity Title

**Agriculture Research - West Pakistan**

<u>Name of Course</u>	<u>No. of Participants</u>	<u>Period of Training (Man-Mos)</u>
Research Administration and Organization (WPAU & Department of Agriculture)	2	6
Research Design and Techniques (WPAU & Department of Agriculture)	2	6
Coarse Grain Program (Ph.D.) (WP Department of Agriculture)	1	36
Agronomy (Oil Seed Crops) Ph.D. (WP Department of Agriculture)	2	36

The participants are to be formally nominated to AID for training by the GOP immediately, so that separate Project Implementation Orders for Participants (PIO/Ps) with supporting documents can be processed by GOP and AID for each nominee by March 1, 1970, the date by which this Project Agreement should be signed. In the event that PIO/Ps are not processed under the project by that date the funds obligated for the training activities will be deobligated for other activities by AID.

GOP Contribution

The GOP will provide from its own resources funds to pay the international transportation cost of the participants (round trip economy air ticket plus 10 kilos excess baggage to and from United States) and continue payment of salaries to the participants during their entire period of training.

Sd/- Dr. Z.A. Hashmi on 2/12/70  
(Signed copy on file in USAID)

Dr. Z. A. Hashmi  
Secretary of Education  
GOP - Project Manager

For the Cooperating Government or Agency

For the Agency (if International Development)

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

Waiver

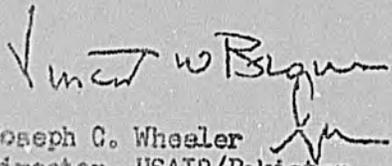
Memorandum to Files

Under the authority delegated to me under the provisions of Manual Order 712.4, Section III-A.3.a, I have signed the attached Project Agreement obligating funds for participant training in FY 1970 for the Agriculture Research, West Pakistan project.

This Project Agreement obligates \$39,600 to provide funds for training programs for seven participants in the United States. These participants have not yet been selected and formally nominated by the GOP.

In the interest of efficient project management, I have authorized the obligation of funds \$39,600 for participant training with the understanding that qualified candidates jointly approved by GOP and USAID will be nominated, and that the PIO/Ps will be issued, no later than March 1, 1970. All funds for which PIO/Ps have not been issued by March 1, 1970 will be deobligated.

Date February 27, 1970

  
Joseph C. Wheeler  
Director, USAID/Pakistan

(G-82)

PRO AG

FY 1970

**PROJECT AGREEMENT**  
**BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),**  
**AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND**  
**ECONOMIC AFFAIRS DIVISION**

AN AGENCY OF THE GOVERNMENT OF PAKISTAN

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

- PROJECT DESCRIPTION ANNEX A     FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX     SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

- GENERAL AGREEMENT FOR TECHNICAL COOPERATION    DATE July 51 as amended  
 ECONOMIC COOPERATION AGREEMENT    DATE  
 (other)    DATE

1. PROJECT/ACTIVITY NO. 391-17-110-296    PAGE 1 OF 10 PAGES

2. AGREEMENT NO. 70-10    3.  ORIGINAL OR REVISION NO. 1

4. PROJECT/ACTIVITY TITLE  
Agricultural Research West Pakistan

5. PROJECT DESCRIPTION AND EXPLANATION  
(See Annex A attached)

6. AID APPROPRIATION SYMBOL 72-1101004    7. AID ALLOTMENT SYMBOL 054-50-391-00-69-01

Q. AID FINANCING	PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
(a) Total	\$39,600	\$100,000		\$139,600
(b) Contract Services		\$100,000		\$100,000
(c) Commodities				
(d) Other Costs	\$39,600			\$39,600
R. COOPERATING AGENCY FINANCING: DOLLAR EQUIVALENT				
1969 = \$5.4-75				
(a) Total		\$2,962.85		\$2,962.85
(b) Technical and other Services				
(c) Commodities				
(d) Other Costs				

12. SPECIAL PROVISIONS (See Additional Conditions, Annex B if necessary)  
 In order to carry out the project jointly agreed upon and described in Annex A of this Agreement, the Government of Pakistan, the provincial Government of West Pakistan and the Government of the United States will provide the contributions, services and facilities as described in sections III, IV and V of this Agreement.

\$5.1 million equivalent

11. DATE OF ORIGINAL AGREEMENT Feb. 27, 1970    11. DATE OF THIS AGREEMENT March 28, 1970    12. ESTIMATED FINAL CONTRIBUTION DATE December 31, 1972

13. FOR THE GOVERNMENT OF PAKISTAN  
Vaqar Ahmed  
 SIGNATURE: Vaqar Ahmed  
 TITLE: Secretary, Economic Affairs Div.

13. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT  
Joseph C. Wheeler  
 SIGNATURE: Joseph C. Wheeler  
 TITLE: Director, USAID/Pakistan

AD/DP adh  
 DP/P adh  
 AD/C adh  
 AD/RP adh  
 PAS/M adh  
 DD adh

PD/L (draft)  
 AD/L (draft)  
 AC/L (draft)  
 PHN (draft)

FUNDS AVAILABLE  
Rashid 8130

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**PROJECT AGREEMENT  
BETWEEN AID AND**

1. Project/Activity No.  
391-17-110-298

PAGE 2 OF 10 PAGES

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2. Approved By

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**ECONOMIC AFFAIRS DIVISION**

70-10

Revision No.

ANNEX

**AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN**

3. Project Activity Title

**Agricultural Research  
West Pakistan**

Signed copy on files in USAID

Curry C. Brookshier  
Chief, Agriculture Division  
USAID/Lahore  
Project Advisor

Signed copy on files in USAID

Mian Asrar Hussain  
Secretary of Agriculture  
Government of West Pakistan  
Project Director

Signed copy on files in USAID

Dr. Z.A. Hashmi  
Secretary of Education  
Government of West Pakistan

Signed copy on files in USAID

Israrul Haque  
Vice-Chancellor  
West Pakistan Agricultural  
University

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

AID 1850-1A (1-37)  PROAG CONTINUATION SHEET  ANNEX	<b>PROJECT AGREEMENT</b> BETWEEN AID AND <b>ECONOMIC AFFAIRS DIVISION</b>  AN AGENCY OF THE GOVERNMENT OF <b>PAKISTAN</b>	1. Project/Activity No. <b>391-17-110-296</b> 2. Agreement No. <b>70-10</b> 3. Project/Activity Title <b>Agricultural Research          West Pakistan</b>	PAGE 1 OF 10 PAGES 2. (1) Original or Revision No. <b>2</b>
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**PROJECT DESCRIPTION AND EXPLANATION - Annex A**

**1. PROJECT PURPOSES**

A. The purpose of this project is to assist the Government of Pakistan to make sound agricultural research a foundation for sustained growth in agricultural production by:

1. developing the government's capacity to plan, coordinate and direct research efforts toward most relevant problems;

2. improving the capacity of West Pakistan Agricultural University (WPAU) to produce top-level research scientists for the overall improvement of provincial agriculture research activities; and

3. integrating the activities WPAU and the Peshawar and Tando Jam Agricultural Colleges with the Department of Agriculture, regional Government of West Pakistan research stations (northern region, central region, southern region) and their related regional sub-stations in a planned and coordinated research and demonstration program to maximize utilization of existing resources without duplication of effort.

B. An important major element in continuation of sustained agricultural development in Pakistan lies in the improvement of indigenous agricultural research capability and administration. Interdisciplinary research efforts are needed to improve existing crops -- to develop ~~pests~~ disease and insect resistance, for example -- and to develop new crops and improved livestock husbandry to facilitate diversification in agricultural production.

The country has an agricultural research base on which to build the type of research institutions and programs needed to assure continued agricultural growth. The elements in the research system which need strengthening in West Pakistan are:

1. the present system of planning, administration, coordination and evaluation of research in order to more efficiently focus available research talent and facilities of the WPAU, the agriculture colleges and Department of Agriculture on the most important problems; and

2. further development of advanced methods and techniques of research to enable teachers and students at WPAU and the agricultural colleges to conduct more extensive interdisciplinary research in degree programs to train future agricultural scientists in Pakistan.

For the Cooperating Government or Agency

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**ANNEX**

**II. BACKGROUND**

A. Pakistan's agricultural production increases in recent years have, to a large extent been dependent upon application of imported inputs -- fertilizer, high yielding varieties of seeds, insecticides, equipment and technology. The most dramatic element, sometimes referred to as the catalyst in the "Green Revolution" in Pakistan are the high yielding varieties of seeds which are the result of research performed largely in the international research centers -- rice in the Philippines and wheat in Mexico. While significant gains have been achieved through utilization of imported technology, continued growth in agricultural production and diversification is dependent upon more adaptive research within the country. Pakistan's capability for agricultural research has improved considerably in recent years, but requires further development in two areas.

1. The Central Government and the Provincial Governments need to develop institutions responsible for planning, administering, and coordinating with the capacity to effectively define research requirements and focus the country's limited research resources on important problems in a more efficient manner.

2. The research programs at the two agricultural universities (WPAU and the East Pakistan Agricultural University), which are the primary centers for training agricultural research scientists in Pakistan, should be expanded and improved to provide more specialized research programs to meet Pakistan's changing agricultural needs.

B. In recognition of the shortcomings of the research system, the Government of Pakistan invited the A.I.D. to furnish four specialists in research administration and coordination to participate in a joint review of Pakistan's agricultural research in cooperation with three Pakistani officials with various responsibilities for agricultural research. The team's terms of reference, observations and recommendations are described in "Report of the Joint Pakistan-American Agricultural Research Review Team, Islamabad, April 6, 1969."

C. In sum, the recommendations of the joint team called for a broad revision in current procedures for administering and coordinating agricultural research. The team's conviction was that a central coordinating body such as a strengthened Agricultural Research Council (ARC) is absolutely necessary for identifying priority research needs and should have power to influence the mobilizing of limited research resources into coordinated and

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Integrated work in the priority areas. Provincial Agricultural Research Coordination Boards (ARCB's) should be established and play a key role in improving research throughout the provinces.

D. In West Pakistan one field of agricultural research in which technical assistance can have substantial impact is oilseed crops. In 1964 Pakistan produced only 20% of its 239,000 metric tons annual edible oil needs, and West Pakistan accounted for 70% of this total domestic production. Oilseed crops fit well into the crop rotation patterns in West Pakistan and can contribute to significant production increases of edible oil and by-products which are required in large amounts throughout the country.

E. A.I.D. has provided previous assistance related to agricultural research through two projects; since 1961 A.I.D. has assisted East Pakistan Agricultural University by providing the services of a Texas A&M University contract team under the East Pakistan University Project (391-11-660-144). This assistance will terminate June 30, 1970. Additionally, A.I.D. has assisted West Pakistan Agricultural University since 1961 by providing the services of a Washington State University contract team under the West Pakistan Agricultural University Project (391-11-660-146). This project terminated June 30, 1969.

**XII. COURSE OF ACTION**

The Government of Pakistan has expressed a desire for advice and assistance in improving the efficiency of its agricultural research efforts. The Government of Pakistan has made a decision to implement, with only minor changes, the recommendations of the Joint Agriculture Research Review Team.

This project will provide technical assistance to Government of Pakistan beginning in FY 1970 through A.I.D. direct hire and university contract advisors, advisory services, and short-term consultants, with related participant training in the US and/or third countries for qualified Pakistani project personnel.

**A. Planning and Coordination of Research Objectives**

**1. Central Government**

a. The Agriculture Research Council will become the Central coordinating body for all agricultural research in Pakistan.

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Some of the members of the ARC will also be members on the Provincial Agricultural Research Coordination Boards. They will identify problems confronting Pakistan agriculture and plan with the appropriate agencies a coordinated research program for the solution of these problems.

b. The Agricultural Research Council will establish an adequate staff headed by a Director General with six Directors plus sufficient supporting staff, to furnish capable leadership in the fields of agricultural research and development.

c. A Board of International Agricultural Science Consultants will be established and will be meeting at least once each year with the Agricultural Research Council for continuing assessment of progress in developing Pakistan's improved research organization and programs and to advise regarding new developments abroad.

**2. Provincial Government (GOWP)**

a. The GOWP will establish an Agricultural Research Coordination Board (ARCB) and define those problems peculiar to the Province on which research is required. Appropriate action will also be taken to implement planning and coordination of research within the Province with the central ARC. The Provincial ARCB will develop a small full time supporting staff to assist in identifying and assessing the major agriculture research problem areas, screen research proposals, assign research responsibilities, and evaluate projects; coordinating the activities of WZAU, the Agriculture Colleges and the Department of Agriculture regional and district research and demonstration stations.

b. The GOWP ARCB will meet on a definite schedule and will take appropriate action to correct procedures for planning and implementation of research, including the arrangements for financial sanctions and such other factors which limit the effectiveness of research in the province.

c. One Agriculture Research Administration Adviser provided by A.I.D. for four years beginning in FY 1970 will work closely with the GOWP ARCB coordinating its activities as required with the Central Agriculture Research Council. The Agriculture Research Administration Adviser will be responsible for coordination and direction of A.I.D. activities in this project.

d. A.I.D. short-term consultants from the U.S. will assist the ARC and the GOWP ARCB to establish improved personnel procedures, a

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ANNEX A

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national documentation center to facilitate exchange of information among research workers in Pakistan and between Pakistani researchers and the international research community, and to develop systematic procedures for the introduction of plants and the maintenance of germ plasma, etc.

e. Selected research administrators, scientists and directors of staff of the ARC, the GWP ARCB and Department of Agriculture will observe abroad the methods of organization and administration of research.

f. A coordinated oilseed research project will be developed in West Pakistan coordinating all research facilities in this field. This program will be directed toward increase of yields of existing oilseed crops and to conduct research on such new crops as soybeans, safflower and sunflower.

g. One direct hire oilseed research advisor will help develop the potential for expanded oilseed production in West Pakistan. Within the context of the provincial research program and under the guidance of the Agricultural Research Administration Advisor, this advisor will assist the GWP ARCB to develop a coordinated crop improvement program for oilseeds similar to the existing programs for wheat, rice and coarse grains.

h. The GWP will provide funds to agriculture research institutions based on recommendations of the ARCB. Fund allocations will be based on research needs and priorities and manpower and institution capabilities as defined by the ARCB.

i. All institutions carrying out agriculture research will release the results to the ARCB for approval and transmittal to the Agriculture Department, GWP, WPAU and the Agriculture Colleges.

j. The Agriculture Department, GWP will have the responsibility of making the results of all research available to its staff and the farmers of West Pakistan through the extension service.

k. Research staff members from the ARC, ARCB, the Department of Agriculture and the Agriculture Colleges will be selected for training in the U.S. and/or third countries in the fields of research administration and organization, research design and techniques and in other specialized fields as jointly agreed upon by GWP and A.I.D.

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B. West Pakistan Agricultural University - Objectives

a. West Pakistan Agricultural University will undertake an interdisciplinary approach to research, focused on problem areas delineated by the (WAP) Agricultural Research Coordination Board. A major objective of the research effort will be to contribute to increasing efficiency of present agriculture production in West Pakistan and to develop plans and programs for diversification of agriculture production to meet future needs. A second objective will be to improve the capacity of West Pakistan Agricultural University to produce research scientists for the overall improvement of provincial research activities.

b. One full-time contract resident research advisor provided by A.I.D. for three years at West Pakistan Agricultural University beginning in FY 1970 will assist in the structure and design of research and help establish an interdisciplinary research effort focused on problem areas of major significance.

c. Short term consultants provided by A.I.D. in specialized research areas will assist in the design, analysis and interpretation of results of research at WPAU, the Agriculture Colleges and Agricultural research stations in West Pakistan as coordination among these institutions increases.

d. Research staff members at WPAU will be selected for training in the United States and/or third country in the fields of research administration and organization, research design and techniques and other specialized fields as agreed upon by GOP and A.I.D.

IV. UNITED STATES CONTRIBUTION

A.I.D. will provide the following contributions in order to carry out this project.

A. Advisory Services

1. Direct Hire

One Agriculture Research Administration Advisor will be located in Lahore, West Pakistan. This Advisor will be responsible for advising on all activities within this project.

Short-term consultants will be provided for up to 12 man months per year in field to be mutually agreed upon by the Project

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Director and A.I.D.

One Agency Advisor (Oilseeds) will be provided to assist in developing an oilseeds research program in West Pakistan.

2. Contract

One Resident Research Adviser for West Pakistan Agricultural University to be located in Lyallpur.

Short-term consultants for West Pakistan Agricultural University will be provided as mutually agreed upon by the Project Director and A.I.D.

A total of \$100,000 is obligated by this Agreement to fund these contract services.

B. Participants Training

For terms of the original FY 1970 agreement for this project A.I.D. provided \$39,600 to fund training costs of 7 participants for this activity.

C. Commodities

Following preparation of a Project Implementation Plan, A.I.D. will provide in subsequent Project Agreements a limited amount of funds for the purchase of demonstration laboratory equipment, books, journals, seeds and other plant material needed for carrying out this project.

D. Local Currency

Subject to availability of funds A.I.D. plans to provide in FY 1971 Rs 10 million in grant funds to support agriculture research under this project. One third of this amount (Rs 3.3 million) will be made available for use in West Pakistan to supplement Government research allocations. The funds will be allocated to the project by separate agreement. The funds will be utilized by the ARCE in consultation with the A.I.D. project advisor.

E. Other

An integral part of the agriculture research program is the

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Integration of this project with the activities carried out under the joint GOP/USAID Agricultural Research: (CUSHWASH) Project for improved water management to increase agricultural production being conducted under provisions of project agreement No. 70-23. The coordination of the two projects will be the responsibility of the ANCD in cooperation with Chief, Agriculture Division, USAID/Lahore.

**V. GOVERNMENT OF PAKISTAN CONTRIBUTION**

In order to carry out this project the Government of Pakistan and the Government of West Pakistan will provide in accordance with the terms of this agreement research facilities, staff, office space, equipment, transportation for local staff and sufficient rupee support for the efficient execution of project activities in their respective budgets. The GOP will also provide funds, materials and equipment required for demonstration and training programs to be mutually agreed upon. Subject to availability of funds and joint A.I.D./GOP agreement, A.I.D. local currency will be provided in separate agreements to supplement the regular annual research allocations of GOP and GWP which are expected to increase in size during the life of the project. Provision will be made in the Government budgets for A.I.D. local currency in accordance with GOP procedures.

In FY 1970 the GOP has provided in regular budgets Rs. 20.1 million for agricultural research in Pakistan. Of this amount Rs. 11.1 million is provided for agricultural research in West Pakistan.

**VI. EVALUATION**

The A.I.D. project Advisor or his designee will during the first year of this project develop jointly with the cooperating agencies a Project Implementation Plan (PIP) to define more precisely specific targets, major actions to be taken regarding personnel, training and commodity requirements and joint GOP/A.I.D. contributions needed to accomplish project objectives. The PIP will be incorporated as an integral part of this and future Project Agreements.

The project will be reviewed jointly by A.I.D. and the cooperating agencies annually to evaluate progress, identify problems of implementation and agree on further joint action to be undertaken under future project agreements.

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Provincial Government of East Pakistan and the Government of the United States agree to provide the contributions, services and facilities as described in Sections III, IV and V of Annex A.

Note: Clearance by the GOEP Dept. of Agriculture and Education, as shown below, certifies that any budget provision necessary for support of this project has been included in the GOEP budget plan.

Clearances:

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GOEP:

[Signature]  
13.4.70

Salamuddin Ahmad  
Secretary, Agriculture Department

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Mohammad Ali  
Secretary, Education Dept.

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Dr. A.K.M. Ghulam Rabbani  
Secretary, Planning Department

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PROJECT DESCRIPTION AND EXPLANATION

I. PROJECT PURPOSE

The purpose of this project is to make sound agricultural research a foundation for sustained growth in agricultural production by (1) developing the government's capacity to administer, coordinate and direct research efforts toward relevant problems and (2) improving the capacity of East Pakistan Agricultural University to produce top-level research scientists for the overall improvement of provincial agriculture research activities.

The key to sustained agricultural growth in Pakistan lies in improved agricultural research capability and administration. Interdisciplinary research efforts are needed to improve existing crops -- to develop greater disease and insect resistance, for example -- and to develop new crops and improved livestock husbandry to facilitate diversification in agricultural production.

The country has an agricultural research base on which to build the type of research institutions and programs needed to assure continued agricultural growth. The elements in the research system which need strengthening are: (1) the present system of administration and coordination of research does not efficiently focus the limited research talent and facilities on the most important problems, and (2) the graduate level research programs of East Pakistan Agricultural University, while having shown remarkable development since the University was established in 1961, need to be buttressed with an infusion of new ideas, mature judgement and confidence among the researchers (teachers and students alike) in the techniques of carrying out the research on which graduate degrees and the future agricultural scientists are based.

II. BACKGROUND

Pakistan's agricultural production increases in recent years have, to a large extent, been dependent on imported inputs -- fertilizer, high yielding varieties of seeds, insecticides, pumps and know-how. The most dramatic element, some times referred to as the catalyst in the "Green Revolution" in Pakistan are the high yielding varieties of seeds which are the result of research performed largely in the international research centers -- rice in the Philippines and wheat in Mexico. While it is possible to get by on imported technology such as the improved seeds in the short run, continued

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growth in agricultural production will be increasingly dependent upon more adaptive research within the country. Pakistan's capability for agricultural research has improved considerably in recent years, but it remains inadequate particularly in the respects: (1) the institutions for administering, coordinating and directing research had capacity to focus the country's limited research resources on important problems in an efficient manner, and (2) absence of sophisticated research techniques at the two governmental centers, which were policy centers for training agricultural research scientists in Pakistan. To raise the standard of research to achieve the quality of institutions needed to upgrade agricultural research competence in Pakistan.

In recognition of the shortcomings of the research system, the Government of Pakistan invited the team to furnish specialists in research administration and coordination to do a review of Pakistan's agricultural research in cooperation with Pakistani officials with various responsibilities for agricultural research. The team's terms of reference, observations and recommendations are described in "Report of Joint Pakistan-American Agricultural Research Review Team, Islamabad, April 6, 1968."

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In sum, the recommendations of the joint team call for a broad revision in current procedures for administering and coordinating agricultural research. The team's conviction was that a coordinating body such as a strengthened Agricultural Research Council (ARC) is necessary for identifying priority research needs and should have power to influence the mobilization of limited research resources into coordinated and integrated work in the priority areas. The Provincial Agricultural Research Boards should also play a key role in improving research, and to do this they will need higher status, broader functions, increased funds and expanded technical staff.

In East Pakistan the Agriculture Department and, to a lesser extent, the Atomic Energy Institute along with other semi-autonomous government organizations are now carrying out limited research in agriculture and related subjects. They have been handicapped by lack of trained manpower, insufficient budget, and lack of materials, equipment, transportation, and germ plasma for research purposes.

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The first year of the project, 1969, has over 40 trained Ph.D. holders and 200 degree holders who are working as teaching staff and heads of departments. While the knowledge and capability to carry out research exists, a lack of funds and facilities that teaching staff have not become involved in research activities has resulted in a very limited contribution to agricultural research.

The Agricultural Research Council (ARC) was established in 1969 to coordinate and supervise the research and to analyze the research results and provide a regular report of availability in specialized fields and to identify areas of research duplication, areas where more research is required and to plan, coordinate and financial requirements. This project was not initiated as a long-term project as yet.

USAID has provided grant and technical assistance related to agricultural research through the project. (1) ARC (391-11-660-144) has assisted West Pakistan Agricultural University by providing the services of a Texas A&M University contract team under the USAID-USAID University Project (391-11-660-144) and will terminate June 30, 1970. (2) USAID has assisted West Pakistan Agricultural University since 1961 by providing the services of a Washington State University contract team under the West Pakistan Agricultural University project (391-11-660-145). This project terminated on June 30, 1969.

II. OBJECTIVE OF ACTION

The Government of Pakistan has expressed a desire for assistance in improving the efficiency of its agricultural research efforts. This project will provide technical assistance by furnishing direct hire advisers, university contract advisers and short-term consultants. The project also provides for a participant training program. (See Section IV B)

A. Planning and Coordination of Research Objectives

1. Central Government

a. The Agricultural Research Council (ARC) will become the central coordinating body for agricultural research in Pakistan. Some of the members of the ARC will also be members on the Provincial Agricultural Research

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## PROJECT AGREEMENT

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Coordination Board. They will identify problems confronting Pakistan agriculture and plan with the appropriate agencies a coordinated research program for the solution of these problems.

b. The Agricultural Research Council will establish an adequate staff headed by a Director General and six Directors plus sufficient supporting staff, to furnish capable leadership in the fields of agricultural research and development.

c. A Board of International Agricultural Science Consultants will be established and will be meeting at least once each year with the Agricultural Research Council for continuing assessment of progress in developing Pakistan's improved research organization and programs and to advise regarding new developments abroad.

2. Provincial Government (GOEP)

a. The Government of East Pakistan will reconstitute the present arrangements for coordinating research and set up a new Provincial Agricultural Research Board (PARB) like that of the Agricultural Research Council of Pakistan (ARCP) to look into all aspects of agricultural research including coordination and evaluation.

This new PARB in East Pakistan will coordinate the activities of the central ARCP with the provincial government research organization. It will be provided with regular staff and funds and be headed by an eminent scientist in the agriculture sector. The ARCP will have representation in it. This PARB will initiate, coordinate, finance and evaluate all agricultural research in East Pakistan.

The Provincial Agricultural Research Board will draw up the necessary research projects/schemes for conducting agricultural research in priority areas.

b. The GOEP Provincial Agricultural Research Board will meet on a definite schedule and will take appropriate action to improve procedures for planning and implementation of research, including the arrangements for financial sanctions and such other factors which limit the effectiveness of research in the province.

c. One Agriculture Research Administration Advisor provided by USAID for four years beginning in FY 1970 will work closely with the

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GOEP Provincial Agriculture Research Board. The USAID advisor or his designee will serve as ex officio member of the PARB. The Agriculture Research Administration Advisor will be responsible for coordination and direction of USAID activities in this project.

d. USAID short-term consultants from the U.S. will assist in establishing improved personnel procedures, a national documentation center to facilitate exchange of information among research workers in Pakistan and between Pakistani researchers and the international research community, and to develop systematic procedures for the introduction of plants and the maintenance of germ plasm.

e. Selected research administrators, scientists and directors of staff of the GOEP Agricultural Research Board will observe abroad the methods of organization and administration of research.

f. The GOEP will provide funds to agriculture research institutions based on recommendations of the Agriculture Research Board. Fund allocations will be based on research needs and priorities and manpower and institution capabilities.

g. All institutions carrying out agriculture research will release the results to the PARB for approval and transmittal to the agriculture department, GOEP.

h. The Agriculture Department, GOEP, will have the responsibility of making the results of all research available to its staff and the farmers of East Pakistan.

B. Agricultural University - Objectives

1. East Pakistan Agricultural University

a. East Pakistan Agricultural University will make a determined move in the direction of the interdisciplinary approach to research, focused on problem areas delineated by the GOEP Agricultural Research Coordination Board. A major objective of the research effort will be to contribute to increasing efficiency of agriculture production in East Pakistan. A second objective will be to improve the capacity of East Pakistan Agricultural University to produce research scientists for the overall improvement of provincial research activities.

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Agricultural Research  
(East Pakistan)

PROAG  
CONTINUATION  
SHEET  
NUMBER

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

B. Participant Training

Short-term observation and study tours abroad will be arranged for selected research administrators and scientists in research institutions and the Agriculture Research Coordination Board in East Pakistan.

No participant funding is contemplated in FY 1970; however, subject to agreement on specific training programs, USAID plans to obligate funds for this purpose in FY 1971 and subsequent years.

C. Funding

1. USAID plans to provide by separate agreement 10,000,000 rupees in grant funds to the Government of Pakistan for carrying out Agriculture Research activities during the next four years. Two-thirds (6.6 million rupees) of the total amount will be made available for use in East Pakistan.

The funds for East Pakistan will appear in the development budget and the Annual Plan of the Government of East Pakistan to supplement the research studies in agriculture already being undertaken in the province. The funds will be released to and administered by the Provincial Agricultural Research Board, which will be fully empowered by the GOEP to program the funds, keeping in view GOEP priorities in agricultural research.

V. Government of Pakistan Contribution

In order to carry out this project the Government of Pakistan and the Government of East Pakistan will provide in accordance with the terms of this Agreement research facilities, staff, office space, equipment, transportation for local staff and sufficient rupee support for the efficient execution of project activities. The GOEP will also provide funds, materials and equipment required for demonstration and training programs to be mutually agreed upon. USAID grant funds would be used to supplement GOEP research budget with the GOEP providing increasing budget support during the life of the project.

The Government of Pakistan and the Government of East Pakistan also agree to select appropriate candidates for United States and third country training and to provide for the placement and utilization of all of the participants in positions which will further the objectives of the project. For training programs abroad, the Center Government and the Government of East Pakistan would pay international travel costs from local currency and continue paying the participants' salary or some part thereof.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PROJECT AGREEMENT  
BETWEEN AID AND**

1. Project/Activity No.  
391-17-660-296

2. Agreement No.  
70-10

3. Original or  
Revision No. 2

3. Project/Activity Title  
Agricultural Research  
(East Pakistan)

PROAC  
CONTINUATION  
SHEET

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

ANNEX

VI. Evaluation

The USAID Project Advisor or his designee will develop jointly with the cooperating agencies a Project Implementation Plan (PIP) which will be approved by USAID and the cooperating agencies.

The project will be reviewed jointly by USAID and the cooperating agencies annually to evaluate progress, identify problems of implementation and agree on further joint action.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

WAIVER

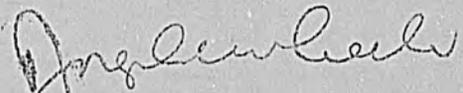
Memorandum to the Files

Under the authority delegated to me under the provisions of Manual Order 712.4 Section 111.A.3.a., I have signed the attached Project Agreement obligating funds in FY 1970 for the Project Agriculture Research East Pakistan No. 391-17-110-296.

This Project Agreement obligates \$100,000 to provide funds for contract services. The Project Implementation Order for Technicians (PIO/T) is not accompanying the Project Agreement because the same is being cleared in East Pakistan. The clearance is expected by May 15, 1970.

In the interest of efficient project management, I have authorized the obligation of funds (\$100,000) for contract services with the understanding that the GOEP clearances will be received in time and PIO/T (Action Request) will be issued no later than May 15, 1970. Funds will be deobligated if PIO/T has not been issued by May 15, 1970.

Date: April 23, 1970



Joseph C. Wheeler  
Director, USAID Pakistan

3910296 (10)

PROJECT AGREEMENT  
BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID)  
AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND  
ECONOMIC COORDINATION & EXTERNAL ASSISTANCE DIVISION (EC & EAD)

AN AGENCY OF THE GOVERNMENT OF PAKISTAN PD-AAD-173

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

1. PROJECT/AGREEMENT NO. 391-17-110-295.1 PAGE 1 OF 2 PAGES

2. AGREEMENT NO. 71-13 3.  ORIGINAL OR REVISION NO.

4. PROJECT/TITLE AGRICULTURE RESEARCH - EAST PAKISTAN 6p.

PROJECT DESCRIPTION ANNEX A  FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX  SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE 1951 88 Amended & suppl-

ECONOMIC COOPERATION AGREEMENT DATE 1951 88

(other) DATE

5. PROJECT DESCRIPTION AND EXPLANATION (See Annex A attached)

6. AID APPROPRIATION SYMBOL 72-1111004 7. AID ALLOCATION SYMBOL 154-50-391-00-69-11

8. AID FINANCING	9. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
<input checked="" type="checkbox"/> DOLLARS <input type="checkbox"/> LOCAL CURRENCY				
(a) Total	\$1.00 =	\$521,000		\$521,000
(b) Contract Services		\$306,000		\$306,000
(c) Commodities		\$95,000		\$95,000
(d) Other Costs (Participant)		\$120,000		\$120,000
(a) Total				
(b) Technical and other Services				
(c) Commodities				
(d) Other Costs				

10. SPECIAL PROVISIONS (Use for Special Conditions Sheets, if Necessary)  
The Governments of Pakistan, East Pakistan and the United States of America, in furtherance of the GOEP agriculture development program, have agreed to provide the support to this project described in Sections IV and V, Annex A, of this Agreement. A.I.D. financing noted in Block 8 of this Agreement is provided for the advisory services, participant training, and commodity assistance as described in Section VI A of Annex A.

11. DATE OF ORIGINAL AGREEMENT December 23, 1970 12. DATE OF THIS REVISION 13. ESTIMATED FINAL CONTRIBUTION DATE January 31, 1973

14. FOR THE COOPERATING GOVERNMENT OR AGENCY: M. Iqbal Hussain, Secretary, EC & EA Division  
15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT: Vincent W. Brown, Acting Director, USAID/Pakistan

FUNDS AVAILABLE  
Rashid

PRO AG  
NY 177  
FO/DACA  
PD 4  
PRK PB  
CONF R12  
AGR 103  
USAID/PAK  
TD  
AD/DF  
AD/C  
FEC  
AD/AP  
GOEP  
S. Ahmed  
Secretary,  
Agriculture  
Department  
M.S. Ahmed  
Chairman,  
East Pakistan  
Planning Bd.  
Mohd. Ali  
Secretary  
Educ. Dept.  
K. Ahmed  
Vice-Chancellor  
EPAU/Mymensingh

**PROJECT AGREEMENT  
BETWEEN AID AND  
EC & EAD**

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

1. Project/Activity No.  
391-17-110-296.1

PAGE 2 OF 5 PAGES

2. Agreement No.  
71-13

3.  Original or  
Revision No.

3. Project/Activity Title  
Agriculture Research - East Pakistan

I. PURPOSE

The purpose of this project is the development of agriculture research capacity in East Pakistan directed towards long term growth in agriculture production. The project will provide assistance to the East Pakistan Agriculture University (EPAU) through a team of US University scientists to be placed at the Hymansingh campus, and to the Government of East Pakistan's (GOEP) efforts to define agriculture research priorities and coordinate and support research projects in East Pakistan. The purposes of this project are closely allied with those of the proposed Provincial Agriculture Research Board (PARB). Under a separate project agreement, USAID intends to provide rupee funds to PARB for allocation to high priority research projects in the Province.

II. BACKGROUND

The East Pakistan Agriculture University is the only university in East Pakistan established exclusively for the training of agriculture students. Although teaching of basic sciences needs improvement, the agricultural science departments are well staffed. The University has a faculty including 48 Ph.D. holders with 40 M.Sc. holders studying abroad under Ph.D. programs. It has educational facilities and staff capable of accommodating 2,500 students. Current enrollment is around 1,800. The research facilities, particularly the 500 acre research farm, are among the best in East Pakistan.

Research has not been emphasized as part of the EPAU program, and lack of operative equipment, essential supplies, and experience in the methodology of practical agriculture research has severely hampered development of an adequate research program. Some research has been conducted, sponsored by the Agriculture Research Council, USDA\*(PL 480), and USAID, but the projects have not been developed under a permanent research program.

\*United States Department of Agriculture

Lack of funds, competition between research organizations and some difficulty in setting priorities have been factors affecting the development of a permanent research capacity not only at EPAU but in the Province as a whole. There has been no means of coordinating agriculture and agriculture related research which has been carried out by a number of different institutions, including the government institutes (e.g., Fisheries, Forestry, Animal Husbandry, Rice Research) and the semi government institutes (e.g., Pakistan Academy for Rural Development and the other Provincial Universities). The GOEP is establishing a Board, the PARB, Board for coordinating agriculture research, which will not only coordinate, but serve to encourage development of projects, determine priorities, allocate resources and

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

PROJECT AGREEMENT  
BETWEEN AID AND  
EC & EAD

1. Project/Activity No.

391-17-110-296.1

PAGE 3 OF 5 PAGES

2. Agreement No.

71-13

3.  Original or

Revision No. \_\_\_\_\_

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

3. Project/Activity Title

Agriculture Research - East Pakistan

evaluate results.

III. COURSE OF ACTION

To achieve the objectives of the project the following resources are necessary: (1) a team of long term U.S. research scientists; (2) short-term U.S. research scientists to work with Pakistani scientists at EPAU and other research institutions in the Province to give special attention to ~~selected~~ agriculture problems; (3) limited dollar commodity support to provide small amounts of essential research equipment at EPAU; (4) local currency support to provide staff, facilities and equipment to carry out research projects at EPAU, and (5) participant training for scientists at EPAU and other research organizations within the Province including the East Pakistan Rice Research Institute and the Directorate of Agriculture Research in the Department of Agriculture. Under this agreement USAID will provide up to seven research specialists to be posted at Mymensingh, and one research coordinator to be posted in Dacca, designated as USAID representative to the PARB.

The university contract team members in Mymensingh will work closely with the staff at EPAU in the development of a program for applied research. They will be engaged directly in interdisciplinary research and will assist the EPAU staff in the development and implementation of their own applied research projects. The team member in Dacca will work with PARB's professional staff in the development of research priorities, evaluation of proposals for funding, and appraisal of completed projects.

IV. USAID CONTRIBUTIONA. Research Team:

Under an Institutional Development Agreement between USAID and a consortium of US universities, an eight man team will be sent to East Pakistan for approximately two years with possibility for extension of the agreement up to a total of five years. The consortium will provide six scientists in the following fields:

Agricultural Economics  
Agronomy  
Soil Science

Plant Pathology  
Entomology, and  
Plant Breeding

These scientists will be assigned to EPAU at Mymensingh along with a project administrator designated as Program Co-Director. The research team members will be regarded as EPAU faculty members with full privileges and responsibilities. In Dacca, the Program Director of the project will work closely with the Directorate of

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

## PROJECT AGREEMENT

BETWEEN AID AND

EC &amp; EAB

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN1. Project/Activity No.  
391-17-110-296-1

PAGE 4 OF 5 PAGES

2. Agreement No.  
71-133.  Original or  
Revision No. \_\_\_\_\_

3. Project/Activity Title

Agriculture Research - East Pakistan

Agricultural Research, with FARE when it is established and as a coordinator with all institutions in the Province undertaking agriculture research.

H. Short-term Scientists:

Under the same Institutional Development Agreement, research scientists from universities throughout the United States will be selected to work in Pakistan with counterpart scientists for short periods of time, usually up to three months and sometimes on a recurring basis. The current arrangement with Dr. John Mellor of Cornell University is a prototype for this assistance. The short-term scientists will be selected by USAID on the recommendation of the Research Team Director and the head of the appropriate Pakistani research institution. Financing for approximately 18 man-months of services will be provided for short-term scientists annually.

C. Participant Training:

USAID will arrange training through its headquarters Office for International Training for degree training and short-term ( up to one year) post-doctorate research training. Degree training for EPAU will be limited because of the large number of staff with advanced degrees already available there; degree training will be provided primarily for other research institutions. Approximately ten degree candidates will be sent for training annually. EPAU staff requiring special training for research on a post-graduate fellowship basis will be sent to the United States for periods up to one year; about five man years of such training will be provided annually.

V. GOVERNMENT OF PAKISTAN CONTRIBUTION

To carry out this project the Government of Pakistan and the Government of East Pakistan will provide in accordance with the terms of this Agreement research facilities, staff, office space, equipment, transportation for local staff and sufficient rupee support for the efficient execution of project activities. Until funds for research projects are available from FARE, the GOEP will provide funds directly to EPAU's research budget.

The Government of Pakistan and the Government of East Pakistan also agree to select appropriate candidates for United States and third country training and to provide for the placement and utilization of all of the participants in positions which will further the objectives of the

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

PROJAG  
CONTINUATION  
SHEETANNEX APROJECT AGREEMENT  
BETWEEN AID AND

EC &amp; EAD

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN1. Project/Activity No.  
391-17-110-296.1

PAGE 5 OF 5 PAGES

2. Agreement No.  
71-133.  Original or  
Revision No. \_\_\_\_\_3. Project/Activity Title  
Agriculture Research - East Pakistan

project. For training programs abroad, the Central Government and the Government of East Pakistan would pay international travel costs from local currency and continue paying the participants' salary or some part thereof.

VI. FINANCINGA. USAID:

Under this Project Agreement, USAID obligates \$306,000 for an Institutional Development Agreement which will provide services of technicians; \$95,000 for commodities to be utilized by the Contractor, also under the Institutional Development Agreement; and \$120,000 for participant training abroad commencing in FY 1972. The total USAID dollar obligation under this Project Agreement is \$521,000.

B. GOVERNMENT OF EAST PAKISTAN:

In addition to the office space, research facilities and equipment to be made available to the Research Team and office space in the Department of Agriculture's Directorate of Research for the Program Director, the GOEP will provide Rs. 70,000 for staff support and other project expenses required for the Research Team through June 30, 1971. Subsequently, such support funds will be provided as a line item in EPAU's research budget. For initial research project expenses prior to receipt of funds from PARB, Rs. 30,000 will be provided through the EPAU research budget. These funds are to be spent under the joint authority of the Program Co-Director and the Vice-Chancellor of EPAU.

The commodities to be provided under this agreement will be procured on the condition that the GOEP agrees to provide funds in the budget for maintenance and spare part procurement.

VII. EVALUATION

During or prior to July 1971, an evaluation team composed of representatives from the GOEP Planning Department, the Directorate of Research, EPAU, the Project Team and USAID will prepare an evaluation of the project for submission to the GOEP and USAID by August 31, 1971. On the basis of the evaluation the team may make recommendations for readjustment of the program beyond FY 1971. The team will be co-chaired by the representative from the EPAU and the Department of Agriculture, GOEP.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

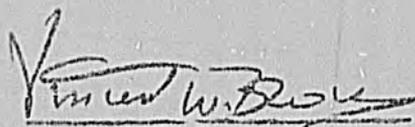
MEMORANDUM FOR THE FILES

The Director considers it essential to process Agriculture Research East Pakistan Project Agreement No. 391-17-110-296.1 (71-13) to insure timely implementation and coordination with the Government of Pakistan of the Mission's Agriculture Research East Pakistan activities. This Project Agreement obligates \$521,000 FY 71 Technical Cooperation (T.C.) funds. Of this amount \$306,000 is being provided for Contract Services, \$95,000 for procurement of Commodities and \$120,000 for participant training. The Project Implementation Order for technicians (PIO/T) amounting to \$306,000 is enclosed with the Project Agreement.

The Mission is preparing, in consultation with the GOP, the information necessary to issue the Project Implementation Orders for participants and commodities (PIO/Ps and PIO/Cs).

The Director is reasonably certain that all Project Implementation Orders (PIO/Ps and PIO/Cs) under this Project Agreement will be issued not later than April 15, 1971.

Therefore, in accordance with M. O. 712.4 he authorizes the execution of the Project Agreement with the understanding that the issuance of PIOs will follow within the period specified above.



Vincent W. Brown

Acting Director, USAID/Pakistan

Date 1/23/70

PRO AG

PROJECT AGREEMENT

3910296 (11)

BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),  
AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND  
ECONOMIC COORDINATION AND EXTERNAL ASSISTANCE DIVISION

AN AGENCY OF THE GOVERNMENT OF PAKISTAN

PD-AAD-173

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

1. PROJECT/ACTIVITY NO. 391-17-110-296.2 PAGE 1 OF 1 PAGES

2. AGREEMENT NO. 71-11, 3. ORIGINAL OR REVISION NO.

4. PROJECT/ACTIVITY TITLE  
Agricultural Research  
West Pakistan 4p

PROJECT DESCRIPTION ANNEX A  FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX  SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE

ECONOMIC COOPERATION AGREEMENT DATE

(other) Memo of Understanding DATE 5/20/58

5. PROJECT DESCRIPTION AND EXPLANATION  
(See Annex A attached)

6. AID APPROPRIATION SYMBOL 72-FT-745 7. AID ALLOTMENT SYMBOL 760-50-391-00-50-00

8. AID FINANCING	9. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT	10. INCREASE (B) DECREASE (C) TOTAL TO DATE (D)			
		(A)	(B)	(C)	(D)
<input type="checkbox"/> DOLLARS <input checked="" type="checkbox"/> LOCAL CURRENCY					
(a) Total			\$714,286.00		\$714,286.00
(b) Contract Services					
(c) Commodities					
(d) Other Costs			\$714,286.00		\$714,286.00
(a) Total	41.00 = Rs. 4.76				
(b) Technical and other Services					
(c) Commodities					
(d) Other Costs					

10. SPECIAL PROVISIONS (See Additional Confirmation Sheets, if necessary)

In furtherance of the objective of promoting agricultural research in West Pakistan, as agreed by the Government of Pakistan and the United States Agency for International Development (USAID) in Project Agreement entitled Agricultural Research - West Pakistan (391-17-110-296), this Agreement provides for the release of 3.4 million rupees of 104(f) grant funds (made available from US uses under Mondale amendment) from

11. DATE OF ORIGINAL AGREEMENT February 15, 1971 12. DATE OF THIS REVISION February 15, 1971 13. ESTIMATED FINAL CONTRIBUTION DATE June 30, 1972

14. FOR THE COOPERATING GOVERNMENT OR AGENCY 15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

S. I. Iqbal Hossain Secretary, ECEAD  
Vincent W. Brown Director (A), USAID Pakistan

A. G. Khan  
Secretary of Agriculture, Ministry of Agriculture and Works

FUNDS AVAILABLE

*[Handwritten signature]*

PROAC  
CONTINUATION  
SHEET

ANNEX

**PROJECT AGREEMENT**  
BETWEEN AID AND  
Economic Coordination &  
External Assistance Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17 110-296.2

2. Agreement No.  
71-11

3. Project/Activity Title  
Agriculture Research  
West Pakistan

3.  Original or  
Revised No.

USAID TO  
the Agricultural Research Council, Ministry of Agriculture and Works,  
Government of Pakistan (ARC). Subject funds are provided to support  
the development of agricultural research in West Pakistan. The funds  
are to be utilized in accordance with the procedure established in this  
agreement.

Provincial research boards or committees will inform the Agricultural  
Research Council of the Research priorities they have established, the  
personnel assigned, and the amount and source of funds allocated to each  
project.

Sub-allocation and release of funds provided by this Project Agreement  
will be made by the Agricultural Research Council to the Provincial  
Departments of Agriculture, Colleges, Universities, or other Institutions  
actively engaged in agricultural research in West Pakistan in accordance  
with procedures set forth in this agreement.

All proposals for research to be partially or totally supported by ARC  
funds must have been approved by the Provincial research committees  
involved. The proposal will include a concise explanation of purpose  
and goals, a plan of action for attaining the goals, total budget estimates  
and sources of funds, with usually not more than 25 per cent of the total  
proposed budget designated as contingencies.

As provided for in the Agriculture Research Project Agreement initial  
priority will be placed on development of coordinated research programs  
for oilseeds, grain legumes and on-farm water management. Priority  
will also be placed on reestablishing coordinated programs for wheat,  
maize and millets and rice. Consideration will also be given to a proposal  
for the allocation of funds for the development of the ARC.

Till such time as the Agricultural Research Council (including its  
Executive Committee) is reorganized, the following Committee, as an  
interim measure, will review proposals for research to be supported  
by these funds, establish priorities and allocate funds:

1. The Secretary of Agriculture, Ministry of Agriculture and Works,  
Government of Pakistan, or his designee.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

PROAC  
CONTINUATION  
SHEET

ANNEX

**PROJECT AGREEMENT**

BETWEEN AID AND  
Economic Coordination &  
External Assistance Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17-110-296.2

2. Amendment No.  
71-14

3. Project/Activity Title  
Agriculture Research  
West Pakistan

PAGE 3 OF 4 PAGES

4.  Original or

Revision No.

2. Secretary, Agriculture, Punjab, or his designee.
3. Secretary, Agriculture, NWFP, or his designee.
4. Secretary, Agriculture, Sind, or his designee.
5. Secretary, Agriculture, Baluchistan, or his designee.
6. Secretary, Agriculture, East Pakistan, or his designee.
7. The Director (of the specific area concerned) of the Agricultural Research Council, or his designee.
8. The Chief, Food and Agriculture Section, Planning Commission, President's Secretariat, or his designee.
9. The Director of Research (or his equivalent) of the institution(s) submitting the proposal, or his designee.
10. The Chief, Agriculture Division, United States Agency for International Development, or his designee.
11. The Project Research Advisor, United States Agency for International Development, or his designee.
12. Deputy Educational Advisor-in Charge of Agricultural Education, Ministry of Education and Scientific Research, Government of Pakistan.

Funds will be released by the ARC for the programs approved by this Committee to the Department/Institution concerned through minimal channels.

The Director of Research or the Project Coordinator of the institution(s) concerned will submit annual technical reports to the ARC for review.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE:

DATE:

SIGNATURE:

DATE:

TITLE:

TITLE:

**PROJECT AGREEMENT**  
BETWEEN AID AND  
Economic Coordination &  
External Assistance Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17-110-296.2

2. Agreement No.  
71-14

3. Project/Activity Title  
Agricultural Research  
West Pakistan

PAGE 4 OF 4 PAGES

3.  Original or  
Revision No.

Cooperating Country Contributions

The GOP will provide facilities and staff to carry out research financed by these funds.

Financial Considerations

A. Detailed project accounts will be currently maintained by the ARC.

1. Quarterly rupee sanction and expenditure reports will be prepared in triplicate on the prescribed form (sample attached) by the ARC. One copy will be sent to USAID Islamabad. Two copies will be sent to the Director of Accounts, ECEAD, Islamabad as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be immediately forwarded to the Controller of USAID/Islamabad with ECEAD comments, if appropriate.

B. The Government of Pakistan, and the ARC will facilitate the examination by representatives of USAID of all project accounts and records and the observation of the progress of the projects.

C. U. S. owned rupee funds released to the project pursuant to this agreement may not be used to pay for taxes, interest or payment of previous debt nor may any of these funds be used for any purpose for which funds have been withdrawn by the Government of Pakistan.

Disbursement of Funds

Upon signature of this agreement USAID will provide Rs. 3.4 million to the ARC. USAID will release funds by check to the Secretary, Ministry of Finance who will transfer the full amount within 30 days to the ARC, Ministry of Agriculture and Works, Government of Pakistan.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

PROJECT AGREEMENT

BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),  
AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND  
ECONOMIC COORDINATION AND EXTERNAL ASSISTANCE DIVISION  
PAKISTAN  
AN AGENCY OF THE GOVERNMENT OF

PD-AAD-173

PRO AG

SY 71

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in an annex attached hereto, as checked below:

1. PROJECT/ACTIVITY NO. 391-17-110-296.1 PAGE 1 OF 4 PAGES

2. AGREEMENT NO. 71-22 3.  ORIGINAL OR REVISION NO. H.P.

PROJECT DESCRIPTION ANNEX A  FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX  SPECIAL LOAN PROVISIONS ANNEX

4. PROJECT/ACTIVITY TITLE  
Agricultural Research  
East Pakistan

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

5. PROJECT DESCRIPTION AND EXPLANATION  
(See Annex A attached)

GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE

6. AID APPROPRIATION SYMBOL 72-FT-745 7. AID ALLOTMENT SYMBOL 760-50-391-00-50-00

ECONOMIC COOPERATION AGREEMENT DATE

(attached) Memo of Understanding DATE 5/20/58

B. AID FINANCING	PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
<input checked="" type="checkbox"/> DOLLARS <input checked="" type="checkbox"/> LOCAL CURRENCY				
(a) Total		\$1,386,555.00		\$1,386,555.00
(b) Contract Services				
(c) Commodities				
(d) Other Costs		1,386,555.00		1,386,555.00

F. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT  
Rs. 4.76

(a) Total

(b) Technical and other Services

(c) Commodities

(d) Other Costs

10. SPECIAL PROVISIONS (See Annexes 2 and 3 attached if necessary)

In furtherance of the objective of promoting agricultural research in East Pakistan, as agreed by the Government of Pakistan and the United States Agency for International Development (USAID) in Project Agreement entitled Agricultural Research - East Pakistan (391-17-11-296), this Agreement provides for the release of 6.6 million rupees of 104(f) grant funds (made available from US uses under Mondale amendment) from

11. DATE OF ORIGINAL AGREEMENT 12. DATE OF THIS REVISION 13. ESTIMATED FINAL COMPLETION DATE June 30, 1973

14. FOR THE COOPERATING GOVERNMENT OR AGENCY

15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

SIGNATURE: S. S. Iqbal Hossain DATE: June 24, 1971

SIGNATURE: Joseph C. Wheeler DATE: June 30, 1973

TITLE: Secretary, ECEAD TITLE: Director, USAID Pakistan

AD/AP  
AD/M  
AD/C  
AD/D  
PRO  
AD/DOM  
AD/ER PMS

A. K. M. Anwar  
Secretary of Agriculture, Ministry of Agriculture & Works

FUNDS AVAILABLE

26/6/74

PROAG  
CONTINUATION  
SHEET

APR 62

**PROJECT AGREEMENT**

**Economic Coordination and  
External Assistance Division**

**AN AGENCY OF THE GOVERNMENT OF  
Pakistan**

1. Project/Activity No.  
391-17-110-296.1

2. Agreement No.

3. Project/Activity Title

**Agricultural Research  
East Pakistan**

3.  Original or  
Revision No.

USAID to the Agricultural Research Council, Ministry of Agriculture and Works, Government of Pakistan (ARC). Subject funds are provided to support the development of agricultural research in East Pakistan. The funds are to be utilized in accordance with the procedure established in this agreement.

The Provincial research board or committee will inform the Agricultural Research Council of the research priorities they have established, the personnel assigned, and the amount and source of funds allocated to each project.

Sub-allocation and release of funds provided by this Project Agreement will be made by the Agricultural Research Council to the Provincial Department of Agriculture, Colleges, Universities, or other institutions actively engaged in agricultural research in East Pakistan in accordance with procedures set forth in this agreement.

All proposals for research to be partially or totally supported by ARC funds must have been approved by the East Pakistan Provincial research committee. The proposal will include a concise explanation of purpose and goals, a plan of action for attaining the goals, total budget estimates and sources of funds, with usually not more than 25 per cent of the total proposed budget designated as contingencies.

As provided for in the Agricultural Research Project Agreement initial priority will be placed on development of coordinated research programs for rice, oilseeds, grain legumes and on-farm water management. Consideration will also be given to a proposal for the allocation of funds for the development of the ARC.

Until such time as the Agricultural Research Council (including its Executive Committee) is reorganized, the following Committee, as an interim measure, will review proposals for research to be supported by these funds, establish priorities and allocate funds:

1. The Secretary of Agriculture, Ministry of Agriculture and Works, Government of Pakistan, or his designee.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

PROAC  
CONTINUATION  
INSET  
ANNEX

**PROJECT AGREEMENT**  
BETWEEN AID AGENCY  
**Economic Coordination and  
External Assistance Division**  
AN AGENCY OF THE GOVERNMENT OF  
**Pakistan**

1. Project/Activity No.  
**391-17-110-296.1**  
2. Agreement No.  
3. Project/Activity Title  
**Agriculture Research  
East Pakistan**

2. Secretary, Agriculture, Punjab, or his designee.
3. Secretary, Agriculture, NWFP, or his designee.
4. Secretary, Agriculture, Sind, or his designee.
5. Secretary, Agriculture, Baluchistan, or his designee.
6. Secretary, Agriculture, East Pakistan, or his designee.
7. The Director (of the specific area concerned) of the Agricultural Research Council, or his designee.
8. The Chief, Food and Agriculture Section, Planning Commission, President's Secretariat, or his designee.
9. The Director of Research (or his equivalent) of the institution(s) submitting the proposal, or his designee.
10. The Chief, Agriculture Division, United States Agency for International Development, or his designee.
11. The Project Research Advisor, United States Agency for International Development, or his designee.
12. Deputy Educational Advisor-in Charge of Agricultural Education, Ministry of Education and Scientific Research, Government of Pakistan.

Funds will be released by the ARC for the programs approved by this Committee to the Department/Institution concerned through minimal channels.

The Director of Research or the Project Coordinator of the institution(s) concerned will submit annual technical reports to the ARC for review.

For the Cooperating Government or Agency  
SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

For the Agency for International Development  
SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

**PROJECT AGREEMENT**

1. Project/Activity No.  
391-17-110-296.1

2. Agreement No.

3.  Original or  
Revision No.

3. Project/Activity Title

Agriculture Research  
East Pakistan

**Economic Coordination and  
External Assistance Division**

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

PROAG  
CONTINUATION  
SHEET

ANNEX

Cooperating Country Contributions

The GOP will provide facilities and staff to carry out research financed by these funds.

Financial Considerations

A. Detailed current project accounts will be maintained by the ARC.

1. Quarterly rupee sanction and expenditure reports will be prepared in triplicate on the prescribed form (sample attached) by the ARC. One copy will be sent to USAID/Islamabad. Two copies will be sent to the Director of Accounts, ECEAD, Islamabad as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be immediately forwarded to the Controller of USAID/Islamabad with ECEAD comments, if appropriate.

B. The Government of Pakistan, and the ARC will facilitate the examination by representatives of USAID of all project accounts and records and the observation of the progress of the projects.

C. U.S. owned rupee funds released to the project pursuant to this agreement may not be used to pay for taxes, interest or payment of previous debt nor may any of these funds be used for any purpose for which funds have been withdrawn by the Government of Pakistan.

Disbursement of Funds

Upon signature of this agreement USAID will provide Rs. 6.6 million to the ARC. USAID will release funds by check to the Secretary, Ministry of Finance who will transfer the full amount within 30 days to the ARC, Ministry of Agriculture and Works, Government of Pakistan.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

AID 1330-1  
(0-66)

3910296 (13)

**PROJECT AGREEMENT**  
**BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),**  
**AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND**  
**ECONOMIC AFFAIRS DIVISION**

**PD-AD-173**

FY 1973

AN AGENCY OF THE GOVERNMENT OF PAKISTAN

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any enclosures attached hereto, as checked below:

- PROJECT DESCRIPTION ANNER A       FOREIGN CURRENCY STANDARD PROVISIONS ANNER  
 STANDARD PROVISIONS ANNER       SPECIAL LOAN PROVISIONS ANNER

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

- GENERAL AGREEMENT FOR TECHNICAL COOPERATION      DATE \_\_\_\_\_  
 ECONOMIC COOPERATION AGREEMENT      DATE \_\_\_\_\_

(with) MEMORANDUM OF Understanding      DATE 5/20/1958

9. AID FINANCING  
 DOLLARS       LOCAL CURRENCY

(a) Total

\$666,667

(b) Contract Services

(c) Commodities

(d) Other Costs

\$666,667

9. COOPERATING AGENCY FINANCING - DOLLAR CONTRIBUTION

\$1.00 = Rs. 9.90

(a) Total

(b) Technical and other Services

(c) Commodities

(d) Other Costs

10. SPECIAL PROVISIONS (Use Additional Certification Sheets, if Necessary)

The purpose of this Project Agreement is to redirect Rs. 6.6 million (\$666,667 equivalent) of Section 104(f) grant funds (previously obligated and released to Ministry of Finance for research activities in former East Pakistan) to support the following agricultural research activities for which funds are now provided as follows:

11. DATE OF ORIGINAL AGREEMENT  
 June 24, 1971

12. DATE OF THIS REVISION  
 April 5, 1973

13. ESTIMATED FINAL CONTRIBUTION DATE  
 December 31, 1974

14. FOR THE COOPERATING GOVERNMENT OR AGENCY

15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

SIGNATURE: S. S. Iqbal Hossain  
 TITLE: Secretary, Econ. Affs. Division

SIGNATURE: Joseph C. Wheeler  
 TITLE: Director, USAID/Pakistan

1. PROJECT/ACTIVITY NO.  
 391-17-110-296

PAGE 1 OF 2 PAGES

2. AGREEMENT NO.  
 71-22

3.  ORIGINAL OR  
 DIVISION NO. 1

4. PROJECT/ACTIVITY TITLE  
 AGRICULTURE RESEARCH

2p.

5. PROJECT DESCRIPTION AND EXPLANATION  
 (See Annex A attached)

6. AID APPROPRIATION SYMBOL  
 72-ET-745

7. AID ALLOTMENT SYMBOL  
 B50-50-391-00-50-00

	PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
(a) Total	\$666,667			\$666,667
(b) Contract Services				
(c) Commodities				
(d) Other Costs	\$666,667			\$666,667
9. COOPERATING AGENCY FINANCING - DOLLAR CONTRIBUTION				
(a) Total				
(b) Technical and other Services				
(c) Commodities				
(d) Other Costs				

PRO AD/AD  
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2/4/73

USAID  
CONTINUATION  
SHEET

ADDRESS

**PROJECT AGREEMENT**

BETWEEN AID AND

ECONOMIC AFFAIRS DIVISION

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

1. Project/Activity No.  
391-17-110-296

2. Agreement No.  
71-22

3. Project/Activity Title

AGRICULTURE RESEARCH

PAGE 2 OF 2 PAGES

2.  Original or  
Revision No. 2

1. Punjab Water Management (SHAHDAB)	Rs. 1,000,000
2. MONA (WAPDA) Water Management Research	Rs. 2,000,000
3. Gidder Valley Agriculture Research Station Development (Baluchistan)	Rs. 1,000,000
4. Agriculture Research Council (ARC)	Rs. 2,600,000
TOTAL:	Rs. 6,600,000

A description of the above four activities will be provided in separate agreements for each activity. These agreements will be governed by Financial and other Considerations stated in the following paragraph.

FINANCIAL AND OTHER CONSIDERATIONS

1. Funds for all the four activities will be released by Ministry of Finance to the implementing agencies out of the funds previously released to Ministry of Finance under the original version of this agreement dated June 24, 1971.
2. The release of funds will take place upon the signing of individual agreements covering activities listed.
3. Quarterly rupee sanction and expenditure reports will be prepared in triplicate on the prescribed form (sample attached) by the ARC. One copy will be sent to USAID/Islamabad. Two copies will be sent to the Director of Accounts, Economic Affairs Division, Islamabad as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be immediately forwarded to the Controller of USAID/Islamabad with EAD comments, if appropriate.
4. U.S.-owned funds reprogrammed under this agreement will not be used for taxes, interest or payment of previous debts nor may any of these funds be used for any purpose for which funds have been withdrawn by Government of Pakistan.
5. The Government of Pakistan will facilitate examination and observation by representatives of the Government of the United States of America of all project accounts and records and physical progress of all mutually approved projects.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

PROJECT AGREEMENT

BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID), AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND ECONOMIC COORDINATION AND EXTERNAL ASSISTANCE DIVISION

3910296 (14)

AN AGENCY OF THE GOVERNMENT OF PAKISTAN

PD-AAD-173

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, or checked below:

- PROJECT DESCRIPTION ANNEX A  FOREIGN CURRENCY STANDARD PROVISIONS ANNEX
- STANDARD PROVISIONS ANNEX  SPECIAL LOAN PROVISIONS ANNEX

1. PROJECT/ACTIVITY NO. 391-17-110-296.2	PAGE 1 OF 1 PAGES
2. AGREEMENT NO. 72-1	3. <input checked="" type="checkbox"/> ORIGINAL COPY REVISION NO.
4. PROJECT/ACTIVITY TITLE	

Agriculture Research - West Pakistan

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

- GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE FY 51 as amended
- ECONOMIC COOPERATION AGREEMENT DATE
- (other) DATE

5. PROJECT DESCRIPTION AND EXPLANATION (See Annex A attached)	
6. AID APPROPRIATION SYMBOL	7. AID ALLOTMENT SYMBOL

8. AID FINANCING	PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
<input type="checkbox"/> DOLLAR <input type="checkbox"/> LOCAL CURRENCY				
(a) Total				
(b) Contract Services				
(c) Commodities		NON-OBLIGATING		
(d) Other Costs				
9. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT				
(a) Total				
(b) Technical and other Services				
(c) Commodities				
(d) Other Costs				

10. SPECIAL PROVISIONS (See Additional Certifications Sheet, if necessary)

In order to carry out the project jointly agreed upon and described in Annex A of this Agreement, the Government of Pakistan and the Government of the United States have agreed to the need for the services and facilities as described in section III, IV and V of this Agreement. U.S. has provided technical services and rupee funds under Project Agreements Nos 70-10(Dollar) and 71-14 (Rupee).

11. DATE OF ORIGINAL AGREEMENT May 31, 1972	12. DATE OF THIS REVISION	13. ESTIMATED FISCAL COMPLETION DATE June 30, 1973
14. FOR THE COOPERATING GOVERNMENT OR AGENCY S.S. Iqbal Hossain Secretary, ECEAAL		15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT Joseph C. Wheeler Director, USAID Pakistan

*Handwritten signature*

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AD/AP AD  
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AD/DE  
DD

AID 1950-14  
(2-00)

PROG  
CONTRIBUTION  
DUES

AMOUNT A

PROJECT AGREEMENT

BETWEEN AID AND  
Economic Coordination and  
External Assistance Division

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

1. Project/Activity No.  
391-17-110-296.2

2. Agreement No.  
72-1

3. Project/Activity Title

PAGE 2 OF 7 PAGES

3. Original or  
Revision No. 1

Agriculture Research - West Pakistan

I. PROJECT PURPOSE

The purpose of this joint project is to design and institutionalize a system of coordinated and interdisciplinary agricultural research that will serve as a foundation for sustained growth in agricultural production by:

1. Developing the capacity to plan, coordinate and administer research efforts directed toward priority problems;
2. Strengthening the capacity of the agricultural university and the colleges of agriculture and the research institutes to carry out research activities and to produce top-level research scientists for the overall improvement of West Pakistan agriculture.
3. Maximizing the utilization of available research resources without duplication of effort.

II. BACKGROUND

Sustained agricultural development in Pakistan is dependent upon the improvement of indigenous agricultural research capability and administration. Interdisciplinary research efforts are needed to improve existing crops, to develop new crops and improved livestock husbandry, and to facilitate diversification in agricultural production.

In recognition of the needs of the research system, in 1968 the Government of Pakistan invited the AID to furnish four specialists in research administration and coordination to participate in a joint review of Pakistan's agricultural research in cooperation with three Pakistani officials with heavy responsibilities for agricultural research. The team's terms of reference, observations and recommendations are described in "Report of the Joint Pakistan-American Agricultural Research Review Team," Islamabad, April 6, 1968. In sum, the recommendations of the joint team called for a broad revision in current procedures for administering and coordinating agricultural research. The team's conviction was that a central coordinating body such as a strengthened Agricultural Research Council (ARC) is absolutely necessary for identifying priority research needs and to influence the mobilization of available research resources into coordinated and integrated work in the priority areas.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

AID 1950-1A  
12-5-63

**PROJECT AGREEMENT**

**BETWEEN AID AND  
Economic Coordination and  
External Assistance Division**

1. Project/Activity No.  
391-17-110-296.2

PAGE 3 OF 7 PAGES

2. Agreement No.  
72-1

3.  Original or  
Revision No. \_\_\_\_\_

3. Project/Activity Title

Agriculture Research - West Pakistan

FROM  
CONTRIBUTION

AGREEMENT A

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

The Government of Pakistan has made a decision to implement, with only minor changes, the recommendations of the Joint Agricultural Research Review Team. This project agreement describes the agreed project and the need for assistance in implementing these recommendations.

III. PROGRESS TO DATE

The original Project Agreement No. 391-17-110-296 dated February 27, 1970 provides for dollar funding for participant training and the contract services of a contract resident research advisor at West Pakistan Agricultural University (WPAU). Amendment No. 1 of this Agreement, dated March 28, 1970, describes the project targets and course of action. A separate project agreement No. 391-17-110-367 (GUSUSWASH) dated March 25, 1970 describes the activities of a contract team provided by the GUSUSWASH consortium of U.S. universities in the area of water management.

In August 1969 the Washington State University (WSU) contract resident research advisor arrived to assist in research development at West Pakistan Agricultural University. To facilitate research coordination and administration the USAID Research Administration Advisor arrived in August 1970. The GUSUSWASH Agricultural Engineer, to assist with on-farm management research, also arrived in August 1970. Additional advisory assistance has been planned.

1. A short-term team of oilseeds specialists arrived in March, 1971 to assist in the development of an intensive oilseeds research and production program.

2. Also planned are two agronomists to assist in the on-farm water management research.

3. A resident team of oilseeds research advisors is presently under consideration and future activities in this area will be undertaken as mutually agreed upon by USAID and the COP.

Specific major accomplishments to date include:

1. An interdisciplinary research program for pulse crops has been initiated at West Pakistan Agricultural University. This program is being

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

**PROJECT AGREEMENT  
BETWEEN AID AND**

Econ. Coord. & Ext. Asst. Divn.

AN AGENCY OF THE GOVERNMENT OF  
**PAKISTAN**

1. Project/Activity No.  
391-17-110-296.2

2. Agreement No.  
72-1

3. Project/Activity Title

Agriculture Research, West Pakistan

3.  Original or  
Revision No.

coordinated with other institutions involved in pulse crops research.

2. Research activities for on-farm water management have begun at the Punjab Agricultural Research Institute, with West Pakistan Agricultural University and the Directorate of Agricultural Engineering, Punjab.

3. The Government of Pakistan has approved reorganization of the Agricultural Research Council.

4. Project Agreement No. 391-17-110-296.2, providing for the release of 3.4 million rupees of USAID 104(f) grant funds to the Agricultural Research Council to support the development of Agricultural Research in West Pakistan, was signed on February 15, 1971.

5. Provincial Agricultural Research Committees or their equivalent have been formed in the four provinces to plan and coordinate research programs.

6. The Ministry of Agriculture and Works and the four Provincial Departments of Agriculture have begun development of programs for expanded research and production of wheat, oilseeds and other crops.

IV. COURSE OF ACTION

An effective national research organization needs an institution responsible for planning, administering, and coordinating research. Requirements must be defined and limited resources focused on priority problems.

Planning and Coordination of Research

1. The Agricultural Research Council will serve as the central coordinating body for all agricultural research. The Council will identify national priority research needs confronting Pakistan agriculture, and with the appropriate agencies, plan coordinated research programs for the solutions of these problems.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PROJECT AGREEMENT**  
**BETWEEN AID AND**  
**Economic Coordination and**  
**External Assistance Division**

**AN AGENCY OF THE GOVERNMENT OF**  
**PAKISTAN**

1. Project/Activity No.  
391-17-110-296.2  
2. Agreement No.  
72-1  
3. Project/Activity Title

PAGE 5 OF 7 PAGES  
Original or  
Revision No.

Agriculture Research - West Pakistan

2. To provide leadership capability in research planning, coordination and evaluation in the major fields of agricultural research and development, the staff of the Agricultural Research Council will include a Director General and a Director for each of the major fields including: (a) Crop Husbandry, (b) Animal Husbandry, (c) Soils, Irrigation and Engineering, (d) Agriculture Economic and Statistics, (e) Forestry and Range Management and (f) Fisheries. Sufficient supporting staff will be provided to deal with specific problem areas in each field. Some of the members of the Agricultural Research Council will also be members of the Provincial agricultural research committees.
3. Each Province will establish a Provincial Agricultural Research Committee (PARC) or equivalent to define those priority problems specific to the province on which research is required. The PARC's will take appropriate action to implement planning and coordination of research within the province. The PARC's will identify and assess the major agriculture research problem areas, screen research proposals, assign research responsibilities, evaluate projects and coordinate the research activities.
4. The Agricultural Research Council will allocate funds to agricultural research institutions based on recommendations of the PARC's. Fund allocations will be based on priority research needs and institution capabilities.
5. All institutions carrying out agriculture research will submit research results to the PARC's for transmittal to the Agricultural Research Council, Agriculture Departments, West Pakistan Agricultural University, the Colleges of Agriculture and other interested institutions.
6. The Provincial Agriculture Departments will assume the responsibility for making the results of all research available to their staff to the farmers of West Pakistan through the extension service and other appropriate means.
7. Staff members from the Agricultural Research Council, the PARC, the Departments of Agriculture, the Universities and the Colleges of Agriculture will be considered for training in the U.S. and/or third countries in the fields of research administration and organization, research design and techniques, and in other specialized fields as jointly agreed upon by the Government of Pakistan and AID.

For the Cooperating Government or Agency		For the Agency for International Development	
SIGNATURE:	DATE:	SIGNATURE:	DATE:
TITLE:		TITLE:	

**PROJECT AGREEMENT  
BETWEEN AID AND  
Economic Coordination and  
External Assistance Division**

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

1. Project/Activity No.  
391-17-110-296.2

2. Agreement No.  
72-1

3. Project/Activity Title

3. [X] Original or  
Revision No.

Agriculture Research - West Pakistan

V. U.S. CONTRIBUTION

Dollar costs associated with the Technical Advisory Services and participants training can be provided by amendment to this agreement.

Local Currency

11-54 Agricultural Research West Pakistan Agreement No. 391-17-110-296.2 ProAg provides for the release of 3.4 million rupees of 104(F) grant funds from USAID to support the development of Agricultural Research in West Pakistan. AID local currency may be provided in separate agreements to supplement the regular annual research allocations of Government of Pakistan and the Provinces, which are expected to increase in size during the life of the project. Provision would be made in the government budgets for AID local currency in accordance with Government of Pakistan procedures.

VI. GOVERNMENT OF PAKISTAN CONTRIBUTION

In order to carry out this project the Government of Pakistan (GOP) will provide in accordance with the terms of this agreement research facilities, staff, office space, equipment, transportation for local staff, and rupee budget support for the efficient execution of project activities.

Statement showing the yearwise and zonewise detail of expenditure incurred on various research projects through AIC cess funds as well as from USDA funds for the last three years and projected next two years  
(Rs. 000)

	Actual for the last three years			Projected for the next two years	
	1967-68	1968-69	1969-70	1970-71	1971-72
Agriculture Research Council Contributory Fund					
West Pakistan	859	833	677	1262	1513
USDA PL-480					
West Pakistan	207	718	538	2042	1721

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

AID 1050-1A  
(0-25)

**PROJECT AGREEMENT**

1. Project/Activity No.  
391-17-110-296.2

PAGE 7 OF 7 PAGES

2. Agreement No.  
72-1

3.  Original or  
Revision No.

BETWEEN AID AND  
Economic Coordination and  
External Assistance Division

3. Project/Activity Title

Agriculture Research - West Pakistan

PROJAC  
CONTINUATION  
SHEET

AN AGENCY OF THE GOVERNMENT OF  
PAKISTAN

AGENCY A

	Actual for the last three years			Projected for the next two years	
	1967-68	1968-69	1969-70	1970-71	1971-72
Grand Total:	1066	1551	1215	3304	3234

Source: Agricultural Research Council, Government of Pakistan

VII. OTHER

During the first year of this project, project implementation plan(s) will be developed to define more precisely specific targets, major actions to be taken regarding personnel, training and commodity requirements, and joint GOP/AID contributions needed to accomplish project objectives. These plans will be incorporated as an integral part of this and future Project Agreements.

The project will be reviewed jointly by the cooperating parties annually to evaluate progress, identify problems of implementation and agree on joint action to be undertaken under future project agreements.

An integral part of the agriculture research program is the integration of this project with the activities carried out under the joint GOP/AID Agricultural Research (GUSUSWASH) Project for improved water management to increase agricultural production being conducted under provisions of project agreement No. 70-23. The coordination of the two projects will be the responsibility of the ARC in cooperation with the Chief, Agriculture Division, USAID.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PROJECT AGREEMENT**  
**BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),**  
**AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND**  
**Economic Affairs Division**

AN AGENCY OF THE GOVERNMENT OF Pakistan

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

- PROJECT DESCRIPTION ANNEX A     FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX     SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

- GENERAL AGREEMENT FOR TECHNICAL COOPERATION    DATE \_\_\_\_\_  
 ECONOMIC COOPERATION AGREEMENT    DATE \_\_\_\_\_  
 (other) HOME OF Understanding    DATE 5/20/58

6. PROJECT/ACTIVITY NO.		7. COUNTRY SYMBOL			
39T-17-110-290.2					
8. AGREEMENT NO.		9. ORIGINAL OR REVISION NO.			
72-1		1			
10. PROJECT DESCRIPTION AND EXPLANATION					
Agriculture Research West Pakistan  (See Annex A attached)					
11. AID APPROPRIATION SYMBOL		12. COUNTRY SYMBOL			
13. AID FINANCING		PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
<input type="checkbox"/> DOLLARS <input type="checkbox"/> LOCAL CURRENCY					
(a) Total					
(b) Contract Services					
(c) Commodities			NON OBLIGATING		
(d) Other Costs					
14. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT					
00.00 = RS. 4,90					
(a) Total					
(b) Technical and other services					
(c) Commodities					
(d) Other Costs					

15. SPECIAL PROVISIONS (See Additional Conditions Sheets if necessary)  
 In furtherance of the objective of promoting agricultural research in West Pakistan, as agreed by the Government of Pakistan and the United States Agency for International Development (USAID) in the original Project Agreement (72-1) of this project, USAID through this revision provides 2.6 million rupees of 104(F) grant funds (see release procedure in last page) to the Agricultural Research Council, Ministry of Agriculture and

17. DATE OF ORIGINAL AGREEMENT    18. DATE OF THIS REVISION    19. ESTIMATED FINAL CONTRIBUTION DATE  
 May 31, 1972    April 5, 1973    June 30, 1973

20. FOR THE COOPERATING GOVERNMENT OR AGENCY    21. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

*M. K. H. H. H.*  
 S. S. Toba Hosain    DATE 19/3/73    Joseph C. Wheeler    DATE  
 Secretary, Economic Affairs Div.    Director, USAID/Pakistan

Rifat Pasha Shaikh  
 Secretary, Min. of Agr. & Works

AD/AP  
 AD/C  
 PRO  
 DD 1A

28/HO

**PROJECT AGREEMENT  
BETWEEN AID AND**

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17-110-296.2

2. Agreement No.  
72-1

2. Project/Activity Title  
Agriculture Research  
West Pakistan

3.  Original or  
Revision No. 7

Works, Government of Pakistan (ARC). Subject funds are provided to support the development of agricultural research in West Pakistan. The funds are to be utilized in accordance with the procedure established in this agreement.

Provincial research boards or committees will inform the Agricultural Research Council of the research priorities they have established, the personnel assigned, and the amount and source of funds allocated to each project.

Sub-allocation and release of funds provided by this Project Agreement will be made by the Agricultural Research Council to the Provincial Departments of Agriculture, colleges, universities, or other institutions actively engaged in agricultural research in Pakistan in accordance with procedures set forth in this agreement.

All proposals for research to be partially or totally supported by ARC funds must have been approved by the provincial research committees involved. The proposal will include a concise explanation of purpose and goals, a plan of action for attaining the goals, total budget estimates and sources of funds, with usually not more than 25 per cent of the total proposed budget designated as contingencies.

As provided for in the original Agriculture Research Project Agreement initial priority will be placed on development of coordinated research programs.

Funds will be released by the ARC for the programs approved by the Executive Committee of ARC to the Department/Institution concerned through minimal channels.

The Director of Research or the Project Coordinator of the institution(s) concerned will submit annual technical reports to the ARC for review.

Cooperating Country Contributions

The Government of Pakistan will provide facilities and staff to carry out research financed by these funds.

Financial Considerations

A. Detailed project accounts will be currently maintained by the ARC.

1. Quarterly rupee sanction and expenditure reports will be prepared in triplicate on the prescribed form (sample attached) by the ARC.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PROJECT AGREEMENT**

BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17-110-296.2

2. Agreement No.  
72-1

3. Project/Activity Title  
Agriculture Research  
West Pakistan

2.  Original or  
Revision No. 1

One copy will be sent to USAID/Islamabad. Two copies will be sent to the Director of Accounts, EAD, Islamabad as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be immediately forwarded to the Controller of USAID/Islamabad with EAD comments, if appropriate.

B. The Government of Pakistan, and the ARC will facilitate the examination by representatives of USAID of all project accounts and records and the observation of the progress of the projects.

C. U.S. owned rupee funds released to the project pursuant to this agreement may not be used to pay for taxes, interest or payment of previous debt nor may any of these funds be used for any purpose of which funds have been withdrawn by the Government of Pakistan.

Source of Funds & Release Procedure

USAID has funded and released to the Ministry of Finance Rs. 6.6 million from 104(f) grant fund under project Agriculture Research (296) which includes Rs. 2.6 million for this project. Upon signature of this agreement the Ministry of Finance will release the full amount Rs. 2.6 million to the Agriculture Research Council (ARC). In order to minimize the delay in the implementation of project activities it is agreed that the funds will be placed in the hands of the Agriculture Research Council (ARC) no later than 30 days after signing of the Project Agreement. Any unutilized balance will be subject to the refund to USAID or to be reprogrammed jointly in a subsequent project agreement for the expanded research program.

U.S. owned funds reprogrammed under this agreement will not be used for taxes, interest or payment of previous debts nor may any of these funds be used for any purpose for which funds have been withdrawn by the Government of Pakistan.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

3910296 (15)

PROJECT AGREEMENT

BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID), AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND Economic Affairs Division

PD. AAD-173

AN AGENCY OF THE GOVERNMENT OF Pakistan

KY 73

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

1. PROJECT/ACTIVITY NO. 391-17-110-296 PAGE 1 OF 2 PAGES

2. AGREEMENT NO. 73-12 3. ORIGINAL OR REVISION NO.

4. PROJECT/ACTIVITY TITLE Agr. Research - Precision Land Levelling 36p.

5. PROJECT DESCRIPTION FOREIGN CURRENCY STANDARD PROVISIONS ANNEX 6. STANDARD PROVISIONS ANNEX 7. SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

8. GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE FY 1951 as amended

9. ECONOMIC COOPERATION AGREEMENT DATE

10. (Other) DATE

11. PROJECT DESCRIPTION AND EXPLANATION (See Annex A attached)

12. AID APPROPRIATION SYMBOL Multiple 13. AID ALLOTMENT SYMBOL Multiple

14. AID FINANCING	15. PREVIOUS TOTAL (A)	16. INCREASE (B)	17. DECREASE (C)	18. TOTAL (A+B+C)	19. DATE
(a) Grant		\$906,000		\$906,000	
(b) Contract Services PMSA		\$300,000		\$300,000	
(c) Commodities		\$363,636 Rs. 3,600,000		\$363,636 Rs. 3,600,000	
(d) Other Costs		\$242,424 Rs. 2,400,000		\$242,424 Rs. 2,400,000	

20. COOPERATING AGENCY (NAMES - BOLDEN CO-EQUALITY)

RFP: USAID PROP

AD/...

PRP...

AD/...

AD/...

ED...

In order to carry out the project agreed upon and described in Annex A of this agreement, the Government of Pakistan and the Government of the United States will provide the contributions specified in the Annex. The attached Standard Provisions Annex is hereby agreed upon and made a part of this agreement.

14. DATE OF ORIGINAL AGREEMENT June 25, 1973 15. DATE OF THIS REVISION 16. ESTIMATED FINAL COMPLETION DATE December 31, 1975

17. FOR THE GOVERNMENT OF THE UNITED STATES OF AMERICA S. S. Iqbal-Hosain 25/6/73 18. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT William A. Wolf Acting Director, USAID Pakistan

Funds Available

PRO AG

**PROJECT AGREEMENT**  
**BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),**  
**AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND**  
**Economic Affairs Division**

AN AGENCY OF THE GOVERNMENT OF **Pakistan**

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

- PROJECT DESCRIPTION ANNEX A       FOREIGN CURRENCY STANDARDS PROVISIONS ANNEX B  
 STANDARD PROVISIONS ANNEX C       SPECIAL LOAN PROVISIONS ANNEX D

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

- GENERAL AGREEMENT FOR TECHNICAL COOPERATION      DATE \_\_\_\_\_  
 LENDING COOPERATION AGREEMENT      DATE \_\_\_\_\_  
 (Other)      DATE \_\_\_\_\_

1. PROJECT/ACTIVITY NO. **391-11-110 296**      PAGE **2** OF **2** PAGES  
 2. AGREEMENT NO. **73-12**      3.  ORIGINAL OR DIVISION NO. \_\_\_\_\_

4. PROJECT/ACTIVITY TITLE  
**Agr Research-Precision Land Levelling**

5. PROJECT DESCRIPTION AND EXPLANATION  
 (See Annex A attached)

6. AID APPROPRIATION SYMBOL **72-1131004**      7. AID ALLOTMENT SYMBOL **354-50-391-00-69-31**

A. AID AWARDED	PREVIOUS TOTAL (\$)	INCREASE (\$)	DECREASE (\$)	TOTAL TO DATE (\$)
(a) Total		\$300,000		\$300,000
(b) Contract Services (FASA)		\$300,000		\$300,000
(c) Commodities				
(d) Other Costs				
B. <del>CONTRACTING AGENCY</del> PURCHASING - DOLLAR EQUIVALENT				
(e) Total				
(f) Technical etc. (Other Services)				
(g) Commodities				
(h) Other Costs				

10. ~~Contracting Agency~~ (See Technical Cooperation Section II, Paragraph)

This ProAg obligates \$300,000 for contract services (FASA) as explained in Annex A under Sec. III. A.

11. DATE OF ORIGINAL AGREEMENT      12. DATE OF THIS REVISION      13. ESTIMATED FINAL CONTRIBUTION DATE  
**December 31, 1975**

14. FOR THE GOVERNMENT OF PAKISTAN      15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_      SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

TITLE \_\_\_\_\_      TITLE \_\_\_\_\_

PRO AG

**PROJECT AGREEMENT**  
**BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),**  
**AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND**  
**Economic Affairs Division**

AN AGENCY OF THE GOVERNMENT OF Pakistan

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

- PROJECT DESCRIPTION ANNEX A       FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX       SPECIAL LOAN PROVISIONS ANNEX

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

- GENERAL AGREEMENT FOR TECHNICAL COOPERATION      DATE \_\_\_\_\_  
 ECONOMIC COOPERATION AGREEMENT      DATE \_\_\_\_\_  
 (other)      DATE \_\_\_\_\_

1. PROJECT/ACTIVITY NO. 391-11-110-296      PAGE 3 OF 12 PAGES

2. AGREEMENT NO. 73-12      3.  ORIGINAL OR REVISION NO. \_\_\_\_\_

4. PROJECT/ACTIVITY TITLE  
Agric. Research - Precision Land Levelling

5. PROJECT DESCRIPTION AND EXPLANATION  
*(See Annex A attached)*

6. AID APPROPRIATION SYMBOL 72-12-d1336      7. AID ALLOTMENT SYMBOL 782-22-099-00-33-31

8. AID FINANCING	<input type="checkbox"/> DOLLARS <input type="checkbox"/> LOCAL CURRENCY	9. PREVIOUS TOTAL (A)	10. INCREASE (B)		11. DECREASE (C)		12. TOTAL TO DATE (D)
(a) Total			\$606,060				\$606,060
(b) Contract Services							
(c) Commodities			\$363,636 Rs. 3,600,000				\$363,636 Rs. 3,600,000
(d) Other Costs			\$242,424 Rs. 2,400,000				\$242,424 Rs. 2,400,000
13. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT							
14. <u>Rs. 9.90</u>							
(a) Total							
(b) Technical and other Services							
(c) Commodities							
(d) Other Costs							

15. Special Provisions (Use Additional Classification Blocks if Necessary)

This sheet of the ProAg obligates Rs. 6,000,000 (\$606,060 equivalent) of which Rs. 3,600,000 is being allocated for the local purchase of equipment and Rs. 2,400,000 for the cost sharing payments in the Punjab and Sind. The release will be made from funds made available under Section 204 of PL 480 Title II.

16. DATE OF ORIGINAL AGREEMENT      17. DATE OF THIS REVISION      18. ESTIMATED FINAL CONTRIBUTION DATE  
December 31, 1975

19. FOR THE COOPERATING GOVERNMENT OR AGENCY      20. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_      SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
TITLE \_\_\_\_\_      TITLE \_\_\_\_\_

AID 1220-1A L-791  <b>PRO AG</b> CONTINUATION SHEET  A ANNEX	<b>PROJECT AGREEMENT</b> BETWEEN AID AND <b>Economic Affairs Division</b>  AN AGENCY OF THE GOVERNMENT OF <b>Pakistan</b>	1. Project/Activity No. <b>391-17-110-296</b>	PAGE <u>1</u> OF <u>12</u> PAGES
		2. Agreement No. <b>73-12</b>	3. <input checked="" type="checkbox"/> Original or Revision No. _____
		3. Project/Activity Title <b>Agriculture Research - Precision          Land Levelling</b>	

I. Project Targets

The purpose of this project is three-fold:

1. To demonstrate to farmers the production increases that can be realized through precision land levelling and through the adoption of improved agronomic practices on levelled fields.
2. To build within the Sind and Punjab Governments the beginnings of an institutional infrastructure capable of supplying precision land levelling and associated services to farmers who desire these services.
3. To conduct research on socio-economic factors involved in changing traditional agronomic and water use practices and to develop specific data on the benefits vs. costs of precision land levelling under a variety of conditions -- with various crops, plot sizes, soil conditions and site locations.

II. Background

Water is a major limiting resource for increased agriculture production. With the pressure of population growth, farm land has increased and crop acreages have expanded everywhere to a point which approaches the present limit of water availability. Considerable resources have been expended to develop additional water supplies and to improve the irrigation water distribution including development of tubewells. However, these methods will over the next 10-20 years approach their natural limits. If agriculture is to continue to grow, ways will have to be found to increase the efficiency with which water is utilized. One area which needs particular attention if long run productivity gains are to be achieved is that of irrigation water management at the farm level. This project is directed toward improving on-farm water management in irrigated areas. In an estimated 90% of the irrigated areas, individual farms are not levelled; the unevenness ranges between .5 and .8 feet, a condition which precludes efficient application of water, results in a water wastage factor of an estimated 30-50 percent, and contributes to salinity and water logging problems. The proposed scheme is devoted to the introduction of land levelling

For the Cooperating Government or Agency  SIGNATURE: _____ DATE: _____ TITLE: _____	For the Agency for International Development  SIGNATURE: _____ DATE: _____ TITLE: _____
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AID 1890-1A (2-70)  <b>PRO AG</b> CONTINUATION SHEET  ANNEX	<b>PROJECT AGREEMENT</b> BETWEEN AID AND	1. Project/Activity No. 391-17-110-296	PAGE <u>5</u> OF <u>12</u> PAGES
	Economic Affairs Division	2. Agreement No. 73-12	3. <input checked="" type="checkbox"/> Original or Revision No. _____
	AN AGENCY OF THE GOVERNMENT OF Pakistan	3. Project/Activity Title Agriculture Research - Precision Land Levelling	

and associated agronomic techniques as a means of increasing productivity and conserving scarce water resources; it has the following specific aims and objectives:

1. To demonstrate to farmers the economies that can be achieved through precision land levelling and through the adoption of improved agronomic practices on levelled fields.
2. To develop specific data on the benefits vs. costs of precision land levelling under a variety of conditions, i.e., with various crops, plot sizes, soil conditions, agronomic practices and site locations.
3. To build an initial pool of expertise in the skill and techniques required as a base for a longer range effort in land levelling.
4. Establishment of an institutional infrastructure capable of supporting precision land levelling and associated agronomic services to farmers. This will consist of:
  - a. Training of provincial agricultural officers and staff and also private entrepreneurs in the technique of land levelling -- procedures for obtaining appropriate grades, use of surveying instruments, method of staking, use of scrapers and land planes and improved agronomic practices on levelled farms.
  - b. Development of an institutional framework capable of (1) surveying and staking, (2) inspection of land levelled by private concerns, (3) administering a system of cost-sharing for initial land levelled, and (4) providing advice and assistance on improved agronomic techniques.
  - c. Establishment of small equipment pools for use by farmers on a rental basis.
  - d. The encouragement of private enterprise participation in land levelling -- custom tractor service, rental of land levelling equipment.

It will be the aim of the project to develop research data in addition to cost/benefit information on the following factors related to wide scale

For the Cooperating Government or Agency  SIGNATURE: _____ DATE: _____ TITLE: _____	For the Agency for International Development  SIGNATURE: _____ DATE: _____ TITLE: _____
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AID 1820-17 (4-70)  PRO AG CONTINUATION SHEET  ANNEX	<b>PROJECT AGREEMENT</b> BETWEEN AID AND <b>Economic Affairs Division</b>  AN AGENCY OF THE GOVERNMENT OF <b>Pakistan</b>	1. Project/Activity No. <b>391-17-110-296</b>	PAGE <u>6</u> OF <u>12</u> PAGES
		2. Agreement No. <b>73-12</b>	3. <input checked="" type="checkbox"/> Original or Revision No. _____
		3. Project/Activity Title <b>Agriculture Research - Precision          Land Levelling</b>	

adoption of precision land levelling technology:

- socio-economic and cultural factors affecting the acceptance of land levelling by various farmer groups;
- the likely effect of wide scale land levelling and associated agronomic practices on the relative income of small farmers;
- the relationship between acceptance of land levelling and the adoption of improved agronomic practices;
- the probable implications of land levelling and increased production on farm labor and marketing infrastructure;
- the most effective ways in which the land levelling program can be skewed to favor the small farmer;
- various methods of employing traditional bullock power to accomplish precision land levelling.

While it is envisaged that all four provinces of West Pakistan may eventually participate in this project, this initial agreement provides only for the Punjab and the Sind, the two provinces which are now prepared to undertake the project and therefore where initial project implementation will begin.

Conditions expected at the end of the two-year training, research and demonstration project are:

1. Approximately 1,000 farms located in diverse areas of each province will have adopted land levelling and associated agronomic practices.
2. Approximately 320 provincial agriculture technicians (160 in each province) will have been fully trained in the technique of land levelling and associated agronomic methods.
3. An institutional framework will exist in each province capable of

For the Cooperating Government or Agency  SIGNATURE: _____ DATE: _____ TITLE: _____	For the Agency for International Development  SIGNATURE: _____ DATE: _____ TITLE: _____
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AID 1220-1A (5-70)  PRO AG CONTINUATION SHEET  ANNEX	PROJECT AGREEMENT BETWEEN AID AND Economic Affairs Division	1. Project/Activity No. 391-17-110-296	PAGE 7 OF 12 PAGES
	AN AGENCY OF THE GOVERNMENT OF Pakistan	2. Agreement No. 73-12	3. <input checked="" type="checkbox"/> Original or Revision No.
		3. Project/Activity Title Agriculture Research - Precision Land Leveling	

providing basic services and administering a system of cost sharing.

4. A bank of research data on the cost versus benefits of land levelling will exist with a series of case studies to determine the merit of engaging in an expanded land levelling effort in the future.

5. There will exist a functioning private enterprise engagement in land levelling activities to supplement government services.

6. Viable local industry fabricating land levelling equipment will exist in each province.

III. Operational Plan

The actual implementation of the project will be spread over a two-year period beginning from fiscal year 1973-74. It is anticipated that U. S. advisors will arrive in Pakistan during the fall of 1973 and remain in-country until the fall of 1975.

A. AID Actions

AID will provide, either under PASA with the U.S. Department of Agriculture or through contract with a private firm, the following six U.S. advisors:

A team leader who will have had extensive experience in the field of precision land levelling.

An Agricultural Economist who will work with the provincial governments and with the central Ministry of Food and Agriculture to accomplish the research element of the project as described under paras I and II above.

Two Irrigation Engineers with extensive experience in the practical work of surveying, staking and levelling of fields. One each will be assigned to the Punjab and Sind.

Two Irrigation Agronomists, one each for the Punjab and Sind to work with the irrigation Engineers to train provincial officials in

For the Cooperating Government or Agency  SIGNATURE: _____ DATE: _____ TITLE: _____	For the Agency for International Development  SIGNATURE: _____ DATE: _____ TITLE: _____
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AID 182 (Rev. 1-6) (2-70)  PRO AG CONTINUATION SHEET  ANNEX	<b>PROJECT AGREEMENT</b> BETWEEN AID AND	1. Project/Activity No. 391-17-110-296	PAGES <u>08</u> OF <u>12</u> PAGES
	Economic Affairs Division	2. Agreement No. 73-12	3. <input checked="" type="checkbox"/> Original or Revision No. _____
	AN AGENCY OF THE GOVERNMENT OF Pakistan	3. Project/Activity Title Agriculture Research - Precision Land Levelling	

improve tillage and other agronomic practices.

Technicians assigned to the provinces will train those individuals who are selected by the provincial government to form the future cadre of expertise in land levelling. They will also train private entrepreneurs who wish to learn the technique. Training will consist of both formal and on-the-job instruction. The technicians will also -- throughout the project's duration -- make spot checks of work done by provincial officials to insure proper implementation and assist the provincial governments in the preparation of manuals and standards.

USAID will provide in kind the following pieces of equipment required in the formal training program:

Survey kits	24
Scrapers	20
Land planes	20
Misc. equipment (border discs, ditchers, listers, tools, etc.)	

USAID will also provide over the course of the project the following equipment for creation of equipment pools to be established at Integrated Rural Development Areas in which land levelling services are being introduced:

Scrapers	192
Land planes	128
Survey kits	128
Misc. equipment (border discs, ditch, lister, tools, etc.)	

All of this equipment will be procured in Pakistan by USAID with rupees provided under this agreement.

In addition to the above equipment USAID will provide tractors for use in the training program. If possible up to 20 of these tractors will be purchased; if purchase is not possible, these tractors will be leased.

The cost of this equipment is estimated at 36 lakhs (18 per province).

For the Cooperating Government or Agency		For the Agency for International Development	
SIGNATURE: _____	DATE: _____	SIGNATURE: _____	DATE: _____
TITLE: _____		TITLE: _____	

AID 1500-1A (2-70)  <b>PRO AG</b>  CONTINUATION SHEET  ANNEX	<b>PROJECT AGREEMENT</b> BETWEEN AID AND <b>Economic Affairs Division</b>  AN AGENCY OF THE GOVERNMENT OF <b>Pakistan</b>	1. Project/Activity No. <b>391-17-110-296</b>	PAGE <u>9</u> OF <u>12</u> PAGES
		2. Agreement No. <b>73-12</b>	3. <input checked="" type="checkbox"/> Original or Revision No. _____
		3. Project/Activity Title <b>Agriculture Research - Precision          Land Levelling</b>	

USAID will also provide Rs. 24 lakhs (12 lakh for each province) to fund the cost sharing arrangements to be implemented in each province and to meet costs of POL consumed during training sessions plus incidental training equipment and supplies. Details are provided in separate Project Agreements with the two provincial governments.

#### B. Provincial Government Actions

The provincial governments will each designate over the two-year period approximately 160 officials for special training in land levelling and permanent assignment to land levelling work.

The provincial governments will pay all salaries and allowances for its land levelling staff.

They will designate special research cells to coordinate the collection and analysis of research data required to accomplish the research goals of the project specified in paras I and II above.

They will provide suitable facilities for the formal training sessions, designate IRD implementation areas in timely fashion, and will insure that IRDs selected are those which have government marketing, credit and other facilities installed and therefore offer the highest chance of success for the land levelling efforts.

Provincial governments will maintain all equipment provided under the agreement and will operate and maintain in IRD areas equipment pools which will lease to farmers equipment provided in kind by USAID.

They will operate in these same IRD areas a system of government survey and staking services, utilizing for this the individuals trained under this project. An important part of this system will involve the administration of a system of cost-sharing for the first few acres levelled on each farmer's land. This is detailed in project agreements with the individual provinces.

#### IV. Timing of Implementation

It is agreed that both parties will make their best effort to insure that

For the Cooperating Government or Agency	For the Agency for International Development
SIGNATURE: _____ DATE: _____	SIGNATURE: _____ DATE: _____
TITLE: _____	TITLE: _____

AID 1989-1A (3-73)  PRO AG CONTINUATION SHEET  ANNEX	PROJECT AGREEMENT BETWEEN AID AND  Economic Affairs Division  AN AGENCY OF THE GOVERNMENT OF  Pakistan	1. Project/Activity No. 391-17-110-2%	PAGE 10 OF 12 PAGES
		2. Agreement No. 73-12	3. <input checked="" type="checkbox"/> Original or Revision No.
		3. Project/Activity Title Agriculture Research - Precision Land Levelling	

decisions are made and actions taken in general accordance with the operation schedule and PERT network of May 1973 which is attached to this Agreement as Annex D.

V. U.S. Contributions

The Agreement obligates \$300,000 which will pay for the services of the six advisors described in para III above. In addition: Section 204 of Public Law 480, as amended authorizes the use of Title II P.L. 480 funds to purchase foreign currencies accruing under Title I of P.L. 480 in order to meet costs designed to assure that commodities made available under Title II of P.L. 480 are used to carry out more effectively the purpose for which such commodities are made available or to promote community and other self-help activities designed to alleviate the causes of the need for such assistance.

It has been determined that such assistance should be made available to the Grantee in order to meet the costs of an agreed activity designed to increase agricultural production through equipment demonstration and water management and land levelling services; and it has further been determined that the assistance herein made available will supplement, but not substitute for, funds normally available for such purposes from other non-U.S. Government sources.

Therefore this agreement also obligates Rs. 6 million (\$606,060 equivalent) Section 204 of Public Law 480, Title II funds for purchase of equipment, cost sharing and other requirements discussed in para III above.

VI. Government of Pakistan Contribution

The contributions of the Sindh and Punjab Governments are estimated in the Annexes B and C which are a part of this Agreement.

VII. Evaluation

The Ministry of Food and Agriculture agrees to collaborate with USAID, the U.S. advisors and the provincial governments in the conduct of periodic evaluations on this project as outlined in the attached Work Plan/PERT network.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

AID 1500-1A (8-70)  PRO AG CONTINUATION SHEET  ANNEX	<b>PROJECT AGREEMENT</b> BETWEEN AID AND Economic Affairs Division AN AGENCY OF THE GOVERNMENT OF Pakistan	1. Project/Activity No. 391-17-110-296	PAGE 11 OF 12 PAGES
		2. Agreement No. 73-12	3. <input checked="" type="checkbox"/> Original or Revision No. _____
		3. Project/Activity Title Agriculture Research - Precision Land Levelling	

VIII. Disbursement of Funds

Upon signature of this agreement, out of the U.S. contribution of Rs. 6,000,000, Rs. 2,400,000 (of which Rs. 1,200,000 for Punjab and Rs. 1,200,000 for Sind) will be released to the Ministry of Finance for the Departments of Agriculture, Government of Punjab and Sind for the cost sharing payment. It is agreed that within one week of the receipt of the checks by the Ministry of Finance from USAID, these funds will be transferred by the Ministry of the Provincial Finance Departments of the Punjab and Sind. Thereafter the funds will be credited by the Finance Departments of the Government of the Punjab and Sind to a special bank account in favor of the designated project directors. Any interest earned on deposit of U.S. owned rupees must be returned to United States Disbursing Officer, American Embassy, Islamabad. Any unutilized balances in these accounts will be subject to refund to USAID or to be reprogrammed jointly in furtherance of the objectives of this activity.

The balance of Rs. 3,600,000 will be utilized by the USAID for the procurement of equipment. The requests for the procurement of equipment will be initiated by the project directors and forwarded to the Mission Project Advisor for concurrence. The Mission Project Advisor will make arrangements for the procurement and delivery of equipment at the projects. All disbursements for procurement initiated by the Mission will be made directly by the USAID.

IX. Financial Consideration and Other Considerations

Section 204 of PL 480 Title III funds - Rs. 6,000,000.

- a. Source of Goods: All commodities, including equipment, material and supplies, authorized to be procured with funds under this Agreement shall be procured in the cooperating country. A commodity will not be eligible for financing with funds made available under this Agreement if it contains any components from countries not included in A.I.D. Geographic Code 935.
- b. Limitation on Use of Funds: No part of the funds made available by this Agreement may be used for the administrative or personnel costs of Grantee or for the construction or maintenance of any church-owned or-operated edifice or any other edifices to be used for sectarian purposes, or for the advancement or support of any religious faith or teaching,

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nor shall such funds be used in any manner which is discriminatory as to race creed, color, or national origin, provided, however, that such funds shall be used only to supplement and not substitute for funds normally available for such purposes from other non-United States Government sources.

- c. Refund in Case of Unauthorized Expenditures: To the extent that the Grantee expends funds provided by this Agreement for purposes not authorized by the Agreement, as determined by A.I.D. it will promptly refund or pay to A.I.D. an amount equal to such unauthorized expenditure(s).
- d. Private Ownership: Purchase or construction of facilities and equipment to be privately owned will not be eligible. However, development on private land may be considered if it will result in corollary public benefits and does not result in a significant "windfall" to the land owners. The cost sharing provision of Annex B and C, page 3, will provide extensive public benefit for demonstration purposes and will not result in a significant "windfall" to any of the various land owners.

U.S. owned rupee funds released to the project pursuant to this agreement may not be used to pay for land purchases, customs duties, taxes, interest or payment of debt; nor may any of these funds be used for any purposes for which funds have been made available by the GOP to make payment on such debts or interest.

Detailed project accounts, both fiscal and property, will be currently maintained by the respective project directors according to the budget heads. Quarterly expenditure reports will be prepared in triplicate on the prescribed form (sample attached) for the project by the respective Project Directors. One copy will be sent to USAID/Islamabad and two copies to the Director of Accounts, Economic Affairs Division, Islamabad as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be immediately forwarded to the Controller of USAID Islamabad together with Economic Affairs Division comments, if appropriate.

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Annex B to Project Agreement for Precision  
 Land Levelling # 73-12, Project Implementation  
 Plans for the Province of the Punjab.

I. Project Implementation in the Punjab

The actual implementation of the project will be spread  
 over a two year period beginning in financial year 1973-74 and  
 continuing throughout financial year 1974-75.

The detailed plan of operation by phases is outlined  
 below and in the PERT diagram attached to this agreement as  
 Annex D.

A. First Phase

Integrated Rural Development Directorate

Project documentation, staff assignment for training and

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PROJECT AGREEMENT

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implementation, budget request for financial year 1973-74, inventory of training facility at Lyallpur Agriculture Engineering Directorate, assignment of demonstration areas (ERDs). Agriculture Engineering Directorate will be responsible for providing training and needed administrative personnel; in close cooperation with the IRD Directorate for implementing the project.

USAID

i) Provision of technical advisors, one Agricultural Engineer and one Agricultural Agronomist. In addition to these advisors to the Punjab Government, the Punjab will also be provided with the part time services of a precision land levelling team leader and an Agricultural Economist both of them are provided for by the U.S. under this ProAg.

ii) Provision of cost sharing fund.

iii) Provision of training equipment:

10 scrapers	)	
10 land planes	)	
12 survey kits	)	all to be procured
Misc. equipment (border discs,	)	locally
chisel plow, ditcher, lister,	)	
hand tools, etc.	)	

In addition, USAID will provide tractors for the training program. If possible up to 10 tractors will be procured locally; if purchase is not possible in timely fashion, these tractors will be leased.

B. Second Phase (1973-74)

Four formal training sessions of one month each to be conducted by U.S. technicians.

The formal training sessions for 64 trainees will be followed by two months of on-the-job training.

A training cadre of four professional level officers will be associated with U.S. technicians during both formal and on-the job training sessions. Training will include on use of traditional bullock power as well as tractor drawn equipment for land levelling. The training cadre will be responsible for conducting the training sessions during the following year.

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C. Placement of Trainees

After each training sessions of three month each (One month formal and two months on-the-job training) the trainees teams will be spread out, however, in the earlier stages several teams may be assigned to a single established IRD area where the necessary government infrastructure, including equipment pools and cost sharing money, will be available.

USAID will provide following equipment for the equipment pools to be established at IRDs:

- Scrapers 96 )
- Land Planes 64 ) To be procured in country
- Survey Kits 64 )

Miss. Equipment (border discs, ditchers, listers, hand tools, etc.)

U.S. funds for cost sharing will be placed with the Project Director who will allocate them for training and cost sharing in IRD areas.

Cost Sharing

USAID will provide from rupee obligated under Agreement with the Central Government Rs. 12 lakh for cost sharing purposes to the Provincial Government through the Ministry of Finance. Farmers will be eligible for cost sharing in the first five acres of their individual farms. The payment will be calculated on a 50:50 basis of the average per cubic yard cost of total earth moved. The average cost of levelling an acre of land has been estimated to be Rs. 200; therefore, cost sharing payments are estimated to average Rs. 100 per acre. A farmer would be eligible for cost sharing benefit whether he utilizes owned or rental equipment and/or bullock power for levelling his land.

The cost sharing payment will be subject to close supervision and inspection on the levelled farms by U.S. technicians cost sharing fund will be managed by Director IRD, but approvals for disbursement will be countersigned by U.S. project technicians in order to insure achieving an acceptable grade of precision of levelled farms by project trained technicians. Standards for Government inspection and approval of levelled lands will be established by the Agriculture Department assisted by U.S. technicians.

Pamphlets will be printed and distributed publicizing benefits of land levelling techniques and cost sharing scheme by US AID.

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A fixed fee of Rs. 15.00 per day will be charged for renting scrapers and Rs. 5.00 per day land planes. Although for purposes of cost sharing the rental on project owned equipment will be considered in calculating cost of each assignment, the net rental payment will be kept in a revolving fund in a scheduled Bank and utilized towards maintenance and replacement cost of this equipment.

Private sector tractor and land levelling pools will be encouraged in IRD areas and rentals will be paid at par with the fixed fees charged for project owned equipment. Any revision in the above fixed fees may be jointly approved by the Project Director and his counterpart USAID Project Advisor in writing, but not before six months of project operations.

D. Post Land Levelling Services

In order to insure maximum benefits of the precision land levelling technique, free and prompt advisory service will be available to farmers by teams qualified to teach improved agronomic practices in the post land levelling period. The service will be part of the package offered to farmers who utilized land levelling service. Illustrated brochures will be developed in Urdu on improvements in agronomic practices for distribution to farmers.

E. Research data Collection

An information management and data feed back system will be instituted between the project and the American Agricultural Economist to develop case studies and produce research material on the various aspects of land levelling.

F. Progress Towards Achieving Targets During Second Phase

- i) professional level training cadre capable of conducting training sessions independently.
- ii) Approximately 64 agriculture specialists trained during four sessions conducted during the year.
- iii) Approximately 250 farms adopted land levelling and associated agronomic practices.
- iv) Equipment pools both Government and privately owned are expected to be in place in IRD areas.

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v) Tractor service will be available. (A system of registering tractors within potential idle capacity available on rental will be maintained in each IRD (markaz) to provide service to farmers who would not be able to arrange tractor service on their own).

vi) Information management system between implementors and researchers and areas of research, will be established.

G. Third Phase (1974-75)

Training

Six training sessions will be conducted. An additional 96 agriculture technicians will be trained in the third phase.

Training sessions will be conducted by professional level training cadre of the Agriculture/IRD Departments who will have been trained as trainers during the second phase of the project.

H. Placement of Trainees

Placement of trained teams will be determined by the Project Director keeping in view the respective availabilities in each IRD areas of supporting infrastructure and services and the anticipated demand for land levelling and post land levelling advisory services for agronomic practices in each IRD area.

I. U.S. Technical Services

The assigned U.S. technicians will continue into this phase. Their main engagements will be (1) over-seeing the on-the-job training aspect of the training sessions (2) inspection of the levelled fields for accuracy and for purposes of establishing and assuring performance standards for approval of cost sharing payments by the IRD Directorate (3) strengthening the information management and feed back system between project and headquarters based research call, and (4) looking into the operation of equipment pools and developing ground rules preparatory to transfer of the title of the equipment to the IRDP at the end of the project.

J. Research Data

Based on analysis of case studies and research information developed in the first year of project operation (FY 73-74) it is expected

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that a 'research series' will be monitored by the U.S. agriculture economist early in the beginning of the phase. The series should be able to recommend alternative courses of action, variable and cost sharing thereof. Given a trial of these developed models by the Research Cell in the field by the Project implementors, the project should be able to develop adequate research base and define bench marks leading to an expanded land levelling program in the province. It is proposed that at the end of the project the Research material will be transferred to the Research Cell of the Economics & Marketing Wing of the Agriculture Department.

Institutional Frame-Work

It is expected that precise institutional relationships and responsibilities will be developed during the course of this project. It is at the same time expected that (1) the IRD Directorate will continue as the land levelling service organization (2) the Agricultural Engineering Directorate will be providing equipment service and maintenance inputs, and (3) the Agricultural Economics and Marketing Research Cell will have responsibility for on-going research programme on improvements in the technology and administering the programme and (4) the I.R.D. Department, through the Director IRD, will be responsible for cost shared land development at private farms.

K. Land Levelling Inspection Service

During the last phase of the project a greater emphasis will be placed on training professional level agriculture technicians in the inspection techniques of the levelled farms, and improved agronomic practices. With the departure of U.S. technicians a strengthened inspection service will need to be established by the Agriculture Department. It is expected that at the end of the project, the private sector will be capable of providing full range of land levelling services; the cost sharing scheme will be re-examined at this point to determine whether continuation of this scheme is necessary; the generated demand for services will hopefully be beyond the capacity of the Department to provide services and the farmer will be engaging private sector organization, for land levelling. Therefore, to insure that technique is properly applied and accepted grades are adhered to by private sector operators, and also to be responsive to farmers, the inspection and agronomic advisory service should be freely and immediately available in IRD areas and progressively in other areas of the Province.

L. Cost Sharing Fund

It is expected that the cost sharing scheme would have served its

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purpose of providing an incentive to the early adopters of the technique during the two year span of the project. With the achievement of the projected targets of farms, to be levelled during the life of the project it is possible that the cost sharing money provided by USAID may have been exhausted. Any funds which remain at the close of the project will be returned to USAID or may be reprogrammed for other project needs envisioned at that time.

Results Towards Achieving Project Targets

- i) The Project will be able to train at least 160 agriculture technicians in the land levelling techniques and associated agronomic practices.
- ii) An additional 750 farms will have adopted land levelling and improved agronomic practices during the third phase of the project making a total of approximately 1000 farms.
- iii) There will be a farmer awareness of the demonstrated benefits of land levelling; a sense of participation and an easy access to land levelling services by the farmers, which can be measured through generated demands and the effectiveness of government and private institutions in satisfying these demands.
- iv) Research data will have been compiled and on-going research programs in process.
- v) Strengthened government owned equipment pools offering equipment on rental basis, supplemented by established inspection and advisory services of improved agronomic practices will exist.
- vi) A functioning private sector land levelling service, equipped with trained personnel and full range of land levelling equipment available in IRD areas offering service to farmers on a competitive basis.

N. Organizational Control

The Director Integrated Rural Development, Punjab shall work as the Project Director and have full operational control of the project. He will operate the budget of the project for training and cost sharing activities and shall maintain complete accounts in a scheduled Commercial Bank. He will be responsible for maintaining all records connected with this project.

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The receipts will be deposited in a scheduled Commercial Bank under a head to be intimated by the Project Director.

N. Accommodation for Trainees

The accommodation for trainees shall be provided in the local Government Training Institute located at Lyallpur.

II. Rupee Costs of the Project

A. EQUIPMENT (Funds administered by USAID)

1. Training Equipment

(a) Social Scrapers	10	} Rs. 500,000
(b) Land Planes	10	
(c) Survey Kits	12	
(d) Miscellaneous Equipment Border, discs, ditcher, lister, chisel plows, tools etc.		
(e) Tractors, purchase, rental and repair		

2. Equipment for Implementation Pools

(a) Soil Scrapers	96	} Rs. 1,300,000
(b) Land Planes	64	
(c) Survey Kits	64	
(d) Miscellaneous Equipment (border, discs, etc.)		

Total Item 1 and 2 Rs. 1,800,000

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Provincial Government)

1. Cost Sharing	Rs.	1,000,000
2. PCL for Training		180,000
3. Misc. expenditure for training and supplies		20,000
4. Total:	Rs.	1,200,000
5. Grand Total: (provided... by USAID through this Agreement)	Rs.	3,000,000

It is assumed that the provincial officials (estimated to number 160) trained in the course of this project will continue, after the close of the project, to be employed by the Provincial Government in land leveling. There will therefore be a continuing cost to the Punjab Government of an estimated Rs. 1,600,000 each year to pay for the services of these employees.

III. Evaluation

The Agriculture Department of the Punjab Government agrees to collaborate with USAID, the American advisors and the Central Government in the conduct of joint periodic evaluations as outlined in the attached Work Plan/PERT network.

IV. Financial Considerations

Detailed project accounts, both fiscal and property, will be currently maintained by the respective project directors according to the budget heads. Quarterly expenditure reports will be prepared in triplicate on the prescribed form (sample attached) for the project by the respective project directors. One copy will be sent to USAID Islamabad and two copies to the Director of Accounts, Economic Affairs Division, Islamabad as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be immediately forwarded to the Controller of USAID/Islamabad together with Economic Affairs Division comments if appropriate.

The Government of Punjab will facilitate examination and observation by representative of the USAID of all project accounts, records, physical progress of projects and inspection of equipment.

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Annex C to Project Agreement for Precision  
Land Levelling # 73-12, Project Implementation  
Plans for the Province of the Sind.

I. Project Implementation in the Sind

The actual implementation of the project will be spread over a two year period beginning in financial year 1973-74 and continuing throughout financial year 1974-75.

The detailed plans of operation by phases is outlined below and in the PERT diagram attached to this agreement.

A. First Phase

Agriculture Department/PRDD

Project documentation, staff assignment for training and implementation, budget requests for financial year 1973-74, inventory of training facility at Agricultural Engineering Workshop, Tandojam assignment of demonstration areas (IRDs). Agriculture Department will be responsible for providing training and needed administrative personnel; in close cooperation with the IRD Department.

USAID

- 1) Provision of two technicians (1) Agricultural Engineer (2) Irrigation Agronomist. In addition to these advisors to the Sind Government, the

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Sind will also be provided with the part time services of a precision land levelling team leader and an Agricultural Economist both of them are provided for by the U.S. under this Project Agreement.

ii) Provision of cost sharing fund.

iii) Provision of training equipment

10 scrapers	)
10 land planes	) all to be
12 survey kits	) procured
Misc. equipment (border discs, ditchers, listers, hand tools, etc.)	) locally

In addition, USAID will provide tractors for the training program. If possible up to 10 tractors will be procured locally; if purchase is not possible in timely fashion, these tractors will be leased.

B. Second Phase (1973-74)

Four formal training sessions comprising of approximately 16 trainees of one month each to be conducted by U.S. technicians.

The formal training sessions will be followed by two months of on-the-job training.

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A training cadre of five professional level officers consisting of Deputy Director Agriculture, Agricultural Engineer, Irrigation Engineer, IRD Officer & Agronomist will be associated with U.S. technicians during both formal and on-the-job training sessions. Training will include on use of traditional bullock power as well as tractor drawn equipment for land levelling. The training cadre will be responsible for conducting the training sessions during the following year.

C. Placement of Trainees:

After each training session of three month each (one month formal and two months on-the-job training) the trainees teams will be spread out, however, in the earlier stages several teams may be assigned to a single established IRD area where the necessary government infrastructure, including equipment pools and cost sharing money, will be available.

USAID will provide following equipment for the equipment pools to be established at IRDs:

Scrapers	96	) To be procured in country.
Land planes	64	
Survey Kits	64	

Also Border, Discs,  
Sub Soilers, Listers, Patches,  
Chisel Plows, Planters, Hand Tools etc.

U.S. funds for cost sharing will be placed with the Agriculture Department which will allocate them to the Project Director for training and to Director IRD for cost sharing in IRD areas.

Cost Sharing

USAID will provide from rupees obligated under Agreement with the Central Government Rs. 12.0 lakh for cost sharing purposes to the Provincial Government through the Ministry of Finance. It is agreed the cost sharing will be eligible on the first ten acres on each individual farm (on a 50-50 basis of the average total cost of Rs. 200/- per acre) at the rate of Rs. 100/- per acre. That a farmer would be eligible for cost sharing benefit whether he utilizes owned or rental equipment and/or bullock power for levelling his land.

The cost sharing payment will be subject to close supervision and inspection on the levelled farms by U.S. technicians, cost sharing fund will be managed by Director IRD, but approvals for disbursement will be

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countersigned by U.S. project technician in order to insure achieving an acceptable grade of precision of levelled farms by project trained technicians. Standards for Government inspection and approval of levelled lands will be established by the Agriculture Department assisted by U.S. technicians.

Pamphlets will be printed and distributed publicizing benefits of land levelling techniques and cost sharing scheme by U.S. AID.

A fixed fee of Rs. 15.00 per day will be charged for renting scrapers and Rs. 5.00 per day land planes. Although for purposes of cost sharing the rental on project owned equipment will be considered in calculating cost of each assignment, the net rental payment will be kept in a revolving fund in a scheduled Bank and utilized towards maintenance and replacement cost of this equipment.

Private sector tractor and land levelling pools will be encouraged in UID areas and rentals will be paid at par with the fixed fees charged for project owned equipment. Any revision in the above fixed fees may be jointly approved by the Provincial level committee but not before six months of project operations.

D. Post Land Levelling Service

In order to insure maximum benefits of the precision land levelling technique, free and prompt advisory service will be available to farmers by teams qualified to teach improved agronomic practices in the post land levelling period. The service will be part of the package offered to farmers who demand land levelling service. Illustrated brochures will be developed in Sindhi, Urdu on improvements in agronomic practices for distribution to farmers.

E. Research Data Collection

An information management and data feed back system will be instituted between project and the American Agricultural Economist to develop case studies and produce research material on the various aspects of land levelling.

F. Progress Towards Achieving Targets During Second Phase

- i) A professional level training cadre capable of conducting training sessions independently.

For the Cooperating Government or Agency

For the Agency for International Development

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PROJECT AGREEMENT  
BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan1. Project/Activity No.  
371-17-110 2962. Agreement No.  
73-123. Project/Activity Title  
Agric. Research - Precision Land  
Levelling (Province of Sindh)

PAGE 5 OF 10 PAGES

3.  Original or  
Revision No.

- ii) Approximately 64 agriculture specialists trained during four sessions conducted during the year.
- iii) Approximately 250 farms adopted land levelling and associated agronomic practices.
- iv) Equipment pools both Government and privately owned are expected to be in place in IRD areas.
- v) Tractor service will be available. (A system of registering tractors within potential idle capacity available on rental will be maintained in each IRD talukas to provide service to farmers who would not be able to arrange tractor service on their own).
- vi) Information management system established between implementors and researchers and areas of research will be established.

4. Third Phase (1974-75)Training

Six training sessions will be conducted. An additional 96 agriculture technicians will be trained in the third phase.

Training sessions will be conducted by professional level training cadre of the Agriculture/PRD Departments who will have been trained as trainers during the second phase of the project.

ii. Placement of Trainees

Placement of trained teams will be determined by the Project Director in consultation with Director IRD keeping in view the respective availabilities in each IRD area of supporting infrastructure and services and the anticipated demand for land levelling and post land levelling advisory services for agronomic practices in each IRD area.

I. U.S. Technical Services

The assigned U.S. technicians will continue into this phase. Their main engagements will be (1) over seeing the on-the-job training aspect of the training sessions (2) inspection of the levelled fields for accuracy and for purposes of establishing and assuring performance standards for approval of cost sharing payments by the IRD Directorate (3) strengthening

For the Cooperating Government or Agency

For the Agency for International Development

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AID 105B-1A (8-63)  PROAG CONTINUATION SHEET  ANNEX	PROJECT AGREEMENT BETWEEN AID AND Economic Affairs Division	1. Project/Activity No. 391-17-110-296	PAGE 6 OF 10 PAGES
		2. Agreement No. 73-12	3. <input checked="" type="checkbox"/> Original or Revision No. _____
	AN AGENCY OF THE GOVERNMENT OF Pakistan	3. Project/Activity Title Agric. Research- Precision Land Levelling (Province of Sindh)	

the information management and feed back system between project and headquarters based research cell, and (4) looking into the operation of equipment pools and developing ground rules preparatory to transfer of the title of the equipment to the Agricultural Engineering Wing at the end of the project.

#### d. Research Data

Based on analysis of case studies and research information developed in the first year of project operation (FY 73-74) it is expected that a 'research series' will be monitored by the U.S. agriculture economist early in the beginning of the phase. The series should be able to recommend alternative courses of action, variable and cost sharing thereof. Given a trial of these developed models by the Research Cell in the field by the Project implementors, the project should be able to develop adequate research base and define bench marks leading to an expanded land levelling program in the province. It is proposed that at the end of the project the Research Bank will be transferred to the Agricultural Engineering Research scheme in the Province.

#### Institutional Frame-Work

It is expected that precise institutional relationships and responsibilities will be developed during the course of this project. It is at the same time expected that (1) the Agriculture Department will continue as the land levelling service organization (2) the Agricultural Engineering Wing will be providing equipment service and maintenance inputs, and (3) the Agricultural Engineering Cell will have responsibility for ongoing research programme or improvements in the technology and administering the programme & (4) the IRD Department, through the Director IRD, will be responsible for cost shared land development at private farms.

#### k. Land Levelling Inspection Service

During the last phase of the project a greater emphasis will be placed on training professional level agriculture technicians in the inspection techniques of the levelled farms, and improved agronomic practices. With the departure of U.S. technicians a strengthened inspection service will need to be established by the Agriculture Department. It is expected that at the end of the project, the private sector will be capable of providing full range of land levelling services; the cost sharing scheme will be re-examined at this point to determine whether continuation of this scheme is necessary; the generated demand for services will hopefully be beyond the capacity of the Department to provide services and the farmer will be engaging private sector organization, for land levelling. Therefore, to

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## PROJECT AGREEMENT

BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan1. Project/Activity No.  
391-17-110-296

PAGE 2 OF 10 PAGES

2. Agreement No. 73-12

3.  Original or  
Revision No. \_\_\_\_\_3. Project/Activity Title  
Agric. Research - Precision Land  
Levelling (Province of Sindh)

insure that technique is properly applied and accepted grades are adhered to by private sector operators, and also to be responsive to farmers, the inspection and agronomic advisory service should be freely and immediately available in IRD areas and progressively in other areas of the Province.

L. Cost Sharing Fund

It is expected that the cost sharing scheme would have served its purpose of providing an incentive to the early adopters of the technique during the two year span of the project. With the achievement of the projected targets of farms, to be levelled during the life of the project it is possible that the cost sharing money provided by USAID may have been exhausted. Any funds left over in the account should be utilized in strengthening the equipment pools towards the end of the two year project. This may be accomplished through exchange of formal notes with USAID.

Results Towards Achieving Project Targets

- i) The project will be able to train at least 160 agriculture technicians in the land levelling techniques and associated agronomic practices.
- ii) An additional 750 farms will have adopted land levelling and improved agronomic practices during the third phase of the project making a total of approximately 1000 farms.
- iii) There will be a farmer awareness of the demonstrated benefits of land levelling; a sense of participation and an easy access to land levelling services by the farmers, which can be measured through generated demands and the effectiveness of government and private institutions in satisfying these demands.
- iv) Research data will have been compiled and on-going research programme in process.
- v) Strengthened government owned equipment pools offering equipment on rental basis, supplemented by established inspection and advisory service of improved agronomic practices.
- vi) A functioning private sector land levelling service, equipped with trained personnel and full range of land levelling equipment available in IRD areas offering service to farmers on a competitive basis.

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TITLE: \_\_\_\_\_

AID 1880-1A (3-70)  <b>PRO AG</b> CONTINUATION SHEET  ANNEX <u>C</u>	<b>PROJECT AGREEMENT</b> BETWEEN AID AND <b>Economic Affairs Division</b>  AN AGENCY OF THE GOVERNMENT OF Pakistan	1. Project/Activity No. 391-17-110-296	PAGE <u>10</u> OF <u>10</u> PAGES
		2. Agreement No. 73-12	3. <input checked="" type="checkbox"/> Original or Revision No. _____
		3. Project/Activity Title Agriculture Research - Precision Land Levelling (Province of Sind)	

M. Organizational Control

A Committee headed by Secretary, Food & Agriculture and in cooperation with following members shall have over all control of the project:

- |                              |                    |
|------------------------------|--------------------|
| Secretary PRDD               | Member             |
| Director Agriculture         | Member/P. Director |
| Director IRD                 | Member             |
| S. B. Agricultural Machinery | Member             |
| DY Secretary (F. A.) PRD     | Member             |
| Representative of USAID      | Member             |

The functions of the Committee shall be as under:

- a) Coordination
- b) Evaluation
- c) Other Policy Making
- d) Approval of Budget

The Director of Agriculture, Sind, shall work as Project Director of the Project and shall have full operation control of project. He will also operate the budget of the project for the training side only and shall maintain complete account in a scheduled Commercial Bank. He will also maintain all records connected with this project.

The Director IRD, to whom funds will be allocated for cost sharing purpose at the private farmers, will like wise maintain separate accounts. The receipts will be deposited in a scheduled Commercial Bank under a head to be intimated by the Project Director.

N. Accommodation for Trainees

The accommodation for trainees shall be provided in the Local Government Training Institute located at Tandojam by mutual arrangements.

For the Cooperating Government or Agency  SIGNATURE: _____ DATE: _____ TITLE: _____	For the Agency for International Development  SIGNATURE: _____ DATE: _____ TITLE: _____
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AID 158-D-74  
(3-70)  
**PRO AG**  
CONTINUATION  
SHEET  
ANNEX C

**PROJECT AGREEMENT  
BETWEEN AID AND**

Economic Affairs Division  
AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17 110 296

2. Agreement No. 73-12

3.  Original or  
Revision No. \_\_\_\_\_

3. Project/Activity Title  
Agric. Research - Precision Land  
Levelling (Province of Sind)

II. Rupae Costs of the Project

A. EQUIPMENT (funds administered by USAID)

1. Training Equipment

(a) Soil Scrapers	10	) ) ) ) )	Rs. 500,000
(b) Land Planes	10		
(c) Survey Kits	12		
(d) Misc. Equipment (Border, discs, ditchers, listers, chisel plows, hand tools etc.			
(e) Tractors, purchase, rental and repair			

2. Equipment for Implementation Pools

(a) Soil Scrapers	96	) ) ) ) )	Rs. 1,300,000
(b) Land Planes	64		
(c) Survey Kits	64		
(d) Chisel Plows	64		
(e) Misc. Equipment (border discs, ditchers, listers, chisel plows, hand tools etc.			

3. Total 1 and 2 Rs. 1,800,000

B. OPERATING COSTS (funds administered by the Provincial Government)

1. Cost Sharing	1,000,000
2. POL for Training	180,000
3. Repairs	20,000
4. Total:	1,200,000
5. Grand Total (provided by USAID through this Agreement.)	3,000,000

It is assumed that the provincial officials (estimated to number 160) trained in the course of this project will continue, after the close of the project, to be employed by the Provincial Government in Land Levelling.

For the Cooperating Government or Agency

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TITLE: \_\_\_\_\_

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TITLE: \_\_\_\_\_

**PROJECT AGREEMENT**

BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17-110-296

2. Agreement No.  
73-12

3. Project/Activity Title  
Agric. Research - Precision Land  
Levelling (Province of Sind)

3.  Original or  
Revision No. \_\_\_\_\_

These will therefore be a continuing cost to the Sind Government of an estimated Rs. 1,600,000 each year to pay for the services of these employees.

VII. Evaluation

The Agriculture Directorate of the Sind Government agrees to collaborate with USAID, the American advisors and the Central Government in the conduct of joint periodic evaluations as outlined in the attached Work Plan/PART network.

VIII. Financial Consideration

Detailed project accounts, both fiscal and property, will be currently maintained by the respective project directors according to the budget heads. Quarterly expenditure reports will be prepared in triplicate on the prescribed form (sample attached) for the project by the respective project directors. One copy will be sent to USAID Islamabad and two copies to the Director of Accounts, Economic Affairs Division, Islamabad as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be immediately forwarded to the Controller of USAID/Islamabad together with Economic Affairs Division comments, if appropriate.

The Government of Sind will facilitate examination and observation by representative of the USAID of all project accounts, records, physical progress of projects and inspection of equipment.

For the Cooperating Government or Agency

For the Agency for International Development

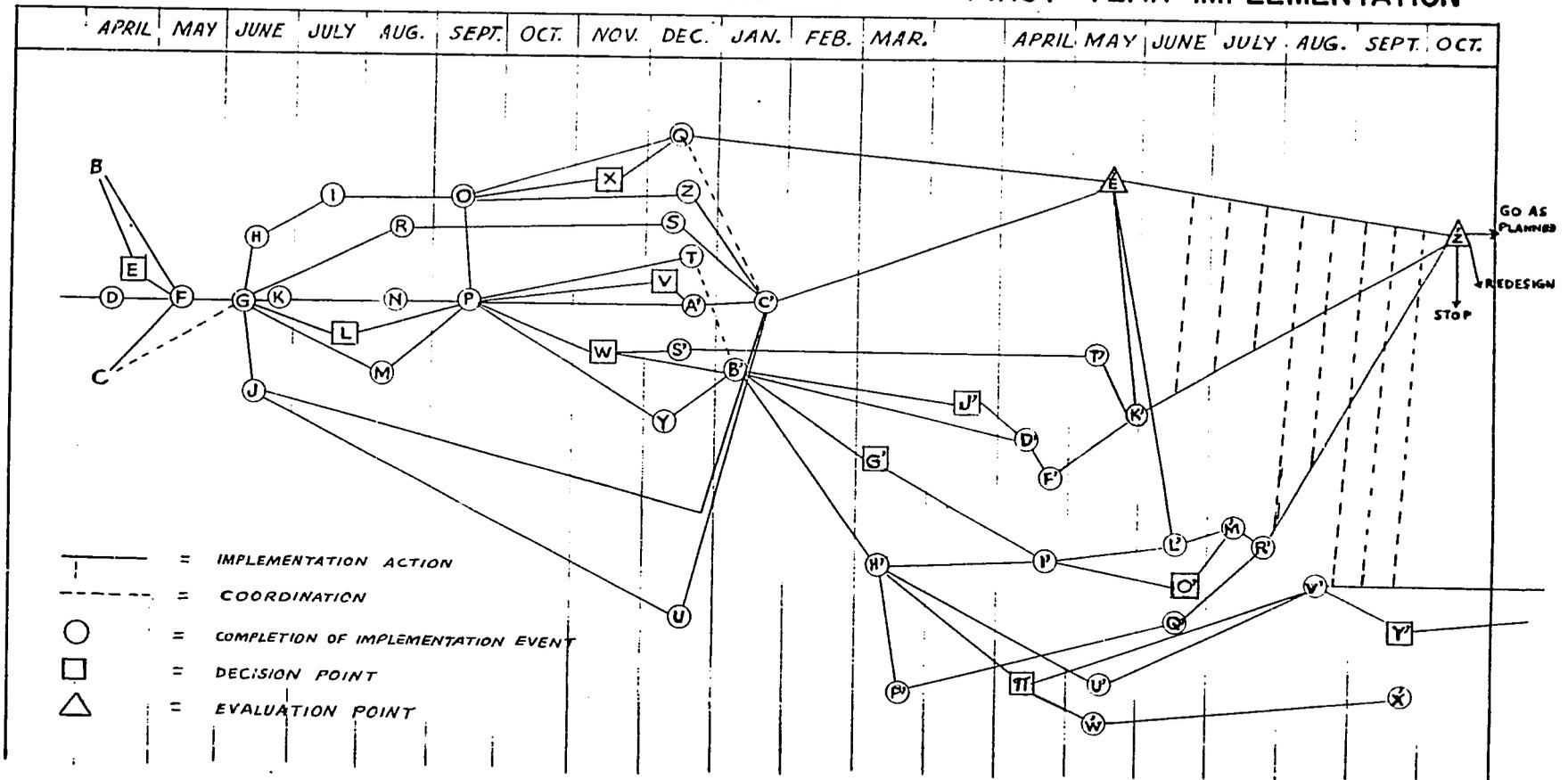
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# PRECISION LAND LEVELLING — PERT NETWORK — FIRST YEAR IMPLEMENTATION



<u>Step</u>	<u>Action</u>	<u>Description</u>	<u>Responsible Agent</u>	<u>Completion Time (Month)</u>
1	AD	PROP approval	AID/W	April 1973
2	E	Resolution of administrative support question	AID/W	April 1973
3	BF	Approval and allocation of Mondale funds	AID/W	May 1973
4	CF	Provincial approvals of PC-1 Forms	Provincial Governments (Sind and Punjab)	May 1973
5	DF	ProAg drafted and cleared within USAID	USAID	May 1973
6	FG	ProAg cleared and signed by GOP	GOA	June 1973
7	CG	Provincial Government notification to GOP of PC-1 approval	Provincial Governments	June 1973
8	GH	Forwarding of signed ProAg and PIO/T to AID/W	USAID	June 1973
9	HI	Negotiation of PASA with SCS	AID/W	July 1973
10	GJ	Release of cost sharing funds through MOF	USAID	June 1973
11	GK	Ordering of training equipment	USAID	June 1973
12	KN	Delivery of equipment to training sites	USAID	August 1973
13	IO	Recruitment and assignment of PASA Team	SCS	September 73
14	OQ	Preparation of benchmark indicators and collection of special data on IRD areas where PLL to be implemented.	SCS Team	December 73
15	L	Determination of IRD sites for project launch	Provincial Project Managers	July 1973
16	GM	Selection of trainees from specific IRD sites	Provincial Project Managers	August 1973
17	MP	Assignment of trainees to training program	Provincial Project Managers	September 73
18	GR	Ordering of equipment for implementation pools	USAID	August 1973

<u>Step</u>	<u>Action</u>	<u>Description</u>	<u>Responsible Agent</u>	<u>Completion Time (Month)</u>
19	RS	Delivery of equipment to implementation pools	Prov. Govts.	December 73
20	PT	Preparation of training manuals and procedures for use in succeeding sessions.	SCS/Provincial Officials	December 73
21	V	Selection of future trainers	SCS	December 73
22	WS'	Ordering of equipment for second group of implementation pools	USAID	December 73
23	JU	Transfer of funds from Ministry of Finance to Department of Agriculture in Sind and IRD Directorate in Punjab.	GOP/Min. Fin.	December 73
24	W	Determination of second group IRDs to have land levelling installed	Prov. Govts./SCS Team	November 73
25	PY	Selection of trainees to second training session	Prov. Govts./SCS Team	December 73
26	OZ	Establishment of detailed format and procedure for collecting before/after information at IRD implementation sites.	SCS Team/Prov. Govts	December 73
27	X	Determination of specific studies needed to accomplish research goals	SCS Team	November 73
28	PA'	Completion of first training session	SCS/Prov. Govts.	December 73
29	JC'	Development of administrative and accounting procedures for handling cost sharing fund.	Prov. Govts./SCS	January 74
30	ZC'	Communication of research information needs to implementing teams	SCS	January 74
31	XQ	Contracts let for studies to be implemented by local firms	SCS	December 74
32	A'C'	First trainees assigned to home IRD areas to commence implementation	Prov. Govts.	January 74
33	YB'	Second training sessions commence	SCS/Prov. Govts.	January 74
34	J'	Selection of future trainers from group	SCS/Prov. Govts.	March 74
35	G'	Determination third IRD areas to be included in program	Provin. Govts./SCS	March 74
36	B'H'	Selection of trainees for third training session.	Provin. Govts.	March 74
37	H'P'	Ordering of third group implementing equipment	SCS/USAID	March 74

<u>Step</u>	<u>Action</u>	<u>Description</u>	<u>Responsible Agent</u>	<u>Completion Time (Month)</u>
38	G'I'	Preliminary administrative groundwork in third implementation area	Prov. Govts.	April 74
39	H'I'	Assignment third group trainees	Prov. Govts.	April 74
40	B'D'	Training of second group	SCS/Prov. Govts.	April 74
41	D'F'	Assignment trainees to home IRD areas	Prov. Govts	April 74
42	S'T'	Delivery of equipment for second group of implementing pools	Prov. Govts.	May 74
43	C'E'	Trained land-levellers work with farmers on staking and levelling fields, utilizing various means of power	Prov. Govts./SCS	May 74
44	Q'E'	Conduct of research studies in project areas to determine costs vs. benefits of precision land levelling and achieve answers to other sociological and economic variables.	SCS/GOP	May 74
45	E'	Preliminary evaluation to assess (1) effectiveness of first team in promotion and technical aspects of work (2) effectiveness of GOP administrative arrangements including administration of cost sharing monies (3) adequacy of information gathering set up for research purposes (4) degree of engagement by locally hired firms for specific research projects (5) performance of GOP in providing necessary infrastructure in selected IRD areas (6) quality of locally produced equipment (7) significant oversights which need urgent action.	SCS/USAID/GOP	May 74
46	E'K' & E'L'	Evaluation findings applies to implementation and training phases.	SCS/Prov. Govts.	May/June 74
47	I'L'M'	Training third group trainees	SCS/Prov. Govts.	July 74
48	O'	Selection of future trainers	SCS/Prov. Govts.	June 74
49	P'Q'	Delivery pool equipment to third group implementing areas	Prov. Govts.	June 74
50	II	Determination of fourth IRD areas to be included in program	Prov. Govts./SCS	April 74
51	H'U'	Selection of trainees	Prov. Govts./SCS	May 74

<u>Step</u>	<u>Action</u>	<u>Description</u>	<u>Responsible Agent</u>	<u>Completion Time (Month)</u>
52	U'V'	Assignment trainees to fourth training session	Prov. Govts.	August 74
53	IIW'	Order of equipment for fourth implementation pools	US AID/SCS	May 74
54	W'X'	Delivery equipment to fourth implementation areas	Prov. Govts.	September 74
55	Y'	Determination of fifth and sixth groups to be trained	SCS/Prov. Govts.	September 74
56	E'Z'	Continuation of research and analysis based on information provided from field teams.	SCS	October 74
57	K'Z'	Continuation of work by first two groups of field teams in selected IRD areas.	Prov. Govts./SCS	October 74
58	R'Z'	Field work by third group field teams	Prov. Govts./SCS	October 74
59	V'-	Training of fourth group utilizing Pakistani trainers selected from first phase training sessions.	Prov. Govts./SCS	November 74
60	Z'	<p>In depth evaluation to: (1) determine effectiveness of project in accomplishing its primary goals and purposes as specified in project PROP; (2) determine changes which should be made in project design or direction; (3) determine areas of failing and recommend ways of overcoming serious deficiencies; (4) design PERT network for final project period. Project achievements will be measured against the following quantitative targets:</p> <ol style="list-style-type: none"> <li>1. 96 land leveling technicians trained and assigned to IRD implementation areas (48 per each province).</li> <li>2. 500 individual farmers will have made the decision to employ precision levelling techniques on their lands as evidenced by fact that surveying work and staking will have been completed and actual levelling work begun.</li> <li>3. 1,500 acres in the Sind and 1,500 acres in the Punjab will have been levelled as a result of project efforts.</li> <li>4. 82 scrapers, 58 land planes, 32 survey kits and 20 tractors will have been locally fabricated, procured by USAID with Mondale funds and distributed to training and implementation sites.</li> </ol>	USAID/GOP/SCS/Prov. Govts.	October 74

AID 1330-1  
(8-64)  
  
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3910296 (16)

**PROJECT AGREEMENT**  
**BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID),**  
**AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND**

**PD-AAD-173**

**AN AGENCY OF THE GOVERNMENT OF \_\_\_\_\_**

The above-named parties hereby mutually agree to carry out a project in accordance with the terms set forth herein and the terms set forth in any annexes attached hereto, as checked below:

- PROJECT DESCRIPTION ANNEX A       FOREIGN CURRENCY STANDARD PROVISIONS ANNEX  
 STANDARD PROVISIONS ANNEX       SPECIAL LOAN PROVISIONS ANNEX

1. PROJECT/ACTIVITY NO. 391-17-110-296	PAGE 3 OF 3 PAGES
2. AGREEMENT NO. 74-4	3. ORIGINAL OR REVISION NO.

4. PROJECT/ACTIVITY TITLE  
**Agricultural Research** 76p.

This Project Agreement is further subject to the terms of the following agreement between the two governments, as modified and supplemented:

- GENERAL AGREEMENT FOR TECHNICAL COOPERATION      DATE \_\_\_\_\_  
 ECONOMIC COOPERATION AGREEMENT      DATE \_\_\_\_\_  
 (Other)      DATE \_\_\_\_\_

5. PROJECT DESCRIPTION AND EXPLANATION  
*(See Annex A attached)*

6. AID APPROPRIATION SYMBOL 72-FT-745	7. AID ALLOTMENT SYMBOL B60-50-391-00-69-00
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8. AID FINANCING	PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
<input checked="" type="checkbox"/> DOLLARS <input checked="" type="checkbox"/> LOCAL CURRENCY				
(a) Total		Rs. 73,500,000		Rs. 73,500,000
(b) Contract Services				
(c) Commodities				
(d) Other Costs		Rs. 73,500,000		Rs. 73,500,000
9. COOPERATING AGENCY FINANCING - DOLLAR EQUIVALENT \$1.00 = Rs. 9.90				
(a) Total		\$2,161,213 Rs. 27,000,000		\$2,161,213 Rs. 27,000,000
(b) Technical and other Services				
(c) Commodities				
(d) Other Costs		\$2,727,273 Rs. 27,000,000		\$2,727,273 Rs. 27,000,000

10. SPECIAL PROVISIONS (Use Additional Continuation Sheets, if Necessary)  
 Obligation Rs. 73,500,000 (\$7,424,242 equivalent) of PL 480 Section 104(f) grant U.S. owned rupees made available under Mondale "Allocation".

11. DATE OF ORIGINAL AGREEMENT	12. DATE OF THIS REVISION	13. ESTIMATED FINAL CONTRIBUTION DATE
--------------------------------	---------------------------	---------------------------------------

14. FOR THE COOPERATING GOVERNMENT OR AGENCY	15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT
SIGNATURE _____ DATE _____	SIGNATURE _____ DATE _____
TITLE _____	TITLE _____

**PROJECT AGREEMENT  
BETWEEN AID AND**

1. Project/Activity No.  
391-17-110-296

2. Agreement No.  
74-4

3.  Original or  
Revision No.

PROAG  
CONTINUATION  
SHEET

Economic Affairs Division

ANNEX A

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

3. Project/Activity Title  
Agricultural Research

This Agreement provides \$175,000 of grant dollar and Rs. 73,500,000 of U.S. owned rupee funds in support of and complementary to the AID development loan funded program of Agricultural Research in Pakistan (the loan). Those portions of Annex B, entitled "Agricultural Research Development Loan - Pakistan, 1974" as specifically mentioned hereunder are hereby incorporated into this agreement subject to subsequent amendment as mutually agreed upon by the GOP and AID.

I. Background

See Annex B pages 3-4 section entitled "Background".

II. Project Description and Purpose

See Annex B pages 9 through 12, sections entitled "Research Priorities" and "Project Description and Purpose".

III. Course of Action

See Annex B, pages 18 through 24 section entitled "Newly Proposed Research System".

IV. Implementation Procedure

See Annex B pages 38 through 45, section entitled "Implementation Procedure, "which is incorporated with the following changes:

Page 40, item h, under commodity procurement is deleted in its entirety and the following is substituted:

- h. It is expected that the Government of Pakistan will exempt duties and taxes on all project commodities. To the extent that such exemptions are unavailable, the Government of Pakistan will assume responsibility for payment of duties and taxes from Central Government resources.

Page 43, paragraph 6 is deleted in its entirety.

For the Cooperating Government or Agency

For the Agency for International Development

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SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

PRAC  
COMMITMENT  
SHEET

ANNEX A

PROJECT AGREEMENT  
BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.  
391-17-110-296

2. Agreement No. 74-4

3. Project/Activity Title

Agricultural Research

2.  Original or  
Revised No.

V. Financial Plan

The total cost of the expanded Agricultural Research Program as envisaged in the basic loan agreement is estimated at \$19.6 million, \$9.6 million is estimated to be required in foreign exchange and an estimated \$10 million equivalent required in local currency costs over the next five years. The attached Table I on page 9 sets forth source of funds by foreign exchange and by local currency.

The total foreign exchange costs for the life of the project amount to \$9.6 million, to be provided as follows:

Government of Pakistan	\$ 520,000
AID Development Loan	\$7,600,000
AID Development Grants	\$1,500,000

This agreement provides \$175,000 of the Development Grant funds from FY 1974 allocations, the balance to be provided through separate project agreements in subsequent fiscal years, subject to availability of appropriated funds. An estimated breakdown of costs by institutions and dollar and local currency component is given on page 26 of the Agric. Research Loan Paper.

Total U.S. dollar contributions to technical advisory assistance costs under the project are estimated to be approximately \$3.9 million of which \$1.5 million, or "40%", is to be provided from Development Grants and the approximately \$2.4 million remainder, "or 60%", from the Development Loan. Disbursements will be charged in these proportions against each of the funding categories, Loan or Grant. Commodities and training costs incurred under this project will not be charged against the dollar Development Grant portion of this agreement. Disbursement will be made using the Letter of Commitment procedure or other procedures as mutually agreed to subsequently, under which technical advisory assistance expenditures (grant and loan) will be financed. The AID/Controller will have the responsibility for allocating the expenditures in the above ratio to the loan and grant accordingly.

Local currency requirements are estimated at about 100 million rupees, of which Rs. 73,500,000 is being funded under this agreement from

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE

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PROJECT AGREEMENT  
BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan1. Project/Activity No.  
391-17-110-296

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Agricultural Research

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3.  Original or  
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PL 480 Title I Section 104(f) grant and the remainder of Rs. 27,000,000 will be met from GOP resources. The local currency requirements over the 5 year period by major category are given in the illustrative attachment Table II on page 10.

VI. U.S. Contribution

The United States agrees to provide Rs. 73,500,000 of PL 480 Title I Section 104(f) (Mondale) grant funds to finance a portion of the local currency costs over the five year duration of the project. In addition, the U.S. will provide upto \$1.5 million subject to annual availability of U.S. dollar Development Grant funds for sharing Technical Assistance dollar costs. Of this total projected amount, this agreement provides \$175,000 in FY 1974.

VII. GOP Contribution

The Government of Pakistan will provide Rs. 27,000,000 from its own resources in accordance with the local currency budget and \$520,000 to finance the GOP's portion of the foreign exchange costs of the project for a period of five years, as indicated in Table I attached. In addition, GOP will contribute additional staff, land, commodities in kind, continued funding during the final year of disbursement and other elements. The total GOP contribution will be approximately Rs. 33 million or about 33% of the total project cost. This does not include anticipated additional direct expenditures or "in kind" contributions by the provinces, which are also directly supportive of project objectives.

VIII. Rupée Release Procedure

Upon signature of this agreement USAID will advance U.S. owned rupees in the amount of Rs. 10,000,000 from the Mondale grant funds to the Ministry of Finance, GOP, for the establishment of a Revolving Fund. This Revolving Fund will be at the disposal of ARC. When the Revolving Fund is depleted to 25% of its original amount, USAID shall replenish such funds upon certification by ARC that the amount withdrawn from the Revolving Funds has been transferred to the eligible institutions or retained for ARC uses, and that the appropriate GOP contribution has been received.

The GOP will provide funds to ARC in accordance with Table I, with the initial deposit of Rs. 1,000,000 in fiscal year 1974.

All logistic support to foreign technicians will be arranged and administered directly by ARC through its designated staff. USAID will retain Rs. 11.7 million from the Mondale Grant for meeting the local currency cost of logistical support of the estimated 78 man years of foreign

For the Cooperating Government of Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PROJECT AGREEMENT  
BETWEEN AID AND**

1. Project/Activity No.  
391-17-110-296

2. Agreement No.  
74-4

3.  Original or  
Revision No. \_\_\_\_\_

**PROAG  
CONTINUATION  
SHEET**

**Economic Affairs Division**

3. Project/Activity Title

**AN AGENCY OF THE GOVERNMENT OF  
Pakistan**

**Agricultural Research**

**ANNEX A**

technicians and professionals. Upon signature of this agreement USAID will advance Rs. 2.0 million of these funds to the Ministry of Finance, GOP, for the establishment of a separate Revolving Fund. This Revolving fund will be at the disposal of ARC. The funds will be utilized by ARC solely for the purposes of making payments for items of allowable cost for logistical support of foreign technicians, as specified in the approved contract, or as approved by USAID and ARC. When the Revolving Fund is depleted to 50% of its original amount, USAID will replenish such fund upon request by ARC accompanied by certification (as outlined in Appendix B) that the funds to be replenished have been utilized for the logistical support of foreign technicians financed through this program in accordance with the terms of this agreement and standards prescribed in the contracts. In order to ensure efficient logistical support to the foreign advisers, normal GOP rules and procedures may be relaxed in incurring expenditure out of the project funds and such procedure as used by other semi-autonomous agencies will be used.

Within 60 days after the close of the last fiscal year in which USAID provides local currency support to the project, the GOP shall submit a final "Certification and Request for Replenishment" annotated "NO PAY" to liquidate the Revolving Fund. To the extent that utilization of the Revolving Fund by such date is insufficient to liquidate the total advance made for the Revolving Fund, the GOP shall within 60 days after said date refund such amount to the United States Government by a check payable to American Embassy, Islamabad.

Special Provision

Rupees provided under the Mondale Grant will not be used for payment of custom duties, interest or previous debts.

IX. Other Consideration

Detailed and current project accounts will be maintained by the Government of Pakistan (ARC). Quarterly rupee sanction and expenditure reports for the projects will be prepared in triplicate by the Government of Pakistan (ARC). One copy will be sent to USAID/Islamabad and two copies to the Director of Accounts, Economic Affairs Division as soon as possible, but not later than 45 days after the close of each quarter. One of these copies will be forwarded immediately to the Assistant Director /Controller of USAID/Islamabad together with Economic

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

AID 1650-A  
(9-55)

**PROJECT AGREEMENT  
BETWEEN AID AND**

1. Project/Activity No.  
391-17-110-296

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Economic Affairs Division

2. Agreement No. 74-4

3.  Original or  
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ANNEX A

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

3. Project/Activity Title

Agricultural Research

Affairs Division comments, if appropriate.

The Government of Pakistan will facilitate examination and observation by representatives of the Government of the United States of America of all project accounts and records and physical progress of all mutually approved projects.

X. Evaluation

The Evaluation system, as indicated on pages 46-47 of the attached Agriculture Research Development Loan Paper is applicable under this Project Agreement including the provision for continuation, conditional continuation or discontinuance of further expenditure of funds under the projects.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

## PROJECT AGREEMENT

BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

1. Project/Activity No.

391-17-110-296

2. Approval No.

74-4

3. Project/Activity Title

Agricultural Research

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A  Original or  
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TABLE I

SOURCE OF FUNDS: Foreign Exchange  
and Local Currency

(in U.S. \$1,000 and Rs. 1,000)

	Year 1	Year 2	Year 3	Year 4	Year 5	To Total
(in U.S. \$1,000)						
<u>Foreign Exchange Source</u>						
AID Development Loan	1014	1849	1879	1384	1474	7600
AID Development Grant 1/	300	300	300	300	300	1500
GOP Grant	0	20	50	150	300	520
TOTAL	1314	2169	2229	1834	2074	9620
(in Rs. 1,000)						
<u>Local Currency Source</u>						
Mondale Grant	15,261	19,077	20,757	9,817	8,568	73,480
GOP Grant	1,000	2,000	4,000	8,000	12,000	27,000
TOTAL (Rs. 1,000)	16,261	21,077	24,757	17,817	20,568	100,480
(US \$ Equiv.)	1,626	2,107	2,475	1,781	2,056	10,048

1/ Subject to annual AID appropriations

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE

DATE

SIGNATURE

DATE

TITLE

TITLE

PROJECT AGREEMENT  
BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

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TABLE II

Local Currency Costs, by Major Category  
(In Rs. 1,000)

Component	Year	1	2	3	4	5	Total
Priority Research Program in existing Institutions		3300	5000	7000	9600	12500	37400
Operation of NRC		500	2000	3000	3500	4000	13000
Training		931	1657	1857	1717	2118	9280
Tech. Asst. Support		1130	2920	3000	2700	1950	11700
NRC Construction		3400	2500	2400	300		8600
ARC-NRC staff housing		7000	7000	7500			21500
(Rs. 000)		16261	21077	24757	17817	20568	100480
(US \$000 Equiv.)		1626	2107	2475	1781	2056	10048

The estimates for total Rupee requirements over the project period include assumed increases in provincial research allocations at about 5% per annum, the increases in ARC fund availability allow:

- The equivalent of 10% per annum increase in operational budgets of major provincial institutes;
- Specified allocation of approximately 10% of the current operating budget of AUL and the colleges of agriculture for research at these institutions plus a research budget increase of 10% per annum;
- funds for the operation of a national research center, calculated at Rs. 100,000 per scientist team year;
- funds for support of in-country training;
- funds for support of local costs of TA;
- funds for the building of NRC facilities;
- funds for provision of housing for ARC-NRC staff.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

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Economic Affairs Division

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Agricultural Research

ANNEX A

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

APPENDIX 'A'

Certification and Request for Replenishment

Request No. \_\_\_\_\_

I. Schedule of Financing

This Period	Total
from _____ to _____	To date

A. Funds distributed to:

Provincial Research Centers

1. Punjab	XXX	XXX
2. Sind	XXX	XXX
3. Baluchistan	XXX	XXX
4. Northwest Frontier	XXX	XXX

B. Funds retained by Agric. Research Council for centrally funded activities (by budget category)

1.	XXX	XXX
2.	XXX	XXX
3.	XXX	XXX

TOTAL A & B	XXX	XXX
-------------	-----	-----

II. Request for Replenishment

This Period	Total
from _____ to _____	To date

A. Total amount distributed to project (A & B above)

1. GOP Contribution	XXX	XXX
2. From AID Revolving Fund	XXX	XXX

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PROJECT AGREEMENT  
BETWEEN AID AND**

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**Economic Affairs Division**

**AN AGENCY OF THE GOVERNMENT OF  
Pakistan**

**Agricultural Research**

**PROAG  
CONTINUATION  
SHEET**

**ANNEX A**

I certify that funds have been distributed in accordance with the above schedule and hereby request replenishment from AID in accordance with the terms of the project agreement, in the following amounts:

US owned rupees \_\_\_\_\_

Date

FOR THE GOVERNMENT OF PAKISTAN

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

PROAG  
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ANNEX A

PROJECT AGREEMENT  
BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
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APPENDIX 'B'

CERTIFICATION & REQUEST FOR REPLENISHMENT  
FOR LOGISTIC SUPPORT TO FOREIGN TECHNICIANS

	Approved Budget	This Period From to	Total To Date
1. International Travel (Detailed by Category, i. e. Post Assignment, TDY, etc.)	XXX	XXX	XXX
2. Local Travel	XXX	XXX	XXX
3. Transportation of Effects (Detailed by Category; i. e. House- hold Effects, Auto, Excess & Unaccompanied Baggage etc.)	XXX	XXX	XXX
4. Residential Rents and Utilities (List Houses)			
1.			
2.			
3.			
4. (etc.)			
5. Office Rents & Utilities (List Offices)			
1.			
2.			
3.			
4. (etc.)			

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_

**PROJECT AGREEMENT**

BETWEEN AID AND

Economic Affairs Division

AN AGENCY OF THE GOVERNMENT OF  
Pakistan

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PROAC  
TERMINATION  
QUEST

ANNEX

APPENDIX 'B' (Contd.)

	Approved Budget	This Period From to	Total To Date
6. Residential Maintenance	XXX	XXX	XXX
7. Office Maintenance	XXX	XXX	XXX
8. Residential Furnishings & Equipment	XXX	XXX	XXX
9. Office Furnishings & Equip.	XXX	XXX	XXX
10. Office Supplies & Materials	XXX	XXX	XXX
11. Other Direct Costs (Stamps, Printing etc.)	XXX	XXX	XXX
12. Salaries of AIC Support Staff	XXX	XXX	XXX
13. Salaries of Contract Staff working under Direct Supervision of Technicians	XXX	XXX	XXX
	-----	-----	-----
	-----	-----	-----

I certify that funds have been disbursed in accordance with the above schedule and request replenishment from A.I.D. in accordance with the terms of the Project Agreement (or relevant contract) in the following amounts:

US Owned Rupee

For ARC - (GOP)

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

AGRICULTURAL  
RESEARCH  
DEVELOPMENT  
LOAN  
  
PAKISTAN  
  
1974

# PAKISTAN: AGRICULTURAL RESEARCH LOAN

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- V. Estimate of Staffing Pattern of NRC by Program and Year.
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- VII. Estimate of Buildings Needed for National Research Center, with Costs.
- VIII. Estimate of Housing Needed for ARC and NRC Staff with Funding Schedule.

## PAKISTAN: AGRICULTURAL RESEARCH LOAN

### Summary and Recommendations

1. Borrower: The Government of Pakistan. The program will be executed by the Agricultural Research Council which is charged with the responsibilities for stimulating, promoting and coordinating agricultural research in Pakistan.
2. Loan Amount: \$7,600,000
3. Terms: Repayment in 40 years, including 10 year grace; 2% during the grace period and 3% thereafter.
4. Purpose: To upgrade and expand Pakistan's agricultural research capability, both national and provincial, to effectively deal with problems in priority commodity/crop areas so as to increase agricultural production for domestic consumption and exports.
5. Project Description: A five-year program to develop and upgrade Pakistan's agricultural research institutes and colleges and to establish and equip a National Research Center to coordinate and carry out priority research projects. Commodities, expatriate technical advisors (including intermediaries) and academic and practical training for professionals and sub-professionals will be financed over a five-year period. An evaluation system, including workshops and an evaluation panel will permit assessment of research work undertaken and implementation progress.
6. Total Costs: The total cost of the expanded research program is estimated at \$19.6 million, of which \$9.6 million is for foreign exchange costs and \$10.0 million for local currency costs. Of the foreign exchange costs, 30% is for commodities, 42% for technical advisory assistance and 28% for training.

7. Financial Plan:

	<u>Foreign Exchange</u>	<u>Local Currency*</u>	<u>Total</u>
	(in \$1,000 equivalent)		
A. I. D. DL	7,600	-	7,600
A. I. D. DG	1,500	-	1,500
GOP Grant	520	2,700	3,220
Mondale Grant	<u>          </u>	<u>7,348</u>	<u>7,348</u>
Total	9,620	10,048	19,668

(\*Rs. 10 = U.S. \$1.00)

8. Other Sources of Financing: The agricultural research program has been discussed with other multilateral and bilateral donors including IBRD, FAO, UNDP, Ford and Rockefeller Foundation. It is clear from these discussions that while other multilateral donors will continue contributing in modest way as they have been in the past, they are not in a position to make the major input required and which has been requested of AID.
9. Issues: None
10. Statutory Criteria: All statutory criteria have been satisfied. (see annex)
11. Recommendations: It is recommended that a loan to the Government of Pakistan be authorized in the amount of \$7.6 million to finance the foreign exchange costs of U. S. and Code 941 category country procurement of commodities, technical assistance and training on the following terms and conditions:
- (a) Repayment will be made in US dollars within 40 years from the date of first disbursement with a 10-year grace period.
  - (b) Interest at the rate of 2% per annum during 10-year grace period and 3% per annum thereafter.
  - (c) This loan shall be subject to such other terms and conditions as set forth in section XI of this paper.

I. Background

USAID and other donors, recognizing research as an essential component of a developing agriculture, have encouraged Pakistan's import and adaptation of available technology and the development of an indigenous capability for technology generation. The efforts in wheat, rice, maize and university development have helped Pakistan develop its technology generating capability.

In 1968, a joint Pakistani-American team reviewed the extant research capability in Pakistan and recommended a course of action to upgrade Pakistan's research capability. Since 1970, USAID staff have worked closely with the Ministry of Agriculture, the Agricultural Research Council, provincial agricultural officials, and provincial research stations and scientists, to jointly identify the type of research system most suitable for Pakistan, the major constraints, and a strategy for alleviating the limiting factors. Since July 1970, USAID has supplied a research administration advisor to GOP and a Mondale Rupee Grant of Rs. 3.4 million to ARC.

The effort was reinforced in March 1973 with a second joint Pakistani-American review, at the request of the Secretary of Agriculture, GOP. The consensus of expert counsel is that Pakistan should systematically upgrade the provincial institutes, improving their capability to respond to province needs, and that the ARC should become actively involved in a few major research programs of national importance, assuring their successful execution through a multi-disciplinary, coordinated approach to priority problems. This would develop a research system that emulates the Indian and U.S. systems wherein states and federal governments share the responsibility for development of agricultural technology.

Expert counsel is that this effort will require additional training, local currency budget and FX commodities for the provincial institutions, the development of a national research center, and expatriate advisors for some major coordinated research programs.

The proposed research capability development program was developed by the staffs of the Pakistan Agricultural Research Council, GOP and USAID, in frequent consultation with the directors and scientists of the major provincial research stations throughout Pakistan.

The appraisal of the need and capability to execute the proposed program is based on the evaluation by the February/March 1973 joint Pakistan-American Agricultural Research Review Team; evaluations made by the USAID Agriculture Office through continuing contact with Pakistani program officials, scientists and farmers; and evaluations and reports by other foreign technicians including those of Ford and Rockefeller Foundations. On the basis of these assessments and review by the Mission Loan Committee, a conclusion has been reached that the proposed program is realistic and has outstanding prospects for success.

## II. Pakistan's Agricultural Problems and Research Priorities

### A. Pakistan's Agricultural Problems

Pakistan's economy is heavily dependent upon the agricultural sector, which employs 56% of the labor force, produces 44% of the GNP, and 65% of the foreign exchange earnings. An appraisal of the Pakistan Agricultural Sector was completed June 23, 1972, entitled "Pakistan's Agricultural Sector Analysis" and is available on request. The problems relating to agriculture center on the practical necessity of producing sufficient food and fiber to meet domestic demand at an acceptable price, and on the earning of foreign exchange to offset import requirements. The agricultural problems include: the supply of inputs, including water, technology, fertilizer, credit, pesticides, etc. increasing the efficiency of resource use (especially water); and policies that affect production efficiencies, resource use and input availability.

Performance within the agricultural sector varies greatly from commodity to commodity from geographical area to area and in effectiveness with which different resources are utilized and different rural groups benefitted. Table 1 sets forth Pakistan's Agricultural Production, 1960 to 1973.

Illustratively, a great deal of effort (including research) has gone into development of agriculture in irrigated areas, but little has gone into rainfed areas. Of the commodities, cotton and wheat, rice and maize have received emphasis, while pulses, livestock and oilseeds received little attention. Changes in yields, and in total production and domestic supply situation, reflect these imbalances in emphasis. Cotton yields have been increasing steadily and total output growing at an annual rate of about 10 percent. Yields of rice have been increasing at about 5 percent rate and total production at a 10 percent rate. Both cotton and rice are now heavily dependent on outside markets. Wheat production has increased by 90 percent in 10 years, but demand (stimulated by artificially low prices) has also grown very rapidly, and Pakistan continues to import wheat to the tune of about a million tons per year. Maize production has grown at about 3-4 percent per year but still is insufficient for domestic food, feed and processing requirements.

In contrast with these commodities, production of pulses has been declining over the last several years (at about 5 percent per year) and recently, prices of pulses have been going up rapidly. Total production of edible oils has varied widely from year to year. Despite significant increases in prices, the country has had to import increasing amounts each year. The bill for the current year's vegetable oil imports of 100,000 M. T. will be \$40 to 50 million. A further concern is the increasing percentage

of total oils coming as a by-product of cotton lint production. Most of Pakistan's lint is exported in raw or processed form. Cotton production consequently is thus vulnerable to world fluctuations in cotton production and prices, which affect demand for the major product of the crop. Thus the vegetable oil supply will decline if exports of lint decline, causing a double problem of increased oil import requirements while foreign exchange earnings are falling. Cotton currently accounts for 50-60 percent of total exports.

Sugar production has been almost stagnant with supplies inadequate to satisfy needs.

Livestock development probably has been the most neglected of the major commodity groups. Yield of meat and milk per head is almost unbelievably low, particularly for cattle and buffalo. As a result, despite a large ruminant population relative to human population, meat and milk are in very short supply. These shortages and poor quality of meat and milk are of increasing concern both because of the consumption habits favoring meat and milk, and the recognized importance of animal protein in the diet. The development of sheep, goat and poultry industries, particularly in the arid and semi-arid lands of Baluchistan and N. W. F. P., appear favorable. Also possibilities are seen for some exports of meat both to nearby Arabian countries and to Europe, Japan and the U. S.

Sorghum, which currently accounts for about 3 percent of total cereals, has been making some progress in yield and total output, but millet has been declining. It is quite probable that a major improvement could be made with both these crops under barani conditions, where they now are grown.

Problems other than inadequate and imbalanced commodity growth rates are evident. Major emphasis has been placed on development of water resources and crops for irrigated areas. Unfortunately, no comparable emphasis has been placed on efficient use of irrigation water after it leaves the major canals. Combined losses from delivery systems and inefficient use of water may allow only 25-50% total efficiency in water use. Waterlogging and salinization are common resulting problems.

Areas dependent solely on rainfall (which make up 85% of the total), receive very little attention. Similarly, the small farmers and tenants appear to be less well served by research, credit, inputs, markets and government service, and encounter the greatest difficulties in modernizing.

TABLE 1-AVERAGE, YIELD AND PRODUCTION OF MAJOR CROPS - PAKISTAN  
AVERAGE 1960-64 AND 1965-73

	1960-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
<b>Wheat</b>										
Production in 000 tons	3,979	4,518	3,854	4,266	6,317	6,513	7,179	6,374	6,759	7,600
Acreage in 000 acres	12,110	13,140	12,738	13,205	14,785	15,221	15,393	14,771	14,478	14,710
Yield/Acre in maunds	8.9	9.4	8.2	8.8	11.6	11.6	12.1	11.7	12.7	
<b>Rice</b>										
Production	1,093	1,329	1,296	1,343	1,475	2,000	2,363	2,165	2,168	2,224
Acreage	3,006	3,350	3,443	3,483	3,508	3,842	4,008	3,715	3,642	3,738
Yield/Acre	9.9	10.8	10.2	11.4	11.7	14.2	16.1	15.8	16.2	16.2
<b>Maize</b>										
Production	477	520	531	578	779	616	657	706	694	658
Acreage	1,180	1,202	1,339	1,368	1,502	1,523	1,600	1,581	1,563	1,494
Yield/Acre	10.9	11.8	10.8	11.5	14.1	11.0	11.1	12.2	12.0	
<b>Jowar (sorghum)</b>										
Production	235	288	270	273	286	258	279	324	307	306
Acreage	1,199	1,446	1,467	1,380	1,444	1,170	1,212	1,378	1,253	1,244
Yield/Acre	5.3	5.4	5.0	5.4	5.4	6.0	6.3	6.4	6.7	6.7
<b>Bajra</b>										
Production	359	439	364	365	407	325	297	355	354	277
Acreage	1,958	2,250	2,075	2,069	2,258	1,819	1,560	1,881	1,876	1,607
Yield/Acre	4.9	5.3	4.8	4.8	4.9	4.9	5.1	5.1	4.7	
<b>Barley</b>										
Production	115	116	82	87	106	95	107	90	101	103
Acreage	461	458	382	400	429	385	399	348	387	395
Yield/Acre	6.8	6.9	5.8	5.9	6.7	6.9	7.3	7.0	7.1	-
Total cereal production	6,258	7,210	6,397	6,912	9,370	9,807	10,882	10,014	10,383	11,168
Total acreage under cereals	19,914	21,846	21,444	21,905	23,926	23,960	24,172	23,674	23,199	23,188
Total Pulses production	698.4	736.8	595.2	701.1	556.0	585.5	560.5	569.5	597.7	-
Acreage	3,365	3,423	3,044.5	3,534.1	3,282.8	2,803	2,683.4	2,688.7	2,924.7	-
Cotton (000 bales)	1,981.9	2,123.8	2,330.8	2,604.8	2,910.8	2,966.7	3,012.3	3,050.5	3,979.0	3,947.4
000 Acres	3,418.2	3,624.4	3,858.2	4,003.3	4,411.3	4,313.0	4,338.3	4,283.5	4,837.4	4,968.5
Yield mds. per acre	2.7	2.8	2.9	3.1	3.1	3.3	3.3	3.4		
Sugarcane production	14,980	18,373	21,957	21,635	18,365	21,624	25,953	22,801	19,647.7	21,069.7
Acres 000 acres	1,137.5	1,243	1,476	1,605	1,245	1,336	1,523.2	1,571.5	1,364.7	1,422.8
Yield/Acre	372.1	402.3	366.9	366.9	401.5	440.6	461.1	394.9		
<b>*Production of vegetable oils (000 tons)</b>										
Cottonseed oil		75.68	83.23	93.02	104.85	108.70	107.00	109.40		
Rape and Mustard oil		66.31	55.99	62.56	84.46	68.50	77.00	76.89		
Sesamum oil		3.35	2.60	2.60	3.35	3.00	4.00	3.70		
Linseed oil		1.33	1.00	1.00	1.33	1.00	1.00	1.10		
Groundnut oil		6.00	8.70	13.42	21.90	15.60	16.00	13.80		
Total		152.67	151.52	172.60	215.89	198.80	203.00	194.00	234.00	

\* Estimated by Planning Unit, Ministry of Agriculture and Underdeveloped Areas, G.O.P. Islamabad

Agricultural research can help Pakistan solve its agricultural problems through the supply of new technology, increasing the efficiency of resource use and supplying information affecting policy decisions. Obviously, research will not solve all the problems. In some instances (i. e., sorghum production), new technology generated by an effective research program can be applied and increase production substantially without changing other production factors.

In a few instances (i. e., sugarcane), only limited new technology can be used without changes in policy or without changes in the supply of other inputs. In such situations the research program can identify factors having policy implication and thus affect policy, but the magnitude of investment and direction of research programs must be governed by expected limitations of policy and other input supply.

Other investment opportunities within the agricultural sector include purchases of additional inputs (i. e., imports of fertilizer, pesticides, machinery) or improved efficiency of resource use. The GOP is implementing a plan to make credit more readily available and has made arrangements for supply of fertilizer for the short run. Improvements in efficiency of resource use (water and land), are being approached through the precision land levelling and the barani programs.

Investments in additional inputs tend to move production along a given production - function curve, while new technology (the product of research), changes the shape of the production - function curve, allowing a greater output from a constant input or a larger increase in output with a given increase in input. Too, changes in technology are effective over a longer period of time than are increased supplies of physical inputs.

While the return on investments in a specific research program cannot be accurately forecast, the U. S. experience has been that investments in agricultural research have an average return of 40-50% per annum. It is reasonable to assume that by concentrating the investment on major problems of important commodities, the expected returns would be much higher. Investment return on physical inputs can seldom approach these levels.

During the Spring of 1972 the USAID Mission in collaboration with the Central Ministry of Agriculture, provincial Departments of Agriculture and provincial Planning Departments carried out an agricultural sector assessment<sup>1/</sup> to identify major issues and constraints to agricultural development and to identify potential project areas for U. S. assistance. The central conclusion of the analysis was that needed future increases in agricultural productivity in Pakistan were possible primarily from two sources:

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<sup>1/</sup> Pakistan Agriculture Sector Analysis, June 23, 1972 (mimeographed, 41 pages plus annexes).

(a) a stream of new technology emanating from effective agricultural research and

(b) improvement in the efficiency of the use of the most scarce of agriculture's natural resources -- water.

In the listing of the half dozen "major issues and constraints" for agriculture in Pakistan, the need for a stream of new technology -- for more and better research -- was given highest priority, in the virtually unanimous belief that "Agricultural research is the single most important element for long run, sustained agricultural growth in Pakistan."

### B. Research Priorities

With a severe shortage of research resources, Pakistan's priority research areas are delimited by the necessity of solving those problems that substantially inhibit the production of sufficient food and fiber to meet the basic biological requirements of her people, and the earning of a major part of the foreign exchange required to offset imports. Pakistan must make full use of importable technology and concentrate her resources on adapting and augmenting that technology to her conditions and needs.

Pakistan must place priority on the solution of problems affecting the cereal and feed grains, cotton, pulses, oilseeds and sugar crops, and on increasing the availability of milk and meat. In a few regions, the agroclimatic conditions are highly favorable for the production of speciality crops, including deciduous fruit and vegetable seed. The limited agricultural capabilities, depressed conditions of the people, and the surplus labor available, make research relating to the production, marketing and processing of these crops of high priority for these areas.

In all these programs the emphasis must be on research to solve immediate problems related to commodity production, marketing or utilization and on increasing efficiency of resource use.

The research priorities supported by this assistance program and the research emphasis in each commodity group are as follows:

- Wheat - production economics, introduction and development of better varieties, crop nutrition, water management, tillage practices and pest controls;
- Forages - production economics, introduction of varieties, crop nutrition, and tillage practices;
- Livestock - production and marketing economics, breed testing, animal nutrition and pest control;
- Oilseeds - introduction and development of improved varieties, nutrition, water management and pest control;
- Sugar Crops - production and marketing economics, varietal testing, nutrition, water management, tillage and pest control;
- Pulse Crops - economics, introduction and development of improved and higher yielding varieties, soil management, pest and disease control;
- Water and Soil Management - on-farm management of water and soil (including saline and sodic soils), infiltration, conveyance systems, consumptive use, etc.;
- Soil Fertility - fertilization procedures, including organic and inorganic sources, placement, timing, etc.;
- Maize - production economics, nutrition, water management, tillage, varietal development and testing for barani areas;
- Rice - Water management, tillage, pest control and milling;
- Sorghum and Millets - production economics, varietal testing, nutrition and tillage;
- Socio-Economics - cropping patterns, use of inputs, marketing of produce, problems of low income farmers, land tenure, rural reconstruction, price policy.
- Deciduous Fruits - marketing economics, varietal testing and pest control;
- Vegetables - marketing economics, varietal testing and pest control;
- Fish - production and marketing (with emphasis on inland fisheries).

### III. Project Description and Purpose

The purpose of this research assistance program is to develop Pakistan's institutional research capability to supply the technology needed to deal with production bottlenecks so as to advance its agricultural sector. This is to be done through the development of efficient and effective commodity research programs that address the most important problems associated with the production, marketing and utilization of major agricultural commodities in Pakistan.

The achievement of these objectives will involve the establishment of national goals relevant to agriculture, the translation of these goals into research objectives and the refinement of these objectives into actionable research programs that focus on the important impediments to increased efficiency of production, marketing and utilization of specific commodities or required resources.

The effective development and execution of priority research programs will require additional resources (including commodities, technical assistance and training), and the development of a national research system that effectively concentrates scarce resources on the solution of major problems.

The additional resources will be used to upgrade the capabilities of the provincial research institutions and colleges working on priority research problems and to provide the inputs necessary for new applied agricultural research. The added resources will also be used to establish the National Research Center and to finance equipment, materials and advisory assistance needed for the NRC. A key element in this system will be the development (re-establishment in the case of wheat), of research problem area or commodity committees that will plan, execute and evaluate specific research programs that reflect major objectives and address major problems. The TA, training and commodities provided in this assistance program will center on the effective functioning of these commodity committees and assure the efficient execution of the research programs developed by them.

Expert counsel (see second joint team report) and experience in other countries indicate that a national research center (NRC) is an essential component of an effective research system in Pakistan. The proposed assistance provides for the initial development of a NRC having specified functions that will complement the existing provincial research institutions. The development of NRC as an integral part of the ARC framework will promote the desired movement of ARC from a small advisory and granting role into an active research organization, also considered essential for Pakistan.

Associated objectives include the alleviation of certain institutional impediments, (including more effective personnel management, communication, purchasing capability, utilization of educational institutions, linkage of research and extension, use of multidisciplinary approach, linkage among researchers, and development of professional leadership), which are recognized as deterrents in the present research system.

Proposed is a five year program of financial assistance, academic and practical training for both professionals and subprofessionals, and commodity and equipment support to ARC in development of a National Research Center to carry out key research projects not adequately handled by the Provinces, and through ARC to the various provincial institutes to expand and improve efficiency, quality, and relevance of their research programs. The ARC, through stimulation of cooperative research, will ensure that all of the key elements in solving critical problems are provided, and that unfruitful duplication of efforts is minimized.

Technical committees drawn from the ranks of top professional personnel in various commodity and other research problem areas, will focus on identification of critical problems and establishment of coordinated research programs to overcome constraints that can be dealt with through scientific research (e. g. new and better genetic materials and cultural practices.)

#### IV. Present Agricultural Research System

##### A. Institutions

Most of the agricultural research work in Pakistan is sponsored by the 4 provinces and carried out at the headquarters of the research institutes located at Tarnab (NWFP), Lyallpur (Punjab), Quetta (Baluchistan), and Tandojam (Sind). The institutes also have field stations, varying in number from one for Baluchistan, to forty for Punjab, where some field testing is carried out.

The staffs of the institutes are organized along a combination of commodity specialist (usually geneticists), and discipline groups (e. g. soil fertility, entomology, pathology, etc.). The groups of geneticists concentrate on a single commodity, but their interdisciplinary support must be obtained from the staffs of various disciplines. The discipline staffs, usually with one or a few qualified researchers, are responsible for a great many commodities and other projects. Consequently, interdisciplinary support obtained tends to be weak and often uncoordinated. There is little day to day contact between the geneticists (who normally has principal commodity responsibility) and personnel from the other disciplines.

The substations of the institutes are staffed mostly by subprofessionals and visited periodically by scientists from the parent institutes. However, a few of the substations do have professionally trained researchers assigned on a full time basis.

Funds for operating the Institutes come from provincial budgets, central budget and grants from Agricultural Research Council (ARC), PL-480, etc. Budgets are sub-divided into "development" and "non-development." New programs are funded from the "development" budget for up to 5 years, then from the "non-development" budget, if continued. In the research institutes, salaries of staff (excluding labor) take about 60% of the total budget.

The educational institutes contributing to agricultural research include Agricultural University, Lyallpur (AUL), (formerly WPAU), and the Colleges of Agriculture at Peshawar and Tandojam. They are controlled by their respective provincial Departments of Education. The staff organization is along discipline lines, reflecting their teaching functions. Staff members at AUL are expected to allocate 25% of their time to personal research. Due to the combination of discipline orientation in teaching and small amount of time devoted to research, most research projects involve scientists from only a single discipline.

Most of the provincial budget for the educational institutions is earmarked for pay of staff and other fixed costs. Additional funds, allowing a greater expenditure for equipment and contingencies are solicited from PL-480, ARC or other grant sources.

A few specialty institutes are doing research related to agriculture in Pakistan. These include the water management research at Mona project area under the Water and Power Development Authority, the Cotton Research Institute (Multan), the Commonwealth Institute of Biological Control (Rawalpindi), the Irrigation Research Institute (Lahore), the Forest Research Institute (Peshawar), the Atomic Energy Research Center (Tandojam), and the Radiation Genetics Institute (Lyallpur).

#### B. Deficiencies in the existing system

a. National Priorities - Some national priorities and targets for agriculture are rather specifically stated, for example, targets for output of wheat and use of fertilizer. However, it does not appear that alternatives are examined systematically, with economic, social and political aspects considered and major biological or former economic constraints to alternatives identified or adequately evaluated in establishing commodity targets. With the lack of definition, research programs often focus on obvious and narrowly defined goals, (such as maximum possible yields per acre under optimum cultural conditions), rather than substantial systems suited to resource and farmer constraints. Poor communication among disciplines, lack of leadership and physical isolation contribute to the difficulty of a researcher obtaining the overview needed to make better decisions on his research time. Organization tends to foster rather than discourage isolation of individual researchers from other disciplines. Most of the commodity research is led by geneticists specialized in that commodity. What should be the cooperating disciplines are organized to deal with resources or special problems (of water, soil fertility, entomology).

Consideration of social and economic impact of a particular research program is constrained by the absence of economists and sociologists on the staffs at the research institutes. Because of the lack of economic input, few experiments are designed to permit economic evaluation of alternatives.

b. Communication - Communication among scientists working on the same or related problems is infrequent. Few institutions have developed effective communication linkages intramurally within the same institution. Communications among institutions and provinces has been minimal, but in the past few months, the ARC has started holding national workshops to promote effective communication among scientists.

Most scientists are essentially isolated from the world scientific community. In only a few cases do linkages exist between researchers in Pakistan and researchers in foreign or multinational institutes, and, these for the most part continue on an informal basis frequently through a resident expatriate. Few scientists have an opportunity to travel abroad and few have access to technical journals. Library facilities at AUL approach adequacy, but other institutions lack minimal libraries.

Communication between research scientists and extension personnel are still limited but increasing in frequency and efficacy. However, none of the research programs include an outreach capability in association with extension workers. An extension "subject matter specialist" as such, is unknown. A few research programs (rice, wheat, maize) have started systematic training of extension personnel through "short course" and "field day" channels.

c. Agroclimatic areas served - The major crops research facilities are at Peshawar, Lyallpur, Quetta, and Tandojam. There is a rice station at Dokri and one near Lahore and a cotton station at Multan. In addition to these major facilities there are several substations. All the major stations and most of the substations are in irrigated areas and the current research is primarily for irrigated agriculture.

Although Pakistan is noted for its irrigated cropland (30 million acres), there are about 17 million cropped acres that are rainfed, about 5 million acres are forested and over 140 million acres are range land or waste land. GOP plans to develop a research program for arid and semi-arid zones with one major station and several substations. The program will emphasize range and flock management reflecting the current view on potential use of those unirrigated areas receiving less than about 10 inches annual precipitation.

The major area, not being served by existing or heretofore planned research facilities, is the rainfed (barani) cropland, mostly in northern Punjab and North-West Frontier. This area of about 7.5 million acres, has from 10 to 40 inches annual rainfall, with a seasonal distribution pattern that should permit much higher crop and forage yields than those currently obtained. The rabi season field crops (October-November planting) cover nearly 6 million acres, while kharif (July planting) crops cover about 1.7 million acres. The major rabi crops are wheat, chickpea, rape, and mustard, and the major kharif crops are pearl millet, maize, sorghum, and mungbeans. Of these crops, only wheat and maize are currently served by a reasonably adequate research program, and even in these programs the emphasis is on irrigated cultivation.

d. Technical Manpower - Technical manpower available in most institutions is inadequate. Within the major research institutes there are about 300 research officers, including 18 with doctorate degrees. Only the AUL approaches a critical mass of qualified researchers, with a total of about 80 doctorates in the staff. Some of the staff having master or bachelor level training have been well trained, but many have received masters degree training that did not adequately prepare them for research positions. The current staff at the major research institutions is shown in the following table:

Current Staff Training Levels at Seven Major  
Agricultural Research Institutions in Pakistan

<u>Institutions</u>	<u>Senior Staff*</u>	<u>Training Levels</u>	
		<u>M. Sc.</u>	<u>Ph. D.</u>
Agricultural Research Institute, Lyallpur	136	158	16
Agricultural Research Institute, Quetta	23	26	0
Agricultural Research Institute, Tandojam	65	140	1
Agricultural Research Institute, Tarnab	68	45	1
College of Agriculture, Peshawar	37	29	2
College of Agriculture, Tandojam	38	70	3
Agricultural University, Lyallpur	217	222	79
Total	584		

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\*Class I and II or equivalent, some M. Sc. are junior staff (research assistants).

e. Facilities available - Apart from the research program needed for the barani areas including forage legumes and grasses, and perhaps some specialized facilities (such as a cold water rice nursery in NWFP), the land area available on research stations is generally adequate. Most of the stations lack a comprehensive plan for facility development. Some major stations do not have an assured water supply for research on irrigation crops. Many field research plots are not effectively managed for production of reliable data. In some cases the management failure results from impact of unanticipated factors. Field plots often fail despite a good initial research plan because of lack of control in accordance with the research plans, improper, or non-uniform soil or seed-bed preparation, variation in planting rates, improper application of water and fertilizer, ineffective weed, insect or pest control, etc. While some of these are not within the control of the researcher because of either monetary or administrative restrictions, frequently it is a matter of recognizing the important controllable variables and adequate supervision of field hands. Most institutions have inadequate field equipment and what is available is assigned to individual departments where it is inefficiently used. Maintenance facilities are lacking and essential equipment replacement is not programmed, nor resupplied.

Laboratory facilities are often insufficient to support practical research programs. A few laboratories lack electrical power and other utilities. Needed equipment is frequently inoperative due to lack of small amounts of foreign exchange for parts or of servicing expertise. Rupee availability also hampers maintenance of equipment.

Budgets for agricultural research institutions allow about Rs. 28,000 per senior scientist. About 65% is spent for salaries, the remainder for contingencies, including nearly all labor. Labor is considered cheap, but research supplies and equipment in Pakistan are available only at or above world market prices. The Pakistani scientist thus has the equivalent of about \$900 purchasing capability, compared to about \$10-15,000 for a U.S. scientist doing similar work. Rupee budgets thus severely limit the effective working of scientists in Pakistan. An efficient budget for a productive scientist in Pakistan would be about Rs. 80-100,000 per annum. (The ICRISAT center at Hyderabad, India, anticipates about \$10,000 per scientist)

Foreign exchange availability to research institutes is negligible. The largest institute has about \$75 per senior scientist, a smaller one has \$11 in FY 73. This does not suffice for even spare parts. The procedure for purchasing FX items is laborious, frequently taking a year or more after the allocation of FX.

These deficiencies, and recommendations for their alleviation, are discussed more fully in Agricultural Research in Pakistan, Report of the Second Joint Pakistan-American Team, of March 1973, pp 1-10, and in Agricultural Research in Pakistan, by ARC and USAID, of February, 1973.

## V. Newly Proposed Research System

The additional resources supplied by this loan will be used to develop an operational agricultural research system which effectively translates broad policy guidelines into specific action oriented research programs for priority areas, and executes these priority programs.

### A. Development of Priorities and Resource Allocation

The Executive Committee of the ARC, with emphasis on national policy and resources available, will supply guidelines of priorities in agricultural research. These guidelines will be conveyed to the Director General, ARC, and through the Directors to the commodity or research problem area committees.

The Directors of ARC will encourage the formation of multi-disciplinary commodity and research problem area committees, composed of the research scientists working in these areas at the various research institutions. Under the leadership of the appropriate Director, ARC and the national coordinator, these committees will meet at least annually to review progress, identify impediments to program development, and plan their future research program. These plans will include major objectives, approach to be used, resources available in each participating institution, new resources essential for program execution, all budget resources related to the program and recommendations for the removal of factors impeding progress.

The research program plans developed by the commodity committees will be forwarded to the Director of each institution involved in the program and to the Director General, ARC. The Director General, ARC, will forward the plans to the Executive Committee, with his comments.

The Directors of the involved provincial institutions will forward the plans to their provincial research board with their recommendations and comments, including the relationship of the specific program to the institution's overall program, its priority within the institution, the resources available and the additional resources required for program execution.

The provincial research boards will forward the programs to the Director General, ARC, with their approval, approval with modification or disapproval, and if approved, with a statement of provincial resources available for program execution.

The Executive Committee of ARC will assess the programs, considering the comments of the Director General, ARC and of the provincial research boards, the resources available to ARC, and the relationship of the program to national objectives, and recommend specific actions regarding each program to ARC.

Upon approval by the ARC, the Director General, ARC will take appropriate action to assure the orderly flow of resources to participating institutions as approved in the planned programs.

These major programs are expected to continue indefinitely, changing objectives over time to reflect evolution of priority emphasis and technical program demand. The annual workshop will constitute a technical review process and will identify procedural constraints.

B. Role of ARC and the National Research Center (NRC)

The strategy for developing Pakistan's agricultural research capability places the ARC in a demanding but essential role. The ARC, currently housed in a few scattered offices in Karachi, will be moved to Islamabad. It has been reorganized, assigned new responsibilities, and new staff is being appointed. In its new role (closely paralleling that of the Indian Council of Agricultural Research), ARC will become an active research organization.

It is essential that Pakistan have a national research center (NRC) as a focal point for research in Pakistan. The site for the NRC has been selected near Islamabad where 1000 to 1500 acres are under GOP control and available. The NRC will initially focus on a few essential services including:

1. Development of research programs in:
  - a. soil management and farming systems for the barani area;
  - b. pest management, with emphasis on integrated control of major serious pests and diseases;
  - c. sorghum and millets, with emphasis on the barani areas;
  - d. dairy management, with emphasis on provision of adequate quantities of nutritious feeds and forages and on identification of principal diseases, parasites and related factors responsible for low fertility and development of control measures;
  - e. forage legumes and grasses, with emphasis on increasing productivity in barani areas and in areas with limited irrigation capability;
  - f. socio-economic research with emphasis on cropping patterns, use of agricultural inputs, marketing of produce, problems of low income farmers, and public policy.

2. Development of a plant introduction center.
3. Operation of a national professional communications center, including library, reprint service and technical journal editing.
4. Development of a training facility, concentrating on short term practical training for scientists, extension personnel and government officers.
5. Serve as a resource base for scientists deputed to provincial institutions by agreement.
6. Serve as a focal point for research in Pakistan, including an official linkage between Pakistan's research network and the world research community.

In the development of its research programs NRC will fully integrate the capabilities and activities of other central and provincial elements in Pakistan's research network. Thus the involvement of NRC in the wheat research program would be primarily its contribution in rust pathology (program transferred from the Plant Protection Department and substantially strengthened), while the research to serve the barani areas would include major inputs by NRC in the areas of soil management and tillage equipment development, but would rely on the wheat breeding program in provincial institutes if special varieties were needed for the barani area. Similarly, the dairy research program would be linked to the breeding work at Bahadurnagar and the animal nutrition work at AUL. In most instances the capability of provincial institutions will be strengthened to allow them to contribute significantly to a larger integrated program, and the proliferation of institutes will be discouraged.

The ARC will be responsible for the operation of the NRC, and its new offices will be on the NRC campus.

### C. Promoting Multidisciplinary Research

Multidisciplinary, problem solving approaches to priority problems will be fostered. The ARC will have a key role in this procedure, linking the technical programs of the several institutions within Pakistan to each other and to the international research community. The sponsorship by ARC of annual commodity or research problem area workshops will play an important part in the effective functioning of these programs as will the selective strengthening of provincial institutions for the execution of priority programs. During the workshops the scientists will review their past year's work, identify major impediments of effective program functioning, plan the research program for the following year, and recommend actions by the ARC and institution Directors to overcome impediments.

D. Developing Linkages Among Researchers

The linkages formed among institutions within Pakistan and with the international research community will promote the import of relevant technology and its adaptation to Pakistan with maximum efficiency. The ARC will become a formal channel through which the Pakistani scientists can develop beneficial linkages with colleagues in other countries and international institutes. Unessential duplication of efforts within Pakistan will tend to be minimized as work loads increase and mutual trust among researchers develops. The role of foreign advisors in initiating these linkages is crucial to the process.

A key element of these cooperative research programs, which must have time to evolve, is the development of interdependent research networks wherein individual institutions or provinces recognize that they can meet their objectives more effectively by sharing a total research effort with other institutions, than by assuming that their institution must supply answers to all aspects of a problem.

E. Developing Professional Leadership

Leadership development among working groups of scientists will be promoted by having ARC employ well qualified scientists to serve as national program leaders. These leaders, whether based in Islamabad or at a provincial institution, will work throughout Pakistan to facilitate the work of their fellow scientists, encourage exchange of information and materials, arrange for workshops, insure effective linkages with the international community, and assist the provincial scientists in solving their operational problems. In most instances the development of this leadership capability will require the assistance of a foreign advisor.

F. Improving Facilities

Facilities, including budgets for both Rupee and FX commodities and services, will be strengthened in the research institutions through the national and regional priority programs. Essential items and services needed at each institution to execute a portion of a total program will be identified during the research planning phase, and ARC will augment budgets (Rupee and FX), as required for the efficient execution of the major programs.

Equipment and supplies (FX) made available to provincial institutions will be primarily for support of specific major research programs which have been selected for priority action. During the first two years of the 5-year program, in most instances the first priority will be for field equipment needed for the effective functioning of the research station (tractors, tillage implements, planters, threshers, etc.).

The ARC will develop a FX commodity purchasing cell, expected to function beyond the life of the project. The provincial institutes will be able to utilize their current procedures for purchasing FX commodities with their own funds, or if they choose, can use the ARC procurement capability. It is expected that ARC will become the primary procurement source for FX commodities required by the agricultural research community in Pakistan.

#### G. Upgrading Staff Competence

The competence of scientific staffs will be enhanced by the provision of practical and degree training by ARC. Trainees will be nominated by the Directors of institutions to ARC. ARC will determine which trainees are of highest priority and arrange for their training within Pakistan, at international institutes, in 941 category countries, or in the U.S., as appropriate. ARC will thus sponsor a limited number of degree and non-degree training programs each year. The priority for training will be in direct support of the national and regional research programs. Roughly half the supported doctoral candidate training will be done at AUL, the remainder at U.S. universities or international institutes. It is anticipated that master's degree candidates supported under the program will go mainly to AUL and American University, Beirut, but exceptions will be made when justified. International institutes are expected to provide a major share of the practical training done outside Pakistan. Intensive practical training courses within Pakistan will also be organized, drawing upon internal and external expertise.

#### H. Foreign Technical Assistance

Technical assistance will be supplied through ARC by contractual arrangements with international institutes, 941 category country sources, USDA and U.S. Universities. In most instances the foreign advisors will support major national or regional research programs. In exceptional circumstances, technical assistance may be supplied to a research program involving a single province or institution, if the research program is of highest priority to that province (i. e. deciduous fruit production-marketing in NWFP), or when the supply of technical assistance to a single institution would lead to a substantial contribution by that institution to Pakistan's current or future research capability (i. e. animal or human nutrition at AUL).

Most foreign technicians will thus work throughout Pakistan, contributing know-how, assisting in the development of major research programs and fostering the development of research leadership among Pakistani scientists.

I. Linkage of Research and Extension

Linkage of the research programs to the extension service and directly to the farmers will be facilitated by including an "outreach" capability in each major program. The equivalent of "subject matter specialists" in each program will be responsible for developing communication channels, including short courses, brochures and field days, and be responsible for the on-farm testing program. Most of the research scientists would be expected to participate in the training programs.

Direct farmer-scientist communication will be fostered through a substantial program of "off-station" testing. These tests, involving extension and research personnel, will be the final step before releasing a technology innovation, and will serve to keep the scientists and extension workers aware of the daily problems and decision factors affecting the farmers.

J. Fuller Utilization of Research Capability Within Educational Institutions

Educational institutions, including AUL and the Colleges of Agriculture at Tandojam and Peshawar, currently play a peripheral role in priority research, yet AUL has the greatest concentration of research talent in Pakistan. Educational institution development is not a major objective of this program, but the talent in these institutions will be actively encouraged to participate in priority research programs, and their capability to do important research will be strengthened as for research institutes.

K. Increasing Institutional Effectiveness

Major elements of the development strategy also include the alleviation of important institutional impediments (including adoption of more effective personnel management procedures where possible, the substantial strengthening of communication capabilities, the development of a more efficient FX commodity procurement system), the development of research networks within Pakistan, the incorporation of selected educational institutions into the mainstream of research, the development of effective linkages between research and extension, and the increased funding of research.

1. Personnel management within the ARC-NRC will be improved by adopting personnel evaluation and promotion procedures designed to reward excellence of performance. It has been agreed informally with Min Ag that this will be attempted with ARC remaining as a line organization within the Ministry of Agriculture. A pool of unassigned, vacant positions at each of the higher classifications will be maintained, thus a scientist deserving promotion will not have to await a vacancy at the higher level. The use of approved research projects will allow scientists to be evaluated annually on the basis of how effectively they have executed an approved approach to a research problem.

The NRC will begin operations without departmentalization and will establish a precedence of having several officers of equal rank working on a single program. This is possible, but not practiced, under the current system. The Ministry of Agriculture has suggested that if these operating guidelines are found insufficient for effective personnel management, the ARC will be given semi-autonomous status.

The current personnel hiring procedures (rules of recruitment) used by the ARC, wherein all positions are filled by open recruitment, appear satisfactory.

2. Communication among scientists working on the same or related problems will be substantially strengthened through the national research programs. In addition, ARC will develop a technical literature reprint service to keep the scientists abreast of the world literature. ARC will import journals, send copies of tables of contents of a few journals to each department head, his staff will select the articles needed in their work, these will be reproduced by ARC and sent to the department. The scientists will thus have at least functional access to 5-10 of the most relevant international journals in their fields, with a minimum FX cost.

Communication will also be fostered by the regular publication of at least one reputable technical journal for agricultural research in Pakistan. If necessary, the ARC will take leadership in the publication of this journal by supplying a chief editor and funds for publication. The development of professional societies and eventually publication of additional journals, will also be encouraged by ARC.

3. Commodity procurement capability will be strengthened by the supply of both FX funds and the development of a procurement system. ARC will establish a small cell for procurement of offshore commodities to support research. A foreign technical consultant will be supplied to assist the procurement cell in developing procedures and learning the relevant commodity market. Major commodities needed to support priority research programs and to develop basic central service facilities in major stations will be requested from the ARC, with justification for each item. Decision on purchasing will rest with ARC.

To alleviate the problem of supply of spare parts and low cost research commodities the ARC will establish a FX "line of credit" for each major institution. The Director of the institution will be able to order items (below a specified amount, probably \$500) through the ARC, at his discretion, against his institution's line of credit.

## VI. Project Costs

The total cost of the 5-year program is estimated at \$19.6 million, of which \$9.6 million is for foreign exchange costs and \$10.0 million is for local currency costs. These resources will finance the commodity, technical assistance and training requirements needed to support the 5-year program.

A breakdown of total costs of commodities, technical assistance and training, by institution are set forth in Table 2, and their derivations shown in appendices I-VIII.

### A. Foreign Exchange Costs

Of the \$9.6 million, 30% is for commodities, 42% for technical assistance and 28% for training.

Table 3 below shows the breakdown of foreign exchange requirements over the 5-year period.

Table 2 - Estimated Cost Distribution of Commodity, Technical Assistance, and Training costs, by Institution (in U. S. \$1,000 equivalent)

<u>INSTITUTION</u> <sup>1/</sup>	<u>COMMODITIES</u> <sup>2/</sup>		<u>TECH. ASST.</u> <sup>2/</sup>		<u>TRAINING</u> <sup>2/</sup>		<u>TOTAL</u>	
	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>
Agr. Res. Institute, Lyallpur	245	700	800	240	553	165	1598	1105
Agr. Res. Institute, Tandojam	225	700	550	165	392	165	1167	1030
Agr. Res. Institute, Tarnab	175	700	750	225	427	165	1352	1090
Agr. Res. Institute, Quetta	195	350	250	75	154	83	599	508
Nat. Res. Cntr. Islamabad	1700	4310 <sup>3/</sup>	800	240	-	-	2500	4550
Livestock Res. Institute, Bahadurnagar	75	300	150	45	56	-	281	345
Agr. University, Lyallpur	50	400	350	120	588	-	988	520
College of Agr. Tandojam	25	100	-	-	196	83	221	183
College of Agr. Peshawar	25	100	-	-	245	83	270	183
Others <sup>4/</sup>	275	390	250	60	119	84	644	534
<b>TOTALS</b>	<b>2990</b>	<b>8050</b>	<b>3900</b>	<b>1170</b>	<b>2730</b>	<b>828</b>	<b>9620</b>	<b>10048</b>

1. Amounts are for planning purposes only and do not constitute commitment to individual institutions.
2. Approximate, based on percentage of total.
3. Includes construction costs.
4. Includes Plant Protection Department, Min. of Agriculture, Pakistan Forest Research Institute, Veterinary Research Institute-Lahore, and other research entities.

Table 3 . Foreign Exchange Costs, by major category:

Component	Year 1	2	3	4	5	Total
	(in \$1,000)					
<b>Commodities</b>						
Provincial stations	280	310	240	230	230	1290
National Research Center	400	450	450	200	200	1700
Subtotal	(680)	(760)	(690)	(430)	(430)	(2990)
<b>Training</b>						
Practical	210	280	280	140	140	1050
Degree	49	154	259	364	854	1680
Subtotal	(259)	(434)	(539)	(504)	(994)	(2730)
Technical Assistance	375	975	1000	900	650	3900
<b>Total</b>	<b>1314</b>	<b>2169</b>	<b>2229</b>	<b>1834</b>	<b>2074</b>	<b>9620</b>

1. Commodities

Foreign exchange costs for major commodities to be supplied to provincial research institutes were developed by considering the types of research needed in each major institution as that institution's expected contribution to the priority program areas, the types of equipment needed to execute those programs and approximate costs of the specific equipment needed in each institution to upgrade its capability during the first two years of project operation. In most instances the first demand is for basic services equipment essential for the effective functioning of several programs. During the last 3 years of the project, the equipment needed will be more directly associated with specific research programs (i. e., more specialized), and for expansion and replacement of basic services equipment. The level of demand for commodities in each institution during the last 3 years is expected to be considerably higher than will be supplied. The project will supply a level of FX commodities that can be expected to be continued by GOP beyond the project period.

Foreign exchange costs for minor commodities, supplies, materials and publications to be supplied to provincial institutions to facilitate research programs were estimated by considering the current level of FX available to the entity, the involvement of the institution in major programs and by a somewhat arbitrary assignment of a minor commodity level to each institution. (See Section IX on Implementation Procedures).

An estimate of commodity requirements by institutions over the 5-year program is set forth in table 4 below.

Table 4 . Foreign Exchange Costs of Commodities by Institution

Institution	Year	1	2	3	4	5	Total
							(In \$1, 000)
ARI-Lyallpur		45	55	55	45	45	245
ARI-Tandojam		65	55	35	35	35	225
ARI-Tarnab		35	35	25	35	45	175
ARI-Quetta		55	65	25	25	25	195
Agric. Univ. Lyallpur		10	10	10	10	10	50
College Agric. -Peshawar		5	5	5	5	5	25
College Agric. -Tandojam		5	5	5	5	5	25
Livestock R.I. Bahadurnagar		15	15	15	15	15	75
Others		45	65	60	55	50	275
National Research Center		400	450	450	200	200	1700
Totals		680	760	685	430	435	2990

1. Amounts are for planning purposes only and do not constitute commitment to individual institutions.

The commodity requirements for the NRC are estimated at \$1.7 million as follows:

National Research Center							
Commodities	Year	1	2	(In \$1,000) <sup>3</sup>	4	5	Total
Farm equip.		250	100	100	}	200	299
Mobility equip.		150		50			
Glasshouses			100	100			
Laboratory equip.			100	100			
Bldg. constr.			150	100			
Total		400	450	450	200	200	1700

These FX costs were estimated by: developing an equipment list considered essential for a research station having about 1000 acres and the types of research programs specified; estimating the numbers and specialists of scientists needed, then assuming \$10,000 for each laboratory; assuming a continuing demand during years 3-5 for FX commodities at a level of \$5,000 per year per senior scientist; and by including estimated costs of imported air conditioning equipment and glasshouses.

## 2. Technical Assistance

The foreign exchange costs of technical assistance were developed by estimating the man years of TA required in support of major research programs and for the continued development of AUL in specific areas; then by assuming a FX cost of \$50,000 per man year. The tabulation below shows the man-year requirements and estimated costs of technical assistance.

Technical Assistance						
Year	1	2	3	4	5	Total
Man years	7.5	19.5	20	18	13	78
Costs						
(FX, \$000) <sup>1</sup>	375	975	1000	900	650	3900
(LC, Rs.000) <sup>2</sup>	1130	2920	3000	2700	1950	11700

1. At \$50,000 per man year

2. At Rs. 150,000

### 3. Training

The foreign exchange costs of training were estimated by determining the training required in each major institution in support of priority programs, by assuming that all practical training must be done outside Pakistan at a cost of \$7,000 per man and by assuming that about half of the doctoral training would be done outside Pakistan at a cost of \$28,000 per candidate. No FX costs are programmed for Masters level training, which will be done within Pakistan (and at American University, Beirut, under an existing grant program).

Table 5 shows the foreign exchange requirements for training (and local costs) as indicated.

Table 5 Training Costs

Program	Year	1	2	3	4	5	Total
Practical (\$000) <sup>1</sup>		210	280	280	140	140	1050
Masters (Rs. 000) <sup>2</sup>		256	552	592	592	738	2730
Doctorate (\$000) <sup>3</sup>		49	154	259	364	854 <sup>5</sup>	1680
(Rs. 000) <sup>2</sup>		120	280	440	600	960	2400
Transportation (Rs. 000) <sup>4</sup>		555	825	825	525	420	3150
Total (\$000)		259	434	539	504	994	2730
(Rs. 000)		931	1657	1857	1717	2118	8280

1. At \$7,000 per trainee
2. At Rs. 5,000 per trainee per year, plus Rs. 3,000 per trainee per year for non-Punjab trainees.
3. At \$7,000 per trainee per year
4. At Rs. 15,000 per trainee
5. All costs to be incurred beyond year 5 are included in year 5.

B. Local Currency Costs

Rupee costs, while not financed by this dollar loan, will form an indispensable part of the total program of increasing research capability. The current budget level in relevant research institutions is too low to permit a positive return from most research programs. A few programs, although funded far below optimum return level, produce technology to offset the negative expenditures on other programs.

The objective in providing additive Rupee support to specific priority programs is to assure the efficient functioning of those programs, but the results obtained are also expected to demonstrate to decision makers that inadequately funded research programs are a poor investment while appropriately funded and efficiently executed research programs have an extremely high investment return rate.

Research institution directors are aware of the inadequacy of Rupee funds. Their judgement, which we share, is that the major institutions must have and could effectively use a 10-15% per annum increase in operating funds. This increase will result in an approximate doubling of operating funds at the end of the project period, moving from Rs. 27,000 per scientist man year to about Rs. 50,000. A more rapid escalation of research funds probably would not be utilized effectively.

The local currency requirements over the 5-year period by major category are set forth in Table 6 below.

Table 6. Local Currency Costs, by Major Category  
(In Rs. 1,000)

Component	Year	1	2	3	4	5	Total
Priority Research Programs in existing institutions		3300	5000	7000	9600	12500	37400
Operation of NRC		500	2000	3000	3500	4000	13000
Training		931	1657	1857	1717	2118	8280
Technical Assistance Support		1130	2920	3000	2700	1950	11700
NRC Construction		3400	2500	2400	300		8600
ARC-NRC staff housing		7000	7000	7500			21500
(Rs. 000)		16261	21077	24757	17817	20568	100480
(US \$000 equivalent)		1626	2107	2475	1781	2056	10048

The estimates for total Rupee requirements over the project period include assumed increases in provincial research allocations at about 5% per annum, the increases in ARC fund availability allow:

- a. The equivalent of 10% per annum increase in operational budgets of major provincial institutes;
- b. specified allocation of approximately 10% of the current operating budget of AUL and the colleges of agriculture for research at these institutions plus a research budget increase of 10% per annum;
- c. funds for the operation of a national research center, calculated at Rs. 100,000 per scientist man year;
- d. funds for support of in-country training;
- e. funds for support of local costs of TA;
- f. funds for the building of NRC facilities;
- g. funds for provision of housing for ARC-NRC staff.

## VII. Financial Plan

The total cost of the expanded Agricultural Research Program is estimated at \$19.6 million, equally divided between foreign exchange and local currency costs. Table 7 below sets forth the source of funds by foreign exchange and local currency.

The foreign exchange cost estimated at \$9.6 million will be financed by a \$7.6 million AID Development Loan, an AID Development Grant of up to \$300,000 per annum for a five year period, or \$1.5 million, and a \$520,000 five year grant input from the Government of Pakistan (GOP). The AID Development Grant is subject to annual AID appropriation.

In the course of early negotiations, the GOP urged that in expanding the Agricultural Research Program that AID not reduce its annual grant input for agricultural research because this would make a development loan less attractive. The GOP further emphasized that the grant input would be used to offset the high costs of U.S. technical advisors (about \$50,000 per man year) and the high costs of financing U.S. intermediaries (including related overhead).

The AID Development Grant would be applied to the technical assistance category under which the technical assistance would be financed on a prorata basis allocated 60% to the AID Development Loan and 40% to the AID Development Grant. A procedure will be set up under a Federal Reserve Bank Letter of Credit under which technical assistance expenditures (grant and loan) will be financed. The AID Controller will have responsibility for distributing the expenditures in the above ratio to the loan and grant accordingly.

The local currency requirements are estimated at about 100,000,000 rupees (U.S. \$10.0 million) of which about 3/4 will be funded under a Mondale Grant involving PL-480 generated, U.S. owned rupees and the remainder from GOP grants. The Mondale Grant will primarily cover the costs of NRC construction, ARC-NRC staff housing and a portion of the amount for direct support for research programs. The 73 million rupee grant will be made available to ARC under ProAg amendments. The allocation of the Mondale Rupee Grant will require consultation with the Agriculture Committees of the Congress and review and formal allocation by OMB, with clearance from other agencies.

Table 7 : SOURCE OF FUNDS: Foreign Exchange and Local Currency

(in U.S. \$1,000 and Rs. 1,000)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u> (in U.S. \$1,000)	<u>Year 4</u>	<u>Year 5</u>	<u>Total</u>
<u>Foreign Exchange Source</u>						
AID Development Loan	1014	1849	1879	1384	1474	7600
AID Development Grant <u>1/</u>	300	300	300	300	300	1500
GOP Grant	0	20	50	150	300	520
<u>TOTAL</u>	1314	2169	2229	1834	2074	9620
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u> (in Rs. 1,000)	<u>Year 4</u>	<u>Year 5</u>	<u>Total</u>
<u>Local Currency Source</u>						
Mondale Grant	15,261	19,077	20,757	9,817	8,568	73,480
GOP Grant	1,000	2,000	4,000	8,000	12,000	27,000
<u>TOTAL</u> (Rs. 1,000)	16,261	21,077	24,757	17,817	20,568	100,480
(U.S. \$1,000) <u>2/</u>	1,626	2,107	2,475	1,781	2,056	10,048

1/ Subject to annual AID appropriations.

2/ Rs. 10 = U.S. \$1

### VIII. Economic and Social Impact of Project

The proposed project will increase the amount of local currency resources available to the national research system from Rs. 15.5 million in 1972 to Rs. 35-40 million in the last year of operation. In addition, by the end of the period, institutions will be benefitting from substantially improved facilities provided by dollar financed imports, and from Mondale rupee financed goods and services obtained locally. Most important, the system will benefit from better trained and more experienced staff, working under streamlined administrative procedures with continuing coordination and linkage among institutes and between researchers, extension workers and farmers. Further, through improved internal training programs and facilities, and linkages with foreign research and educational centers, the research system should have achieved a capability for self-sustaining growth. These improvements will continue to yield benefits in removing technological constraints to adequate rates of agricultural growth as well as improvement in the balance of future growth among socio-economic groups in the population, among commodities and among areas of the country.

Analyses of returns to investment in agricultural research in the U.S. reveal very high returns to some projects and a high overall benefits to cost ratio, but some projects provide no returns. Returns to resources to be invested under this project should be higher than typically true in the U.S., since the resources will be applied to only high priority programs. In addition, much of the basic investment already exists and the need is for relatively small amounts of incremental inputs, strategically applied, to make the entire system function effectively. Further, many relatively simple problems heretofore neglected should have unusually large and predictable results.

The benefits already obtained from modest investments in introduction, testing, adaptation and related research on higher yielding varieties of wheat and rice are indicative of the potential. Wheat yields have increased by almost 50% or 4 maunds per acre over the total area and more on the irrigated lands, with the dissemination of higher yielding varieties and fertilizer. Admitting that increased fertilizer and water account for part of the gain, still the introduction, testing and adaptation of improved seed, and some related research, should be credited with at least one maund of increase in yield per acre. Similarly rice yields have increased by over 50% (over 6 maunds per acre). Thus, conservatively, on the 18 million acres in wheat and rice, the returns to investment in research would be about Rs. 450 million per year. This is 30 times the total current annual Pakistan budget for agricultural research. Of course the possibilities for such simple adoptions are limited and their yields can be sustained only by continuing research on new problems (e.g., new strains of rust) as they emerge.

Maize and sorghum have shown increases of about 1.5 maunds per acre over the past decade, but still have yields of only 10-20% of U.S. levels. Using the U.S. level as a possible goal in yields, there is scope for improvement of 5 to 10 fold in these and in many other crops as well as in livestock production.

It is reasonable to expect the identification and testing of forages grasses and legumes, and simple improvements in management would make possible a several fold increase in yields under rainfed conditions. A rate of adoption sufficient to increase forage yields by 5% - 10% by 1978-80 seems possible. Since little input other than labor is required, and labor has little alternative employment, the returns could be attributed largely to research and extension efforts. An increase of 5% in milk production alone would mean an increase of about 350,000 M. T. worth Rs. 200 million per year. Programs which are in the formative stage to improve forage and to export beef to Iran and other nearby countries, could conservatively result in the export of 50,000 beef carcasses a year by the end of this period. This should have a foreign exchange value of at least \$5 million per year.

Significant increases in yields of maize, sorghum and pulses should be forthcoming. A yield increase of only 0.1 maund per acre on coarse grains and pulses would have a value of Rs. 15-20 million per year. Ten times this is still a conservative goal as adoption begins to accelerate. Vegetable oil for which the country would otherwise be spending over U.S. \$50 million per year (on 100,000 tons) by mid 1970's, could be produced locally with adequate research. Given the relatively modest fertilizer needs of oilseeds and pulses, a fairly large share of returns for these should properly be attributed to research.

In summary, the returns as measured in increased output over the period of the project after adjusting for other inputs, should be several times the total resources to be invested and the improvement in balance of trade position will amply justify the foreign exchange commitment.

#### Expected Social Impact

Social impacts of the proposed program are less easily estimated than economic impact. However, the program, aimed at restoring balance in research allocation among different problem areas, will help relatively more those socio-economic groups which to now have least benefited from improved technology. For the most part these include smaller farm units and areas with poorer quality unirrigated land, where personal incomes are lowest. Improved practices on crops, feed and forage and livestock production, which also have been neglected, will require substantially increased labor inputs. Shift of even small tracts from migratory uncontrolled grazing to improved, well managed, forage with proper harvesting and good livestock care would involve a manifold increase in

labor per unit of area. (In the AMUL Dairy Cooperative in India, where considerable progress has been made on improved feeding and productivity of milking buffalo, the average number of milking buffalo per family is between one and two. There are over 100,000 producers in the cooperatives. Most of the cattle are tended by women with in most cases, income and a suitable alternative to field work provided for one woman in the family.)

Employment also will be generated off the farm as agricultural output is increased as has occurred with HYV of wheat and rice. Many very low income farm operators families, especially in barani areas will benefit directly from technology suitable to the crops they raise and from the introduction of new crops and rotations which will substantially increase yields and farm income. Considering the current output per worker in the barani areas achievement of self-sufficiency in cereals and oilseeds through expanded barani production should provide well over a million additional jobs on the farm and provide an increase in income about Rs. one million after adjustment for costs of fertilizer. This assumes an increase of 1.2 million M. T. of wheat and 300,000 tons of oilseeds.

A plausible rate of increase in pulses, in dairy and other livestock production which is labor intensive, could easily add another million jobs on the farm, indicating two million jobs as a reasonable goal for increase in on-farm employment. This would generate a significant amount of off-farm employment in industry, trade and services. Jerry Eckert, et al in An Employment Strategy for Rural Areas of Pakistan<sup>1/</sup> estimated a current level of 750,000 rural unemployed and 2,250,000 rural under-employed. Thus developments as suggested above could go far in providing much more adequate rural employment opportunities. Investment in research would be needed, of course, but research must provide the technical basis for these developments.

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IX. Implementation Procedures

A. Decision process and procedures for approving priority research.

1. Priority establishment among commodities and/or research problem areas and guidelines for research program formulation will be the responsibility of the Executive Committee of ARC.
2. The development of research programs in specific commodity or research problem areas will be the responsibility of the appropriate Director of ARC, in conjunction with the national coordinator and the scientists involved with research in these areas. (Commodity Committees).
3. Technical programs, depicting the research objectives, approaches and resources required in each involved institution will be forwarded by the commodity committee to the directors of the involved institutions and to the D.G., ARC.
4. The directors of provincial institutions will forward the technical programs to their respective provincial research boards with their recommendations and comments, including the relationship of the program to the institution's overall program, its priority, the resources available, and the additional resources required for program execution.  
  
The D.G., ARC will forward the technical programs to the Executive Committee of ARC with his comments and recommendations.
5. The provincial research boards will forward the programs to the Executive Committee, ARC, with their recommendations for approval, approval with modification, or disapproval, and if approved with a statement of the provincial resources available for program execution.

6. The Executive Committee, ARC will assess the programs, considering the comments of the D.G., ARC, and of the provincial boards, the resources available to ARC, the relationship of the program to national priority objectives, and recommend specific actions to ARC.
7. Upon approval by ARC, the D.G., ARC will take appropriate action to assure the orderly flow of resources to the program as approved by ARC.

B. Commodity procurement

Major commodities - Considering the priority research programs at each institution as approved by ARC, the D.G., ARC - and at least two Directors of ARC will consider requests for specific major commodities with justification as forwarded by the Directors of the involved institutions. Approved requests will be forwarded to the ARC procurement office for action (see below). Upon receipt, the commodities will become the property of the recipient institutions, or remain ARC property as otherwise agreed by ARC and the requesting institution.

Minor commodities for provincial institutions - upon request by the Director of the specified institutions, ARC will procure small items of equipment, supplies and publications up to the established dollar limit per annum for that institution. No item costing more than \$500 will be considered under this procedure. The eligible institutions and the limits of expenditure per annum are:

A.R.I. Lyallpur, \$5,000; A.R.I., Tandojam, \$5,000; A.R.I., Quetta, \$5,000; A.R.I., Tarnab, \$5,000; College of Agriculture, Tandojam, \$5,000; College of Agriculture, Peshawar, \$5,000; College of Animal Husbandry, Lahore, \$5,000; Agricultural University, Lyallpur, \$10,000; Forestry Research Institute, Peshawar, \$3,000; Veterinary Research Institute, Quetta, \$2,000; Veterinary Research Institute, Lahore, \$5,000; Veterinary Research Institute, Peshawar, \$2,000; Livestock Research Institute, Bahadurnagar, \$3,000.

The mechanics of procuring both major and minor commodities are as follows:

- a. ARC will contract for the services of an experienced procurement officer (probably from USDA-ARS), to assist in writing specifications and establishing acceptable procurement procedures.
- b. ARC will establish a cell for procurement of off-shore commodities consisting of one procurement officer and essential clerical personnel.
- c. The Director General of ARC will be appointed by GOP as the Borrower's Authorized Representative (BAR).
- d. For each year the BAR will request AID/W to open a letter of commitment in a U. S. bank to cover costs of commodities expected to be purchased during that year. For the first year this will be approximately \$1,221,000. Letters of commitment will be requested in each fiscal year in time to allow orderly scheduling of procurement,
- e. Using AID Capital Project Guidelines procurement procedures and assisted by the advisor, the procurement officer will arrange for the purchase and shipment of commodities.
- f. Purchase orders will be issued to the supplier, and Letters of Credit opened on U.S. bank to pay for purchases.
- g. The procurement officer will arrange for clearing the commodities and onward shipment to the end user, who will receipt delivery.
- h. All items will enter Pakistan duty free and upon delivery will become the property of the end user (provincial institute) or ARC, as appropriate.

C. Technical Assistance

Recommendations on the form and amount of TA to be supplied to a specific program will be included in the programs as developed by the commodity committees and decisions on TA will be made as for other resource allocation, by the ARC.

Considering the priority programs, the DG, ARC will determine the source of TA to be used, and in those instances wherein TA is to be funded through this loan, will arrange contracts with international institutions, USDA, U.S. Universities or category 941 countries to supply the required TA. These contracts will be reviewed by AID before execution to assure compliance with AID regulations. Professional and personal logistical support for TA personnel will be supplied from the Mondale Grant.

D. Training

Recommendations on the form and amount of training to be supplied to a specific institution in support of a given commodity or research problem area will be made by the commodity committees as are other resource requirements.

Considering the training required for a specific program and the place of that training in the institution's development, the Director of the institution will apply for training through the D.G., ARC. An annual training schedule by type of program is set forth below as Table 8.

Trainees departing by year:

Program	Year	1	2	3	4	5	Total
				(by number)			
Practical		30	40	40	20	20	170
Masters							
AUL <u>1/</u>		10	15	15	15	5	60
AUB <u>2/</u>		25	25	25	25	25	125
Doctorate							
AUL		15	20	20	20	0	75
USA <u>3/</u>		7	15	15	15	8	60

1/ Agricultural University, Lyallpur

2/ American University, Beirut.

3/ Includes international institutes.

The D.G., at least two Directors of ARC, and a representative of USAID, will meet as needed but not less than every six months, to consider training applications. Training needed for effective functioning of national, regional or provincial research programs, and supporting the development of the institution, will receive priority. The principal officer of each institution will be notified of the approved training applications relating to his institution and will be responsible for meeting all clearance formalities.

International Travel for approved trainees (except AUB), will be paid by ARC, restricted to round trip economy fare, (usually by most direct route).

Practical training, including observation, on-the-job and specialized training, will be arranged at international, U.S. or third country institutions as required.

Training of master's degree candidates will be sponsored at Agricultural University, Lyallpur (AUL) and at American University, Beirut (AUB), when possible. Training of doctoral level candidates will be sponsored at AUL, AUB, or when required, at U.S. universities. Training at U.S. universities will be limited to those training fields unavailable at AUL or in consideration of other compelling reasons. It is assumed that about half the doctoral level training required can be done at AUL.

To encourage research institutions to train their staff, ARC will endeavor to assist selected institutions defray part of the costs associated with training sponsored by ARC. For each regular staff member receiving full time training at other than his employing institution, the ARC will grant the employing institution Rs. 5,000 per annum, plus capitation fees charged by AUL to all non-residents of Punjab province. Grants for each student will be limited to two years for a master's degree candidate and to four years for a doctoral candidate.

E. Role of intermediaries and Source of Procurement

The major intermediary functions will be the supply of technical personnel and training. In a few instances, commodities may also be supplied through the intermediary. Services of intermediaries, including USDA, will be procured by contracts arranged between the intermediary and the Agricultural Research Council, Ministry of Agriculture, GOP, with appropriate review, approval and liaison by AID.

The supply of technical assistance in the form of program advisors/leaders will be a major intermediary role. These advisors will work primarily as counterparts to the national coordinators of the major research programs, assisting the coordinators and other scientists in planning and executing the programs.

The estimated man years of technical assistance required, its timing and sources are presented in Table 9 below. About 75 percent of the TA will be procured from the U.S., the remainder from international institutes and other institutions located in 941 category countries.

Training - Most of the practical training and some of the degree training will be done under contract between ARC and the international research institutes (CIMMYT, IRRI, etc.), located in 941 category countries. These institutes have ongoing practical training programs as well as limited arrangements for degree training in cooperation with U.S. Universities. The training required in the U.S., including university and federal and state experiment stations, will be arranged by AID on the basis of established procedures with the International Training Office, Foreign Development Division, ERS, USDA. About 60 percent of the training costs will be incurred in the U.S.

Commodities - Most of the commodities supplied will be items of basic equipment and will be purchased by ARC from U.S. suppliers. A few commodities, including experimental rice mills, rice threshers, small tractors, and implements for testing, are unavailable in the U.S. and will be purchased from 941 category countries. About 90 percent of the commodities are expected to be purchased in the U.S.

The GOP foreign exchange grant will be applied primarily to commodity imports which will not be eligible for financing under the AID loan (e.g. non-code 941 source). AID will require that the GOP apply its foreign exchange first to the commodity imports to permit a sharing which will build up in later years whereby the GOP share will increase and be carried on after the AID financed program is completed.

TABLE 9 - ESTIMATES OF TECHNICAL ASSISTANCE REQUIRED, TALENT,  
MAN YEARS, SCHEDULE AND SOURCE

Program	Talent	Man Years	Schedule					Possible Source
			Year 1	Year 2	Year 3	Year 4	Year 5	
Commodity Procurement		3						
Wheat	Pathology or Agronomy	4						USDA
Sugarcane	Agronomy	3						GIMMYT
Sugarbeets	Agronomy	3						USDA
Research Station Development	Engineer and short-term Architect	4						USDA
Production Economics	Economics	4						USDA
Production Systems	Agronomy, Engineering	8						ICRISAT
Pulses	Pathology and Agronomy	4						USDA
Sorghum-Millet	Agronomy, Breeding	8						ICRISAT
Oilseeds	Agronomy	4						USDA
Forage grasses and legumes	Agrostology	16						USDA
	Agronomy							USDA
	Pathology							
	Microbiology							
ARC Development	Research Organization	3						AID/DH
Dairy-AUL	Herd Management	2						Cornell
Fodder-AUL	Dairy Nutrition	2						Cornell
Nutrition-AUL	Human Nutrition	2						Kansas
Extension Methods-AUL	Methods Evaluation	1						Kansas
Unforeseen and short-term	Various	7						Various
<b>Total</b>		<b>78</b>						

F. Project Implementation Committee

In order to expedite program development during the early life of the project, and recognizing that most of the commodities supplied during the first two years of the project will provide basic facilities, a project implementation committee as described below will substitute for the project approval and commodity allocation process as outlined earlier. The functions of the Project Implementation Committee are to be absorbed in the decision process as outlined above as rapidly as possible by the commodity or research problem area committees.

The major function of this Committee is to follow closely progress in the early phases of project implementation to ensure that operational plans and procedures are developed in a timely and coordinated fashion and that they meet GOP and AID quality standards and administrative requirements. The Committee will review the commodity committee plans, recommendations and plans for equipment and facilities to be provided for the NRC and the various provincial institutions as these plans relate to the AID financed research program.

The Committee will be composed of the officials of the Government of Pakistan, including the Director General of ARC, and the Financial Advisor to the Ministry of Agriculture, and USAID including the Assistant Director for Agriculture, and the Agricultural Research Advisor.

The Committee shall be organized and functioning within 30 days of loan authorization in order to deal with problems and issues prior to loan signature and will function during at least the first 18 to 24 months of project operation.

The scope and procedures governing the Project Implementation Committee will be reflected in the first implementation letter.

## X. Evaluation System

### A. Annual Workshop

Evaluation of specific commodity or research problem area programs will be done by the participating scientists in an annual workshop. The progress of the technical program and the technical and procedural problems encountered will be succinctly stated, with suggestions for solutions. The evaluation will include but not be limited to a consideration of:

- a. The major problems related to a commodity or research problem area, and the extent to which research can help solve these problems;
- b. the extent to which these major problems are reflected in research programs;
- c. the adequacy of resources allocated to the solution of these problems, including field and laboratory facilities, training, communication capability, manpower, etc.
- d. the adequacy of procedures to effectively mobilize available resources;

A report will be completed during the workshop and sent to the Director General, ARC and to the Assistant Director, Agricultural Program, USAID. The report will be signed by the appropriate Director, ARC and by the program coordinator.

### B. Evaluation Panel

Evaluation of the overall research program will occur annually, beginning about 18 months after loan agreement. The Director General and Directors, ARC, one representative of AID/W, one representative of the international research community, and two representatives of USAID will form the evaluation panel. The Director General, ARC will chair the panel and be responsible for preparing a report of progress, problems encountered, remedial steps to be taken, and when appropriate, recommendations for action by Ministry of Agriculture or other parties. Copies of the report will be supplied to MinAg., EAD and USAID. The report will contain a specific recommendation for the continuation, conditional continuation or discontinuance of further expenditure of funds under this program. The panel will consider, but not be limited to, the following factors:

- a. The progress of individual commodity or research problem area programs in relation to the plan for program development as recommended by the commodity committees;
- b. the relative defacto emphasis in each program in the context of addressing the more important problems facing a commodity or research problem area;
- c. the progress being made in solving administrative or procedural problems as identified by the commodity committees;
- d. the degree to which research programs reflect consideration of national and provincial planning priorities, including national and provincial budget allocation.

## XI. Loan Terms and Conditions

To assure full understanding by all parties to the loan of the contributions and responsibilities of each as we move toward loan approval into the GOP/AID expenditure process, this section will identify the critical points at which specific performance is required for a successful research project.

First, prior to loan authorization, agreement must be reached with the concerned agencies of the Government of Pakistan relative to the purpose of the project, its essential components and what is expected of each. The parameters of the project including financial requirements are spelled out in this loan paper and will be made available together with the draft loan agreement to the concerned GOP agencies to be followed by detailed discussions of its content and the fullest understanding of the responsibilities of all parties. Assuming agreement is reached on the loan, AID will proceed with loan authorization and thereafter loan agreement signing.

During the negotiations in Islamabad, the following determinations should be made:

1. Sufficient authority, manpower and resources have been given to the ARC to assure its functioning as a major decision-maker in resource allocation, priority establishment and coordination of research activities.
2. An acceptable plan for improvements in personnel management has been developed to insure that capable scientists are recruited and retained in ARC/NRC.
3. Adequate progress is being made in acquisition and assignment of the proper amounts and types of land for the National Research Center.
4. Adequate progress is being made in commitments to the construction and staffing of the NRC physical facilities.
5. Adequate provision has been made by the Government of Pakistan to provide for its foreign exchange and local currency commitments established in the project plan.

### Conditions Precedent to Initial Disbursement

1. Legal opinion of the Minister of Justice
2. Authorized representative designated.
3. The establishment of an evaluation system of annual reviews of individual projects and the overall program, together with the criteria of evaluation to be used. Project funding and releases would be done in tranches keyed to the annual reviews.
4. Establishment of plans for (a) selection of participants for loan-financed training; (b) selection, assignment and contracting procedure for technical advisors, and intermediaries and (c) procurement procedures for loan financed commodities.
5. Establishment of an overall project plan, designating responsibilities of involved agencies and institutions, identifying funding sources and uses, and setting out an approximate time-table for project activities and evaluation.

### Conditions Precedent to Particular Disbursement

1. Before any disbursement to NRC for development of its facilities, it must be demonstrated that adequate land is unconditionally assigned to that agency.
2. No disbursements for general facility improvement prior to presentation of overall plans for provincial station improvement.

### Covenants

1. The Government of Pakistan agrees to carry out the project with diligence and efficiency and in accordance with agreed to plans.
2. The GOP will promptly provide, as needed, all funds in addition to the loan to carry out the project.
3. The GOP will review and establish each year or such other agreed to period, its national research priorities.
4. The GOP will provide both FX and local currency for investments in research to permit research programs to continue after the termination of loan funding.

5. The GOP covenants that no more than 20% of any one category (commodities, technical assistance or training) should be transferred to another category.

6. The GOP agrees to assist the provincial research institutions in formulating plans for the continued development of their resource base, including physical facilities and technical manpower.

APPENDIX I

ESTIMATE OF TRAINING NEEDED TO SUPPORT MAJOR  
RESEARCH PROGRAMS BY INSTITUTION

<u>Institution</u>	<u>Program</u>	<u>Training</u>		
		<u>Practical</u>	<u>M. Sc.</u>	<u>Ph. D.</u>
Agricultural Res. Institute, Lyallpur	Wheat	12	6	6-agronomy (2), pathology, soils, chemistry (2)
	Rice	12	6	4-breeding, soils, entomology, pathology.
	Maize	12	5	3-agronomy, path- ology, entomology
	Sorghum	8	5	3-agronomy, path- ology, entomology
	Oilseeds	6	3	3-entomology, agronomy, chemistry
	Sugar	2	6	3-agronomy, soils, entomology.
	Vegetables	2	2	2-breeding, agronomy
	Forages	0	6	1-agronomy
ARI-Sind	Wheat	10	4	2-agronomy, breeding
	Rice	10	10	9-breeding, soils, agronomy, chemistry milling, pathology, entomology.
	Sorghum	5	5	1-agronomy
	Sugar	2	8	4-agronomy, path- ology, economics, entomology.

<u>Institution</u>	<u>Program</u>	<u>Training</u>		
		<u>Practical</u>	<u>M. Sc.</u>	<u>Ph. D.</u>
	Pulses	2	6	2-agronomy, entomology
ARI-Sind	Oilseeds	2	6	3-agronomy, entomology, pathology.
	Forages	-	2	1-agronomy
ARI-Tarnab	Wheat	6	4	2-breeding, agronomy
	Sugar	2	4	5-agronomy, soils, pathology entomology
	Rice	6	3	2-breeding, agronomy
	Forages	-	2	1-agronomy
	Oilseeds	3	3	2-breeding, agronomy
	Pulses	2	5	3-breeding, agronomy, pathology
	Maize	10	5	4-agronomy, pathology, entomology
	Sorghum	6	5	3-agronomy, pathology, soils.
	Deciduous Fruits	1	5	4-horticulture, pathology, entomology, marketing.
ARI-Quetta	Wheat	4	3	2-breeding, pathology
	Forages	-	2	1-range mgt.
	Fruit	3	4	3-horticulture, pathology, entomology.
	Vegetables	2	4	2-agronomy, pathology
	Sorghum	4	4	1-agronomy

<u>Institution</u>	<u>Program</u>	<u>Training</u>		
		<u>Practical</u>	<u>M.Sc.</u>	<u>Ph. D.</u>
Forestry Res. Institute, Peshawar	Range Management	?	?	1-range management
Livestock Res. Institute, Bahadurnagar		-	6	6-genetics, disease control, agronomy, chemistry, processing, marketing.
Plant Protec- tion Dept.		6	6	4-pathology (2), entomology (2)
Agric. Univ., Lyallpur		20	-	20-unspecified
College of Agric. -Sind		10	30	20-unspecified
College of Agric. -Peshawar		20	30	15-unspecified

APPENDIX II

ESTIMATE OF COMMODITIES NEEDED TO EXECUTE MAJOR  
RESEARCH PROGRAMS DURING FIRST TWO YEARS, BY  
INSTITUTION

<u>Institution</u>	<u>Program</u>	<u>Commodities</u>	<u>Cost</u> (\$000)
Agricultural Research Institute, Lyallpur	General	Tractors and Implements (3)	36
		threshers (6)	12
		trucks (6)	18
		maintenance equipment	5
		plot planters	3
		sprayers	3
	Sugar	lab equipment	3
	Forages	lab equipment	5
		chopper, drier	5
			(90)
	ARI-Sind	General	tractors and implements(2)
threshers (5)			10
trucks (6)			18
lab equipment			10
sprayers			3
plot planters			3
maintenance equipment			5
Rice		mills	10
		lab equipment	10
		tractors (2)	24
		(117)	

<u>Institution</u>	<u>Program</u>	<u>Commodities</u>	<u>Cost</u> (\$000)
ARI-Tarnab	General	tractors and implements (2)	24
		sprayers	5
		trucks (6)	8
		lab equipment (soils)	15
		plot planters	3 (65)
ARI-Quetta	General	tractors & implements (2)	24
		trucks (2)	6
		lab equipment	5
		plot planters	2
	glasshouse	40	
	Fruit	processing equipment	15
	Vegetables	sprayers	5
	lab equipment	15	
		(112)	
N. R. C.	General	farm equipment	485
		lab equipment	200
		building construction	250
		glasshouses	200
		(386)	
Others, and minor items			305
TOTAL			1440

## APPENDIX III

## APPROXIMATE DISTRIBUTION OF TECHNICAL ADVISORS

BY INSTITUTIONS AND MAN YEARS

TECHNICAL ADVISOR (MAN YEARS)

<u>Program</u>	<u>Institutions</u>							<u>Totals</u>	
	<u>NRC</u>	<u>ARC</u>	<u>ARI-L</u>	<u>ARI-Q</u>	<u>ARI-S</u>	<u>ARI-T</u>	<u>AUL</u>		<u>LRI</u>
Wheat	1		1	1/2	1/2	1/2	1/2		4
Commodity procurement	1		1/2	1/2	1/2	1/2			3
Sugarcane			1		1	1			3
Sugarbeets			1			2			3
Research Sta. Develop.	3		1/4	1/4	1/4	1/4			4
Economics	1		1		1/2	1/2			3
Prod. Systems	2		2	1	1-1/2	1-1/2			8
Pulses	1		1		1/2	1	1/2		4
Sorghum-Milletts	2		2		2	2			8
Oilseeds			1		1	1	1		4
Forages	4		4	2	2	4			16
Dairy							1	1	2
Fodder							1	1	2
Nutrition							2		2
Extension Meth.							1		1
Research Admin.		4							4
Unforeseen	1		1	1	1	1	1	1	7
<b>Totals</b>	<b>16</b>	<b>4</b>	<b>16</b>	<b>5</b>	<b>11</b>	<b>15</b>	<b>8</b>	<b>3</b>	<b>78</b>

APPENDIX IV

ESTIMATE OF NRC CONSTRUCTION FUNDING, BY YEAR  
(Rs. 000)

<u>Component</u>	<u>Year 1</u>	<u>2</u>	<u>3</u>	<u>4 -</u>	<u>5</u>	<u>Sum</u>
Central laboratory	1000	920				1920
ARC Admin. Bldg.	1920					1920
Training Unit		400	400			800
Dormitory		400	400			800
Plant Materials Bldg.		240				240
Field Services Bldg.			120	120		240
Machinery Storage	240					240
Engineering Bldg.		100	100			200
Workshop	120	120				240
Warehouse	120					120
Headhouse				80		80
Plant Introduction Unit			150			150
Library & Commun.		125	125			250
Poultry Unit				175		175
Subtotals	3400	2065	1535	375		
Inflation @ 7%		145	225	75		
Subtotals	3400	2210	1760	450		
Architect fees @ 10%	340	220	175	45		
Total by FY	3740	2430	1935	495		8600

APPENDIX V

ESTIMATE OF STAFFING PATTERN OF NRC BY PROGRAM  
AND YEAR

<u>Program</u>	<u>Year 1</u>			<u>Year 2</u>			<u>Year 3</u>			<u>Year 4</u>		
	<u>P</u>	<u>A</u>	<u>L*</u>	<u>P</u>	<u>A</u>	<u>L</u>	<u>P</u>	<u>A</u>	<u>L</u>	<u>P</u>	<u>A</u>	<u>L</u>
Station Management	1	5	20	0	5	20	0	5	40	0	10	20
Training				1	0	0	0	0	1			
Plant Introduction				1	1	0	1	1	1			
Economics				1	0	0	1	1	0			
Communications	1	1	1	1	1	1	0	1	0			
Dairy	1	0	0	1	1	0						
Forage & Fodder	1	1	0	0	1	0						
Pest Management	2	1	0	7	5	1						
Sorghum & Millet	1	1	0	2	2	1	2	3	0			
Production Systems	1	0	0	2	2	1	2	4	0			
Wheat	1	0	1	4	4	0						

\*

P=Professional

A=Assistants

L=Secretarial, Clerical, and Labor

APPENDIX VI

ESTIMATE OF COMMODITIES NEEDED FOR  
NATIONAL RESEARCH CENTER

	(\$ 000)
Land forming equip. (including heavy tillage function .....	179
Farm operations	
Wheel traction ; .....	68
Implements, primary tillage .....	21
Implements, secondary tillage .....	20
Implements, cultivating .....	6
Implements, harvesting .....	44
Misc. ....	20
Vehicles .....	135
Shop equipment .....	33
Shop supplies .....	6
Subtotal .....	(532)
Air conditioning components	
ARC office building .....	60
Main laboratory .....	70
Training building .....	90
Glasshouses .....	200
Laboratory equipment .....	200
Unforeseen .....	128
Unspecified general equipment in years 4 and 5 .....	400
<b>TOTAL</b> .....	<b>1700</b>

APPENDIX VII

ESTIMATE OF BUILDINGS  
NEEDED FOR NATIONAL RESEARCH CENTER, WITH COSTS

	<u>000 sq. ft.</u>	<u>Cost/sq. ft.</u>	<u>Rs Cost (000)</u>
Central laboratory	24	80	1920
ARC Amin. Building	24	80	1920
Training Unit	10	80	800
Dormitory	10	80	800
Plant Materials Building	6	40	240
Field Services Building	6	40	240
Machinery Storage	6	40	240
Engineering	4	50	200
Workshop	6	40	240
Warehouse	3	40	120
Headhouse	2	40	80
Plant Introduction	3	50	150
Library & Communications	5	50	250
Poultry Unit	5	35	175
TOTAL			8,605

APPENDIX VIII

ESTIMATE OF HOUSING NEEDED  
FOR ARC AND NRC STAFF WITH FUNDING SCHEDULE

	<u>No.</u> <u>Units</u>	<u>Covered Area</u>	<u>Rs/Sq. Ft.</u>	<u>Total (Rs. 000)</u>
<u>ARC Staff</u>				
Sr. Class I	17	2,700 sq. ft.	55	2,516
Class I	9	2,160 "	55	981
Class II	5	1,350 "	55	370
Class III	98	945 "	45	4,214
Class IV	35	600 "	45	945
Sub Total				9,026
<u>NRC Staff</u>				
Sr. Class I	20	2,700 sq. ft.	55	2,960
Class I	15	2,160 "	55	1,635
Class II	25	1,350 "	55	1,850
Class III	45	945 "	45	1,935
Class IV	100	600 "	45	2,700
Sub Total				11,080
				<hr/>
				20,106
				<hr/>

FUNDING BY YEAR

<u>Component</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
ARC	3,026	3,000	3,000
NRC	<u>4,080</u>	<u>3,500</u>	<u>3,500</u>
Sub Total	7,106	6,500	6,500
Inflation Factor @ 7%		455	942
Sub Total	7,106	6,955	7,442
TOTAL			21,503

3910296 (17)

AID 1380-1 (8-63)  <b>PIO/T ACTION REQUEST</b>	<b>DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT</b>  <b>PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES</b>	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 1 OF 7 PAGES																																			
		1. Cooperating Country <b>PAKISTAN</b>	2. PIO/T No. <b>391-296-3-00232</b>																																			
		3. Project/Activity No. and Title <b>391-17-110-296, ✓ PD-AAD-173</b> <b>AGRICULTURE RESEARCH - WEST PAKISTAN</b>																																				
4. Appropriation Symbol <b>72-1101004</b>		5. a. Allotment Symbol & Charge <b>054-50-391-00-69-01</b>																																				
6. Obligation Status <input type="checkbox"/> Administrative Reservation <input type="checkbox"/> Obligation <input checked="" type="checkbox"/> Funds Obligated by ProAg		5. b. Funds Allotted to: <input type="checkbox"/> AID/W <input checked="" type="checkbox"/> Mission																																				
7. <input checked="" type="checkbox"/> Original or Amendment No.: _____																																						
8. No. of Technicians <b>1</b>	9. Services to Start (Mo., Day, Yr.) Between: <b>6/1/70</b> And: <b>8/1/70</b>		10. Duration (Months) a. Of Services <b>24</b> b. Of Financing <b>16</b>																																			
11. a. Type of Action <input checked="" type="checkbox"/> AID Contract <input type="checkbox"/> Cooperating Country Contract <input type="checkbox"/> Participating Agency Service Agreement <input type="checkbox"/> Other																																						
11. b. Authorized Agent <p style="text-align: center;">AID/W</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:25%;">Financing</th> <th style="width:25%;">A. Previous Total</th> <th style="width:25%;">B. Increase</th> <th style="width:25%;">C. Decrease</th> <th style="width:25%;">D. Total to Date</th> </tr> </thead> <tbody> <tr> <td>12. AID Financing</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Dollars</td> <td></td> <td style="text-align: center;">100,000</td> <td></td> <td style="text-align: center;">100,000</td> </tr> <tr> <td>    b. U.S.-Owned Local Currency</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>13. Cooperating Country Contributions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Counterpart</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Financing	A. Previous Total	B. Increase	C. Decrease	D. Total to Date	12. AID Financing					a. Dollars		100,000		100,000	b. U.S.-Owned Local Currency					13. Cooperating Country Contributions					a. Counterpart					b. Other				
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13. Cooperating Country Contributions																																						
a. Counterpart																																						
b. Other																																						
14. Mission References  ProAg (Agrmt. #70-10)  IO/T-90343	15. Objective for which the Technical Services are to be used (Describe)  <p>The purpose of this project is to assist the Government of Pakistan (GOP) to make sound agriculture research a foundation for development of agricultural policy and sustained growth of agricultural production in West Pakistan by helping the GOP and its agencies to administer, coordinate, direct and conduct research toward relevant problems.</p> <p>This PIO/T provides fund for the continuation of services (approximately 16 months beginning July 1, 1970), under the Washington State</p> <p style="text-align: right;">(Continued)</p> <p>(Ref: WSU Contract, AID/nesa-440)</p>																																					
16. Mission Clearances		Date	Mission Clearances	Date																																		
17. Date of Original Issuance <b>April 16, 1970</b>		18. Date of this Issuance <b>April 16, 1970</b>																																				
19. For the Cooperating Country The terms and conditions set forth herein are hereby agreed to:		20. For the Agency for International Development																																				
SIGNATURE _____ DATE _____		 Deputy Director, NESA/TECH																																				
TITLE _____		TITLE _____																																				

<b>PIO/T</b>	<b>DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT</b>	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 2 OF 7 PAGES
	<b>PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES</b>	Cooperating Country PAKISTAN	PIO/T No. 391-296-3-00232
		Project/Activity No. and Title 391-17-110-296 AGRICULTURE RESEARCH - WEST PAKISTAN	

**SCOPE OF WORK****21. Scope of Technical Services****A. Description**

- (1) The Contractor will provide one full-time Resident Advisor at the West Pakistan Agricultural University to assist in improving research administration, the techniques and design of research, and to help establish an interdisciplinary research effort. The duties and responsibilities of the Resident Research Advisor are to be carried out in accordance with a comprehensive work plan to be developed in consultation with the Chief, Agriculture Division, USAID/Lahore, and approved by USAID and the Project Director.
- (2) The Contractor will provide short-term consultants in specialized research areas, to be mutually agreed upon by the Project Director and USAID, to assist in the design, analysis and interpretation of research results.

**B. Technicians**

(1) (a) Number	(b) Specialized Field	(c) Grade and/or Salary	(d) Duration of Assignment (Man-Months) (under this PIO/T)
1.	Resident/Research Advisor	(See Contract)	16
	Short-Term Consultants as agreed per Block 21-A		Up to 9 M/M per year

**(2) Duty Post and Duration of Technicians' Services**

West Pakistan Agricultural University (WPAU), Lyallpur, West Pakistan - two years.

**(3) Access to Classified Information**

Research Advisor will have access to classified information from AID. Security clearance should be through SECRET.

(4) Dependents     Will     Will Not    Be Permitted to Accompany Technician (Resident/Research Advisor only)

**C. Financing Costs of Technical Services**

(1) By AID - \$ 100,000

(2) By Cooperating Country - (see Block 28)



AID 1980-1 (8-88)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 4 OF 7 PAGES
		Cooperating Country PAKISTAN	PIO/T No. 391-296-3-00232
		Project/Activity No. and Title 391-17-110-296  AGRICULTURE RESEARCH - WEST PAKISTAN	

25. Reports by Supplier of Services (Indicate type, content and format of reports required, including language to be used if other than English, frequency or timing of reports and any special requirements)

The Research Advisor will develop and maintain a comprehensive work plan and supply necessary information and assistance to the Project Director and Project Advisor for preparation of the PIP, PAR, and other USAID documents.

The Contractor will submit reports as called for in the contract which will include a final comprehensive report, within sixty (60) days following termination of the contract, that will summarize accomplishments, observations and recommendations.

The Contractor will submit quarterly expenditure reports to the USAID Controller (copies to USAID/Rawalpindi and USAID/Lahore), by budget category, within thirty (30) days of the closing of each quarter in accordance with the format prescribed by the Contracting Officer, A.I.D.

Other reports as required by the Director, USAID/Pakistan.

26. Availability of Background Information (Additional information useful to Authorized Agent and Prospective Suppliers; if necessary, cross reference Block 21.B(3) above)

"Report of the Joint Pakistan American Agricultural Research Review Team" - Islamabad, April 6, 1968.

Noncapital Project Proposal (PROP) for Agricultural Research, TOAID A-230, March 12, 1969.

27. Relationships of Supplier to Cooperating Country and to AID.

A. Relationships and Responsibilities

Services performed by the advisors are to be coordinated with the Vice-Chancellor of WPAU, the Provincial Agricultural Research Coordination Board, the provincial Ministries of Education and Agriculture, and USAID.

B. Cooperating Country Liaison Official

For the Government of West Pakistan:

- (1) Chairman, West Pakistan Agric. Research Coordination Board  
 (Project Director)

(Continued)

C. AID Liaison Officials - Food & Agriculture Officer, USAID/Rawalpindi, and Chief, Agriculture Division, USAID/Lahore (Project Advisor).

AID 1380-17-031  PIO/T	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 5 OF 7 PAGES
		Cooperating Country PAKISTAN	PIO/T No. 391-296-3-00232
		Project/Activity No. and Title 391-17-110-296 AGRICULTURE RESEARCH - WEST PAKISTAN	

**LOGISTIC SUPPORT**

**28. Provisions for Logistic Support**

A. Specific Items (Insert "X" in applicable column at right. If entry needs qualification, insert asterisk and explain below in C. "Comments")

	In Kind Supplied By		From Local Currency Supplied By	
	AID	Cooperating Country	AID *	Cooperating Country
(1) Office Space				
(2) Office Equipment		X		
(3) Housing and Utilities		X		
(4) Furniture	X			
(5) Household Equipment (Stoves, Refrig., etc.)	X			
(6) Transportation in Cooperating Country	X			
(7) Interpreter Services			X	
Other: (8) Clerical Personnel specify)		X		
(9) International Travel			X	
(10) Transportation of Personal and			X	
(11) Household Effects from Pakistan				
(12)			X	
(13)				
(14)				
(15)				

B. Additional Facilities Available From Other Sources

To the extent feasible, employees hired under the contract shall have Commissary and other privileges extended to U.S. direct-hire AID employees. Per diem and travel allowances, after the contract employees have entered upon employment through this PIO/T, shall conform to rates applicable to U.S. direct-hire AID employees.

C. Comments

\*From Trust Fund provided by GOP

AID 1980-1 (6-68)	<p style="text-align: center;">DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT</p> <p style="text-align: center;">PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES</p>	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 6 OF 7 PAGES
PIO/T		Cooperating Country PAKISTAN	PIO/T No. 391-296-3-00232
		Project/Activity No. and Title 391-17-110-296 AGRICULTURE RESEARCH - WEST PAKISTAN	

FINANCIAL AGREEMENT

29. A. Cooperating Country Financing

Rev. #1

Pursuant to paragraph V of the  PROAG or  Other underlying document signed on March 28, 1970  
~~the date of this issuance (Block 18 above),~~ the Cooperating Country will provide all local currencies required for the expenditures within the country, during the period starting on the Date of this Issuance (Block 18 above) and ending on the Final Contribution Date of ~~the~~ [PROAG or other enabling document]: December 31, 1972  
 authorized under this Project Implementation Order, with the exception of the following types of expenditures, which AID hereby agrees to assume:

--

B. As of the effective date of any contract or agreement executed under this Order, the country will establish in the name of the supplier of the services described herein, a local currency advance in the amount of: \_\_\_\_\_

30. AID Financing

Pursuant to the provisions of the above-referenced Project Agreement or other document, and subject to the limitation of the Total to Date as shown in Block 12.D above, AID will provide all U.S. Dollar Currencies required for expenditures, during the period starting on the Date of this Issuance (Block 18 above), and ending on the Final Contribution Date of December 31, 1972 authorized under this Project Implementation Order, with the exception of the following types of expenditures which the Cooperating Country hereby agrees to assume:

--

Block 15 - Continued

University Contract, to the West Pakistan Agricultural University (WPAU) in order to improve the capacity of WPAU to: (a) plan and conduct applied research activities, and (b) produce top-level agricultural scientists.

Emphasis within this activity at WPAU will focus on developing an interdisciplinary approach to research, focused on problem areas determined to be of high priority by the West Pakistan Agricultural Research Coordination Board (ARCB).

Block 27-B - Continued

- (2) Secretary of Agriculture, GOWP.
- (3) Secretary of Education, GOWP.

3910296 (18) F

AID 1880-1 (8-69)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  <b>PROJECT IMPLEMENTATION                  ORDER/TECHNICAL                  SERVICES</b>	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 1 OF 7 PAGES
		1. Cooperating Country PAKISTAN	2. PIO/T No. 391-296-3-00297
		3. Project/Activity No. and Title 391-17-110-296,1 PD-AAD-173 AGRICULTURE RESEARCH (E. Pakistan)	

4. Appropriation Symbol 72-1101004	5. a. Allotment Symbol & Charge 054-50-391-00-69-01	5. b. Funds Allotted to: <input type="checkbox"/> AID/W <input checked="" type="checkbox"/> Mission: 7p		
6. Obligation Status <input type="checkbox"/> Administrative Reservation <input type="checkbox"/> Obligation    Funds Obligated by ProAg <input checked="" type="checkbox"/>		7. <input checked="" type="checkbox"/> Original or Amendment No.:		
8. No. of Technicians 2	9. Services to Start (Mo., Day, Yr.) Between: See Contract And:	10. Duration (Months) a. Of Services: 7    b. Of Financing: 7		
11. a. Type of Action <input checked="" type="checkbox"/> AID Contract <input type="checkbox"/> Cooperating Country Contract <input type="checkbox"/> Participating Agency Service Agreement <input type="checkbox"/> Other				
11. b. Authorized Agent AID/W				
Financing				
\$1.00 =	A. Previous Total	B. Increase	C. Decrease	D. Total to Date
12. AID Financing				
a. Dollars		44,000		44,000
b. U.S.-Owned Local Currency				
13. Cooperating Country Contributions				
a. Counterpart				
b. Other				

14. Mission References  
  
ProAg (Agrmt. No. 70-10)  
  
RAWALPINDI-3561

15. Objective for which the Technical Services are to be used (Describe)

This PIO/T provides funds for continuing the services of Texas A&M University under contract No. AID/nesa-184.

The Contractor will aid and advise the East Pakistan Agriculture University in developing and strengthening educational, research and extension programs and activities.

16. Mission Clearances	Date	Mission Clearances	Date

17. Date of Original Issuance June 10, 1970	18. Date of this Issuance June 10, 1970
--	--

19. For the Cooperating Country  
The terms and conditions set forth herein are hereby agreed to:

20. For the Agency for International Development

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
TITLE

*Russell Dilts*  
\_\_\_\_\_  
Deputy Director, NESA/TECH  
\_\_\_\_\_  
TITLE

AID 1380-1 (8-63)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	<input type="checkbox"/> Worksheet	<input checked="" type="checkbox"/> Issuance	PAGE 2 OF 7 PAGES
		Cooperating Country PAKISTAN	PIO/T No. 391-296-3-00297	
		Project/Activity No. and Title 391-17-110-296 AGRICULTURE RESEARCH (E. Pakistan)		

**SCOPE OF WORK**

**21. Scope of Technical Services**

**A. Description**

The contract will be amended to provide the following personnel and services:

- (1) Transportation and per diem while in the U.S. for Senior Pakistan Educators or officials to visit the Contractor's campus for the purpose of exchanging information related to the project carried out by the Contractor.
- (2) Agronomist - to serve as a counterpart and advisor to the Dean of the Faculty of Agriculture of the University; to do demonstration teaching in the areas of agronomy and soil science; to assist in preparation of syllabi and in the development of laboratory exercises and materials for courses in this area; and to assist in guiding and supervising advanced students in their study programs, research projects and compilation of research data.

(Continued)

**B. Technicians**

(1) (a) Number	(b) Specialized Field	(c) Grade and/or Salary	(d) Duration of Assignment (Man-Months)
1	Agronomy Advisor	(See Contract)	7
1	Agriculture Economics (Farm Credit) Advisor		7

**(2) Duty Post and Duration of Technicians' Services**

East Pakistan Agricultural University, Mymensingh.

**(3) Access to Classified Information**

Not essential.

**(4) Dependents**     Will     Will Not    Be Permitted to Accompany Technicians

**C. Financing Costs of Technical Services**

(1) By AID - \$ 44,000

(2) By Cooperating Country - (see Block 28)



PIO/T	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	<input type="checkbox"/> Worksheet	<input checked="" type="checkbox"/> Issuance	PAGE 4 OF 7 PAGES
		Cooperating Country PAKISTAN		PIO/T No. 391-296-3-00297
		Project/Activity No. and Title 391-17-110-296 AGRICULTURE RESEARCH (E. Pakistan)		

25. Reports by Supplier of Services (Indicate type, content and format of reports required, including language to be used if other than English, frequency or timing of reports and any special requirements)

All reports will be made in English. Semi-Annual and Final Reports as required by the contract will be furnished by the Contractor.

26. Availability of Background Information (Additional information useful to Authorized Agent and Prospective Suppliers; if necessary, cross reference Block 21.B(3) above)

--

27. Relationships of Supplier to Cooperating Country and to AID.

A. Relationships and Responsibilities

Services performed by the contract technicians are to be coordinated with the Central and Provincial Ministries of Education, the Provincial Secretary of the Department of Education, and the Vice Chancellors of the Universities.

B. Cooperating Country Liaison Official

Rafiq Ahmed, Project Director, Ministry of Education, GOP.

C. AID Liaison Officials

Philip H. Haney, Education Officer - USAID/Dacca.

AID 1980-1 (8-83)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	<input type="checkbox"/> Worksheet	<input checked="" type="checkbox"/> Issuance	PAGE 5 OF 7 PAGES
		Cooperating Country PAKISTAN		PIO/T No. 391-296-3-00297
		Project/Activity No. and Title 391-17-110-296 AGRICULTURE RESEARCH (E. Pakistan)		

**LOGISTIC SUPPORT**

28. Provisions for Logistic Support	In Kind Supplied By		From Local Currency Supplied By	
	AID	Cooperating Country	AID *	Cooperating Country
A. Specific Items (Insert "X" in applicable column at right. If entry needs qualification, insert asterisk and explain below in C. "Comments")				
(1) Office Space				
(2) Office Equipment		X		
(3) Housing and Utilities		X		
(4) Furniture	X			
(5) Household Equipment (Stoves, Refrig., etc.)	X			
(6) Transportation in Cooperating Country	X			
(7) Interpreter Services			X	
Other: (Specify) (8) Clerical Personnel		X		
(9) International Travel to and		X		X
(10) from Pakistan				
(11) Drivers			X	
(12) Transportation of Personal &		X		
(13) Household Effects from Pakistan			X	
(14)				
(15)				
B. Additional Facilities Available From Other Sources				

To the extent feasible, employees hired under this contract shall have Commissary and other privileges extended to U.S. direct-hire AID employees. Per diem and travel allowances, once the contract employees have entered upon employment through this PIO/T, shall conform to rates applicable to U.S. direct-hire AID employees.

C. Comments

\*Trust Fund, source of which is GOP

AID 1980-1 (8-63)  PIO/T	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 6 OF 7 PAGES
		Cooperating Country PAKISTAN	PIO/T No. 391-296-3-00297
		Project/Activity No. and Title 391-17-110-296  AGRICULTURE RESEARCH (E. Pakistan)	

**FINANCIAL AGREEMENT**

**29. A. Cooperating Country Financing**

Pursuant to paragraph \_\_\_\_\_ of the  PROAG or  Other underlying document signed on \_\_\_\_\_ and subject to the amount shown in Block 13.D above, the Cooperating Country will provide all local currencies required for the expenditures within the country, during the period starting on the Date of this Issuance (Block 18 above) and ending on the Final Contribution Date of the [PROAG or other enabling document]: \_\_\_\_\_ authorized under this Project Implementation Order, with the exception of the following types of expenditures, which AID hereby agrees to assume:

B. As of the effective date of any contract or agreement executed under this Order, the country will establish in the name of the supplier of the services described herein, a local currency advance in the amount of: \_\_\_\_\_

**30. AID Financing**    ProAg, Rev. 2 dated 4/27/70

Pursuant to the provisions of the above-referenced Project Agreement or other document, and subject to the limitation of the Total to Date as shown in Block 12.D above, AID will provide all U.S. Dollar Currencies required for expenditures, during the period starting on the Date of this Issuance (Block 18 above), and ending on the Final Contribution Date of December 31, 1972 authorized under this Project Implementation Order, with the exception of the following types of expenditures which the Cooperating Country hereby agrees to assume:

Block 21-A - Continued

- (3) Agricultural Economics (Farm Credit) Specialist - to serve as a counterpart to the head of the Faculty of Agricultural Economics; to assist in the development of curricula and the writing of syllabi for courses in farm credit, agricultural cooperatives, government agricultural policy and administration and land economics, agricultural prices and farm management; to plan and assist with research projects; short courses, seminars and staff improvement; and to suggest teaching aids and select research equipment.

AID 1880-1 (8-68)

DEPARTMENT OF STATE  
AGENCY FOR  
INTERNATIONAL DEVELOPMENT

Worksheet  Issuance

PAGE 1 OF 3 PAGES

PIO/T

ACTION  
REQUEST

PROJECT IMPLEMENTATION  
ORDER/TECHNICAL  
SERVICES

1. Cooperating Country

PAKISTAN

2. PIO/T No.

391-296-2-31-3

3. Project/Activity No. and Title

391-17-110-296.1

PD-AAD-173

3p

AGRICULTURE RESEARCH (East Pakistan)

4. Appropriation Symbol

72-1101004

5. a. Allotment Symbol & Charge

054-50-391-00-69-01

5. b. Funds Allotted to:

AID/W  Mission

6. Obligation Status

Administrative  
Reservation

Obligation

Funds Obligated by  
 ~~Administrative~~ ProAg

7.  Original or

Amendment No.:

8. No. of Technicians

6

9. Services to Start (Mo., Day, Yr.)

Between: 7/1/70 And: 1/30/71

10. Duration (Months)

a. Of Services 24 b. Of Financing 7

11. a. Type of Action

AID Contract

Cooperating  
Country Contract

Participating Agency  
Service Agreement

Other

11. b. Authorized Agent

AID/W

Financing \$1.00 =	A. Previous Total	B. Increase	C. Decrease	D. Total to Date
12. AID Financing a. Dollars	56,000			56,000
b. U.S.-Owned Local Currency				
13. Cooperating Country Contributions a. Counterpart				
b. Other				

14. Mission  
References

391-296-2-31-3

391-296-2-31-3

15. Objective for which the Technical Services are to be used (Describe)

The purpose of this amendment is to revise the scope of services as follows:

(Continued)

(Ref: Southern Consortium  
Contract, AID/nesa-504)

16. Mission Clearances

Date

Mission Clearances

Date

17. Date of Original Issuance

May 15, 1970

18. Date of this Issuance

June 23, 1970

19. For the Cooperating Country

The terms and conditions set forth herein are hereby agreed to:

20. For the Agency for International Development

*Russell Ditts*

SIGNATURE

DATE

SIGNATURE

Deputy Director, NESA/TECH

TITLE

TITLE

PAKISTAN 391-296-3-00308-A1

391-17-110-296

AGRICULTURE RESEARCH (East Pakistan)

Block 15 - ContinuedBlock 21-A: Amend to read,PHASE I

Qualified Southern Consortium personnel will accomplish the following specific activities during a six-month period and prior to assignment of long-term contractor personnel (Phase II):

- (1) Advise and assist the Provincial Agricultural Research Board and the Central Agricultural Research Council by advising and assisting in the planning and administration of agricultural research.
- (2) With the Vice-Chancellor of EPAU and Department of Agriculture officials, as well as the Food and Agriculture Officer (AID), define long-term goals and operational targets for the first year.
- (3) With the persons identified in (2) above, develop strategies for accomplishing project goals and operational targets for the first year.
- (4) Develop a plan for evaluation (including criteria) of project results at end of the first year.
- (5) Develop a time-phased work plan for the first year and, to the extent possible, for succeeding years.
- (6) Identify nature, size and timing of inputs and expected outputs for EPAU, Dept. Agr., and Contract Team during the first year, including training of research personnel for P.R.I.
- (7) Develop a system of institutional memory on the project in East Pakistan.
- (8) Develop a budget for the first year which relates increments of financing to increments of the work program and estimates for long-term program.
- (9) Identify equipment and supply needs by Contract Team at EPAU, including office, laboratory, transportation and living.
- (10) Define procurement policies and arrange for early delivery of equipment and supplies so that lost time will be minimized when Team members arrive.
- (11) Arrange for administrative support of Team (secretarial, etc.).

(Continued)

PAKISTAN 391-296-3-00308-A1

391-17-110-296  
AGRICULTURE RESEARCH (East Pakistan)

Block 21-A - Continued

- (12) Arrange for work facilities for each Team member by:
  - (a) Identifying office and laboratory space.
  - (b) Identify and consult with the Pakistan counterpart for each Team member and verify his willingness to work cooperatively with Contract Team members.
  - (c) Arrange for field research areas for those Team members needing land.
- (13) Work with the Team Leader to facilitate his arrival and easy transition into the role of leadership which he must assume.
- (14) Develop a working relationship with EPRRI and other autonomous research agencies in East Pakistan.
- (15) Communicate with Team members in the United States to facilitate their move to East Pakistan.

PHASE II

The Contractor will provide up to six full-time resident agricultural research advisors together with short-term consultants, as required, to assist in planning and implementing agricultural research projects that will be mutually agreed upon by the Provincial Agriculture Research Board and USAID. The research advisors will be stationed at East Pakistan Agricultural University; however, if deemed necessary, one or more of the advisors may be stationed in Dacca.

(All other provisions of the original  
PIO/T remain unchanged)

AID 1980-1X (8-78)  PIO/T	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	1. Cooperating Country <b>PAKISTAN</b>	Page of 1 Pages
		2. PIO/T No. 391-296-3-20191	3. <input checked="" type="checkbox"/> Original or Amendment No. _____
		4. Project/Activity No. and Title 391-17-110-296.2 <b>PD-AAD-173</b>	
		AGRICULTURE RESEARCH - WEST PAKISTAN	

DISTRIBUTION	5. Appropriation Symbol 72-1121004	6.A. Allotment Symbol and Charge 254-50-391-00-69-21	6.B. Funds Allotted to: <input type="checkbox"/> A.I.D./W <input checked="" type="checkbox"/> Mission																																										
	7. Obligation Status <input checked="" type="checkbox"/> Administrative Reservation <input type="checkbox"/> Subobligation		8. Funding Period (Mo., Day, Yr.) From See Contract																																										
	9.A. Service to Start (Mo., Day, Yr.) Between See Contract and See Contract		9.B. Completion date of Services (Mo., Day, Yr.) See Contract																																										
	10.A. Type of Action <input checked="" type="checkbox"/> A.I.D. Contract <input type="checkbox"/> Country Contract <input type="checkbox"/> Participating Agency Service Agreement Other:																																												
	10.B. Authorized Agent AID/W																																												
	Estimated Financing																																												
	<table border="1"> <thead> <tr> <th></th> <th>(1)</th> <th>(2)</th> <th>(3)</th> <th>(4)</th> </tr> <tr> <th>\$1.00 =</th> <th>Previous Total</th> <th>Increase</th> <th>Decrease</th> <th>Total to Date</th> </tr> </thead> <tbody> <tr> <td>11. Maximum A.I.D. Financing</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A. Dollars</td> <td></td> <td>25,000</td> <td></td> <td>25,000</td> </tr> <tr> <td>B. U.S.-Owned Local Currency</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>12. Cooperating Country Contributions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A. Counterpart</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						(1)	(2)	(3)	(4)	\$1.00 =	Previous Total	Increase	Decrease	Total to Date	11. Maximum A.I.D. Financing					A. Dollars		25,000		25,000	B. U.S.-Owned Local Currency					12. Cooperating Country Contributions					A. Counterpart					B. Other				
		(1)	(2)	(3)	(4)																																								
	\$1.00 =	Previous Total	Increase	Decrease	Total to Date																																								
	11. Maximum A.I.D. Financing																																												
A. Dollars		25,000		25,000																																									
B. U.S.-Owned Local Currency																																													
12. Cooperating Country Contributions																																													
A. Counterpart																																													
B. Other																																													

13. Mission References  
 ISLAMABAD-1039  
 STATE-026692  
 STATE-034778  
 ISLAMABAD-1980  
 PIO/T-00232  
 ED: 3/31/73

14. Instructions to Authorized Agent

The purpose of this PIO/T is to provide additional funds for the services of two short-term consultants for two months each, and for final contract close-out operations.

International travel, local travel and per diem will be paid in Rupees. GTRs should be annotated, "Payable in Pakistan Rupees" charged to 72-FT-800 - 160-50-391-00-10-00.

(Ref: Washington State Univ.  
 Contract, AID/nesa-440)

(Pages 2-5 omitted)

15. Clearances - Show Office Symbol, Signature and Date for all Necessary Clearances. (See worksheet PIO/T)

A. The specifications in the scope of work are technically adequate George Ramsay 3/6/72 ASIA/ID - AID/W (Project Mgr.)	B. Funds for the services requested are available (per Islamabad-1980).
C. The scope of work lies within the purview of the initiating office and approved Agency Programs	D. Howard Buckley 3/7/72 ASIA/SA (Desk) - AID/W
E.	F. Stephen Stein 3/8/72 ASIA/GC - AID/W

16. For the cooperating country: The terms and conditions set forth herein are hereby agreed to  Signature and date:  Title:	17. For the Agency for International Development  Signature: <i>Russell Siltz</i>  Title: Deputy Director, ASIA/TECH	18. Date of issuance  3/10/72
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AID 1286-1 (7-71)

DEPARTMENT OF STATE  
AGENCY FOR  
INTERNATIONAL DEVELOPMENT

3910296 (21)

Page 1 of 9 Pages

PIO/T

PROJECT IMPLEMENTATION  
ORDER/TECHNICAL  
SERVICES

1. Cooperating Country  
Pakistan

2. PIO/T No.  
391-296-2-30271

3.  Original or  
Amendment No.

4. Project/Activity No. and Title  
391-17-110-296 PD-AAD-173  
Agric. Research - Precision Land  
Levelling

FY 1973

DISTRIBUTION

5. Appropriation Symbol  
73-1131004

6.A. Allotment Symbol and Charge  
354-50-391-00-69-31

6.B. Funds Allotted as:  
 A.I.D./W  Mission

7. Obligation Status

Administrative Reservation  Implementing Document

8. Funding Period (Mo., Day, Yr.)  
From 7/1/73 To 6/30/74

9.A. Services to Start (Mo., Day, Yr.)  
Between July 1, 1973 and July 31, 1973

9.B. Completion date of Services  
(Mo., Day, Yr.) September 1975

10.A. Type of Action  
 A.I.D. Contract  Cooperating Country Contract  Participating Agency Service Agreement  Other

10.B. Authorized Agent

AID/W

Estimated Financing		(1) Payable Total	(2) Increase	(3) Decrease	(4) Total to Date
11. Maximum A.I.D. Financing	A. Dollars		\$300,000		\$300,000
	B. U.S.-Owned Local Currency				
12. Cooperating Country Contributions	A. Counterpart				
	B. Other				

13. Mission References

14. Instructions to Authorized Agent

AID/W will negotiate and execute PASA contract between AID and Soil Conservation Service U.S. Department of Agriculture or through contract with a private firm for the services of technicians as specified in Block 9.B of this PIO/T. Also this PIO/T provides \$300,000 to pay the salaries and related cost for the technical services being procured under this PIO/T.

15. Clearances - Show Office Symbol, Signature and Date for all Necessary Clearances.

A. The specifications in the scope of work are technically adequate

R. R. Newberg - AD/AP

B. Funds for the services requested are available

W. A. Rice - AD/C

C. The scope of work lies within the purview of the initiating and approved Agency Programs

J. B. Roberts - PRO

E. L. R. Anderson - AD/AP

D. E. Rusinak - AD/M

16. For the cooperating country: The terms and conditions set forth herein are hereby agreed to

M. Yaqub

17. For the Agency for International Development

Signature: William A. Wolfner

18. Date of Signature

June 25, 1973

Signature and date: M. Yaqub  
Secy. Ministry of Agriculture  
Title: Project Director, COP

Title: Actg. Director, USAID Pakistan

Funds available

2/4/74

**SCOPE OF WORK**

**19. Scope of Technical Services**

**A. Objective for which the Technical Services are to be Used**

To provide advisory services in all aspects of the technical and operational functions of the Land Levelling Program such as: (Contd. on page 6)

**B. Description**

This project provides technical advisory services and research for the adoption of improved land levelling practices. Six technicians will provide the advisory services in the field of precision land levelling on a full time basis. The technicians assigned to the provinces of Punjab and Sind will train those individuals who are selected by the provincial governments to form the future cadre of expertise in land levelling. They will also train private entrepreneurs who wish to learn the land levelling techniques. Training will consist of both formal and on the job instructions. The function of the advisors will be as follows:

1. Team Leader - His technical competence and field experience should qualify him to direct the preparation of guidelines for improved agronomist practices, irrigation application and land levelling procedures directly applicable to Pakistan  
(Contd. on page 6)

**C. Technicians**

(1) (a) Number	(b) Specialized Field	(c) Grade and/or Salary	(d) Duration of Assignment (Man-Months)
1	Team Leader		24
1	Agric. Economist		24
2	Irrigation Agronomists		24
2	Irrigation Engineer		24

**(2) Duty Post and Duration of Technicians' Services**

Lahore, Karachi, Hyderabad or any other city near the provincial headquarters.

**(3) Language requirements**

**(4) Access to Classified Information**

None Required

**(5) Dependents**  Will  Will Not Be Permitted to Accompany Technicians

**D. Financing of Technical Services**

(1) By AID - \$ 300,000

(2) By Cooperating Country -

PIO/T

Project/Activity No. and Title

391-17-110-296

Agric. Research - Precision Land Levelling

20. Equipment and Supplies (Related to the services described in Block 19 and to be procured outside the Cooperating Country by the supplier of these services)

A. (1) Quantity	(2) Description	(3) Estimated Cost	(4) Special Instructions
-----------------	-----------------	--------------------	--------------------------

NIL

B. Financing of Equipment and Supplies

(1) By AID - \$

(2) By Cooperating Country -

21. Special Provisions

- A. This PIO/T is subject to AID (contracting) (FASA implementation) regulations.
- B. Except as specifically authorized by AID, or when local hire is authorized under the terms of a contract with a U.S. Supplier, services authorized under this PIO/T must be obtained from U.S. sources.
- C. Except as specifically authorized by AID/W, the purchase of commodities authorized under this PIO/T will be limited to the U.S. under Geographic Code 900.
- D. Other (specify)

AID 1350-1 (8-70)	Cooperating Country Pakistan	PIC/T No. 391-296-2-30271	Page 4 of 9 Pages
PIC/T	Project/Activity No. and Title 391-17-110-296 Agric. Research - Precision Land Levelling		

22. Reports by Contractor or Participating Agency (Indicate type, content and format of reports required, including language to be used if other than English, frequency or timing of reports, and any special requirements)

Reporting by the technicians will be performed according to USAID/P requirements. These will include written monthly and quarterly progress reports, routine verbal reports and submission of technicians final end of tour reports. Other reports and documentations as requested by the GOP and US AID and as agreed between AID/W and Contractors.

23. Background Information (Additional information useful to Authorized Agent and Prospective Contractors or Participating Agency; if necessary cross reference Block 19.C(4) above.)

All necessary background information and materials will be provided by USAID and the GOP.

24. Relationship of Contractor or Participating Agency to Cooperating Country and to AID

A. Relationships and Responsibilities

- In the Punjab, U.S. project personnel will work directly with the staff of the Integrated Rural Development Directorate, Department of Agriculture.
- In the Sind, U.S. Project personnel will work directly with the Agriculture Directorate Staff, Department of Agriculture.

B. Cooperating Country Liaison Official

Punjab Province - Director, Integrated Rural Development Directorate, Deptt. of Agriculture

Sind Province - Director, Agriculture Directorate, Department of Agriculture.

C. AID Liaison Officials

Dr. Richard R. Newberg, AD/AP, USAID/Islamabad  
Mr. Leland R. Anderson, DAD/AP, USAID/Islamabad

AID 1350-1 (9-70)	Cooperating Country <b>Pakistan</b>	PIO/T No. <b>391-296-2-30271</b>	Page 5 of 9 Pages
PIO/T	Project/Activity No. and Title <b>391-17-110-296 Agric. Research - Precision Land Levelling</b>		

**LOGISTIC SUPPORT**

25. Provisions for Logistic Support	In Kind Supplied By		From Local Currency Supplied By	
	AID	Cooperating Country	* AID	Cooperating Country
A. Specific Items (Insert "X" in applicable column as right. If entry needs qualification, insert asterisk and explain below in C. "Comments")				
(1) Office Space		X		
(2) Office Equipment		X		
(3) Housing and Utilities			X	
(4) Furniture	X			
(5) Household Equipment (Stoves, Refrig., etc.)	X			
(6) Transportation in Cooperating Country		X		
(7) Interpreter Services		X		
(8) Clearance Support		X		
Other (Specify) (9) HHE Shipment			X	
(10) Transportation to and from Pakistan			X	
(11)				
(12)				
(13)				
(14)				
(15)				

B. Additional Facilities Available From Other Sources

~~Employees hired under the contract shall have commissary and other privileges and services/extended to AID direct-hire employees. Per diem, travel and other allowances, once the employees have entered upon duty through this PIO/T, shall conform to those applicable to US Direct-hire employees. Household effects and appliances will be issued and maintained by U.S. AID. Same as for direct hire employees.~~

/to the same extent as

C. Comments

All allowances (including overseas differential allowance) shall be payable in local currency to the maximum extent possible.

\*Trust Fund, source of which is the Government of Pakistan. (It is the responsibility of the Contractor to arrange for and procure housing, utilities, transportation in cooperating country and claim reimbursement in local currency).

Transportation in country will be reimbursed only in the event it is not provided by the GOP.

391-17-110-296

Agric. Research -- Precision Land Levelling

Block 19(A) continued

1. To demonstrate to farmers the production increases that can be realized through precision land levelling and through the adoption of improved agronomic practices on levelled fields.
2. To build within the Sind and Punjab Governments the beginnings of an institutional infrastructure capable of supplying precision land levelling and associated agronomic services to farmers who desire these services.
3. To conduct research on socio-economic factors involved in changing traditional agronomic and water use practices and to develop specific data on the benefits vs. costs of precision land levelling under a variety of conditions --- with various crops, plot sizes, soil conditions and site location.

Block 19(B) continued

conditions. In addition he should be an experienced conservationist capable of developing programs on adjacent non-irrigated lands for conservation of moisture and developing improved tillage practices. He should also be cognizant of the design and construction requirement for water harvesting activities in arid zone. He will be responsible for the following activities:

- a. To provide over-all supervision and guidance of the USDA/SCS/PASA team members' activities and be responsible for coordinating the USDA/SCS team's activities with appropriate provincial officials.
- b. To work with provincial officials in the development of project plans and implementation procedures which will assure maximum training and implementation experience.
- c. To assist provincial officials with the development of precision land levelling, water application and improved agronomic guidelines and standards.
- d. Responsible for drafting the proposed lesson plans for formal and on-the-job training of Pakistan project personnel.
- e. To direct the research aspect of the project including the collection and analysis of information through the SCS Ag. Economist, the determination of special studies to be accomplished locally under contract, and the administration and coordination of all special research studies and contracts.
- f. To provide guidance and counsel to the provincial officials for the preparation of cost-sharing amounts and implementation procedures.

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Agric. Research - Precision Land Levelling

g. To evaluate the procedures used and results obtained by the USDA/SCS Agr. Economist and his counterpart to assure the preparation of meaningful and applicable results and recommendations.

h. To determine the proper timing for requesting USDA/SCS short term specialists and coordinating their activities to assure meaningful and timely results.

i. To keep USAID and GOP provincial officials continuously informed of the status of project implementation progress and provide timely notifications of pending problems or delays when remedial actions will be required by USAID or GOP officials.

2. Agricultural Economist - He should be familiar with basic statistical methods and sampling techniques and have full knowledge of cost/benefit analysis and other evaluation techniques. Also he should have three years experience as professional agricultural economist involved in farm management analysis or project evaluation work.

The Agricultural Economist will assist:

a. To coordination of data collection throughout the areas of the provinces where precision land levelling and related agronomic practices are being pursued.

b. To determination of special studies needed for valid conclusions regarding the value of precision land levelling in Pakistan.

c. To prepare and conduct special studies on social and economic factors related to the package of practices associated with precision land levelling and improved agronomic practices.

d. To develop specific cost/benefits analyses on selected farm sites where land has been precisely levelled and varying tillage practices utilized.

e. To coordinate all research findings and direction of continued research activities.

f. Periodic evaluations as required to assure effective project implementation.

3. Irrigation Agronomist and Irrigation Engineer - These field advisors will be posted as two-man team (one agronomist and one engineer) in each provinces near the provincial headquarters i.e. in Lahore for the Punjab province and Karachi or Hyderabad for the Sind. These field advisors will implement the following training program:

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Agric. Research - Precision Land Levelling

- a. Development and use of farm plans. The professionals should gain experience developing farm plans with the farmer while the sub-professionals must learn how to gather data for use in plan development and how to use plans in the application process.
- b. Teach the use of irrigation guides as working tools.
- c. Provide field experience in staking, surveying, designing and computing, and implementing land levelling procedures as well as construction of irrigation and drainage systems.
- d. Supervise field work of checking and control of on-farm development activities.
- e. Provide field experience in irrigation water application to demonstrate when to irrigate, how much to apply and how to apply it.
- f. Teach crop production and tillage practices on irrigated lands -- such items as soil conditioning crops, toxic salt laching, and special fertilizer needs following land levelling, proper use of plows, chisels, sub soilers and land planes to maintain levelled lands.
- g. Operation and maintenance of land levelling and tillage equipment.

The Irrigation Agronomists should have the following personal and technical qualifications:

- a. A thorough knowledge of and practical experience with row and field crops grown in the southwestern quadrant of the U.S. This knowledge must include experience reclaiming and improving lands with salinity, alkalinity and water logging problems.
  - b. He should also possess basic knowledge of land levelling techniques and sufficient field experience to provide on-the-job supervision of both agronomic and land levelling training activities. The U.S. field teams will spend only one-third (1/3) of their time in formal training sessions. The remaining two-thirds (2/3) will be spent as on-the-job training supervisions. To assure maximum trainee supervision, each U.S. technician will work independently with different trainee teams in the field, hence the requirement for technical knowledge and experience with both agronomic and engineering activities.
4. Irrigation Engineer - He should be a civil or agriculture engineer with extensive practical field experience gained from years of implementing land levelling and related on-farm development activities. Successful preparation

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Agric. Research -- Precision Land Levelling

of farm plans and layout requires more than passing knowledge of the improved agronomic and tillage practices required to maximize the benefits of precision land levelling and improved irrigation application techniques. These additional technical qualifications are necessary as only one-third of the USDA/SCS field technicians' time will be spent in formal training sessions while the remaining two thirds will be supervising and directing on-the-job land levelling and agronomic practices training activities while physically separated from the irrigation agronomist team member.



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Department of State

TELEGRAM

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391-296 SF

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ACTION AID-85

INFO OCT-01 NEA-06 IGA-02 E-04 L-04 DODE-00 /102 W 087166

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FM AMEMBASSY ISLAMABAD  
TO SECSTATE WASHDC 7459

UNCLAS ISLAMABAD 2522

AIDAC

SUB: AGRICULTURE RESEARCH, WEST PAKISTAN PROP

REF: (A) BLUME-ANDERSON LETTER 2/12/71  
(B) STATE 37423 (C) AIDTO A-34

1. IN VIEW APPARENT LACK OF COMMUNICATION BETWEEN MISSION AND AID/W ON SUBJECT PROJECT AREA, MISSION DIRECTOR HAS REVIEWED SITUATION WITH FOLLOWING COMMENTS:  
A. THERE IS UNUSUALLY HIGH DEGREE OF INTEREST IN OILSEEDS IN PAKISTAN DUE TO GREAT INCREASE IN CONSUMPTION OF THIS ITEM WHICH IS BASIC TO PAKISTANI DIET WITH PRICE HAVING IMPORTANT POLITICAL IMPLICATIONS.  
B. U.S. SHOULD BE INTERESTED IN THIS AREA BECAUSE OF VERY SIZEABLE PL 480 PROGRAM IN VEGETABLE OILS.  
C. THE GOP SHARES OUR CONCERN ABOUT IMPORT PRICE OF VEGETABLE OILS AND IS IMPORTING THEM UNDER CASH-CUM-BONUS ARRANGEMENTS.  
D. IT WOULD BE MISTAKE FOR GOP TO DIVE INTO THIS AREA WITHOUT ANSWERS TO KINDS OF QUESTIONS RAISED IN AID/W MESSAGES. INDEED, THIS IS REASON MISSION HAS DISCUSSED WITH GOP SERIES OF FEASIBILITY TYPE ACTIVITIES. IT IS OUR STRATEGY TO OBTAIN ANSWERS BOTH IN POLICY FRAMEWORK AREAS AND IN TECHNICAL AGRONOMIC AREAS. WE DO NOT WISH TO ENCOURAGE THE GOP TO EXPEND LARGE AMOUNTS OF MONEY ON PRODUCTION PROGRAMS WITHOUT THESE FEASIBILITY PROGRAMS BEING COMPLETED. ON OTHER HAND, THE GOVERNMENT IS UNDER HEAVY PRESSURE AND UNDERSTANDABLY WANTS TO MOVE QUICKLY ON THE FEASIBILITY STUDIES IN ORDER NOT TO LOSE TIME. IN THIS CASE TIME IS MONEY - A GREAT DEAL OF MONEY.

2. WE WONDER WHETHER IT MIGHT MAKE SENSE AT THIS POINT FOR JIM:

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*Department of State*

**TELEGRAM**

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BLUME TO VISIT USAID TO GO OVER THIS STRATEGY. OBVIOUSLY  
FULL AGREEMENT BETWEEN AID/W AND THE MISSION IS ESSENTIAL.  
IF WE ARE TO MOVE AHEAD ON TIGHT BUT STILL REASONABLE TIME  
SCHEDULE WE HAVE PROJECTED. WOULD HOPE SUCH A CONSULTATION  
COULD TAKE PLACE IN COMING WEEKS. ADVISE.  
FARLAND

UNCLASSIFIED



3910296 (23)

PD- AAD- 173

**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT  
MISSION TO PAKISTAN**

**Cable: USAIDPAK**

**HEADQUARTERS OFFICE  
ISLAMABAD**

December 5, 1978

Secretary to Government  
Economic Affairs Division  
Ministry of Finance, Planning  
and Economic Affairs  
Government of Pakistan  
Islamabad

8 p.

Dear Sir:

Subject: Loan No. A. I. D. 391-T-156  
Agricultural Research  
Project Implementation Letter No. 14

Under the Amendatory Agreement for the subject Project which was executed on August 28, 1978, the Government covenanted to furnish to AID by December 28, 1978 evidence that all necessary administrative and legal actions have been taken to revise Project plans and procedures to be consistent with the Amendatory Agreement. These Special Covenants were agreed upon by the Government and AID to ensure that satisfactory progress is being made to implement the Agricultural Research Project. This letter specifies the type of information that AID will accept as evidence that Part (A) of Article II, Special Covenant, titled Plans and Procedures, of the Amendatory Agreement has been fulfilled.

Under Part (A) of Article II, the Government covenanted to furnish to AID evidence that (1) all necessary administrative and legal action has been taken to revise Project plans and procedures (2) the Project plans and procedures have been revised and are consistent with the Amendatory Agreement. The material and information that AID will consider satisfactory in meeting Part A of the Article are outlined below in detail.

1. Necessary Legal and Administrative Action

a. Legal

In satisfaction of this sub element, AID will accept the Government's official notice, as approved by the Cabinet, endorsing Agricultural Research Council (ARC) as an autonomous body.

b. Administrative

AID will accept the official notification of the Government reorganizing ARC and establishing the functions and responsibilities for the Management of the Council, the Executive Board, the President, and the Chairman as adequate to satisfy this sub element. In addition AID requests that the Government furnish a copy of the official notification of a revised pay scale for ARC which is adequate to attract qualified personnel and furnish evidence that atleast 75% of ARC staff and professional positions are recruited or are being recruited in accordance with the revised pay scale.

2. Revised Project Plans and Procedures

a. Project Plans

As evidence of the fulfillment of this sub element of the Special Covenant, AID requests the Government furnish the following:

- (1) Offshore technical assistance requirements and the proposed arrival dates for technical advisors required by ARC to complete the operational plans and priority research of Phase I of the Project. Also indicate the primary coordinating offices and liaison officers within ARC for the technical advisors.
- (2) Priority management and research training needs for Phase I of the Project. Also indicate the nominees for technical training, their curriculums, and departure

scheduling. We also request the Government provide procedures that will permit the selection and clearance of overseas training candidates within a 3 month period.

- (3) Priority commodity procurement of equipment and materials required by ARC to carry out Phase I objectives and the proposed schedule for procurement.
- (4) An ARC approved contract for the supervising architect and engineer.
- (5) The master site and master plans for the National Agricultural Research Center.
- (6) Evidence that necessary funds have been allotted to ARC for Phase I objectives, and that ARC has established an adequate financial management system to responsibly manage these funds.
- (7) The implementation plan for completing the activities identified in pages 8, 9, 10 of the Amendatory Agreement within the proposed time frame.

b. Project Procedures

As evidence of the fulfillment of this sub element of the Special Covenant we request the Government furnish to AID a schedule which establishes 1) the review of the draft manual of directives by essential ARC staff which incorporate changes or otherwise modifies the manual of directives to meet the ARC needs and 2) a firm date for approval of the manual of directives.

In order to meet the requirements of the Amendatory Agreement, all of this material must be submitted to AID by December 28, 1978. The fulfillment of this Special Covenant will have a bearing on the outcome of the evaluation of Phase I of the Project and whether AID

- 4 -

will be able to provide additional financing for the Agricultural Research Project in the future.

We will be glad to discuss with you or your representatives any problems or questions you may have concerning the implementation of the Project or this letter.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Hasan A. Hasan". The signature is written in a cursive style with a large, sweeping initial 'H'.

Hasan A. Hasan  
Chief, Project Development  
and Monitoring Division

3910296



**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT  
MISSION TO PAKISTAN**

**File: USAIDPAK**

**HEADQUARTERS OFFICE  
ISLAMABAD**

**April 12, 1979**

**Secretary to Government  
Economic Affairs Division  
Ministry of Finance and  
Provincial Coordination  
Government of Pakistan  
Islamabad**

**Dear Sir:**

**Subject: Loan No. A. I. D. 391-T-156  
Agricultural Research  
Project Implementation Letter No. 15**

**This letter responds to the information presented in letters from Dr. Heshamul Haque, the former Director General of the Pakistan Agricultural Research Council (PARC), Mr. S. M. Jalaluddin, Section Officer, EAD, and Dr. Amir Mohammad, Chairman of PARC about fulfilling the requirements of the Special Covenant of the Amendatory Agreement explained in Project Implementation Letter No. 14.**

**The information submitted to date indicates that PARC has neither been able: (1) to complete all necessary administrative and legal actions to revise Project plans and procedures, nor (2) to completely revise Project plans and procedures to be consistent with the Amendatory Agreement. The Government agreed in the Special Covenant Part A of the Amendatory Agreement that these actions would be completed by December 28, 1978.**

**We urge the Government to take the necessary actions as described below to fulfill the Special Covenant as quickly as possible. We also note that an evaluation of the Agricultural Research Project will take place in April which will assess**

the progress PARC has made in establishing an effective research management system. The successful fulfillment of this Special Covenant will have a significant bearing on the outcome of the evaluation and whether AID will provide additional grant and loan financing in Phase II of the Project.

The status of the Special Covenant and additional information required is as follows:

1. Necessary Legal and Administrative Action

a) Legal

This portion of the covenant will be fulfilled when the Government furnishes: 1) a copy of the order transferring personnel from the administrative control of the Government (attached Department of Food and Agriculture Division) to an autonomous PARC; 2) evidence that the PARC's annual budget allocation has been transferred to the PARC as a Government grant-in-aid according to Notification No. F. 2-1/71-E-III(ARC) dated September 17, 1978, to be used according to federal procedures for the CESS Fund.

b) Administrative

We accept the official Notification No. F. 2-1/71-E-III(ARC) establishing the functions and responsibilities of the Chairman, President, and the Executive Board of the Council. Please furnish the notification of the Government revising the PARC pay scale and the PARC staffing plan which indicates that 75% of the staff and professional positions are recruited or being recruited in accordance with the revised pay scale.

2. Revised Project Plans and Procedures

a) Project Plans

This portion of the Special Covenant will be fulfilled when the following is submitted to AID:

1. A revised technical assistance plan for expatriate

advisors indicating arrival dates and coordinating offices and liaison officers within PARC.

2. The procedures that permit selection and clearance of technical training candidates within a three (3) month period.
3. The commodity procurement plan for equipment and materials required for the project.
4. A copy of the executed re-negotiated contract for supervising architect and engineer with changes noted in our letter dated April 2, 1979.
5. Master site and master plans for the National Agricultural Research Center.
6. A copy of the approved financial management system which demonstrates that PARC has adequate control over its finances.
7. Please furnish the following information which is not covered in the Manual of Directives:
  - a. Completed Project Statements for Maize and Wheat programs.
  - b. Results of PARC audit.
  - c. Completed technical assistance plan for 1979-80.
  - d. Confirmation that all villages located on NARC land have been removed.
  - e. Implementation Plan for activities identified in Amendatory Agreement to be accomplished by July 1979.

b) Project Procedures

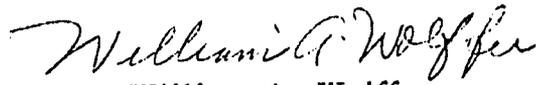
This requirement of the Special Covenant will be fulfilled when the PARC furnishes to AID approved copies of

- 4 -

the Manual of Implementing Directives revised as necessary to meet PARC requirements.

If you have any questions regarding this letter or any other aspect of project implementation, please don't hesitate to contact us.

Sincerely yours.

  
William A. Wolfer  
Acting Director

3910296 (24)

PD-AAD-173

A.I.D. Loan No. 391-T-156

A.I.D. Project No. 391-0296

Appropriation No. 72-1191021

Allotment No. 943-50-391-00-69-91

8p

AMENDATORY AGREEMENT  
BETWEEN THE  
GOVERNMENT OF PAKISTAN  
AND THE  
UNITED STATES OF AMERICA  
FOR  
AGRICULTURAL RESEARCH

Dated: August 30, 1979

(CONFORMED COPY)

THIS SECOND AMENDATORY AGREEMENT is made and entered into this 30th day of August 1979 between the PRESIDENT OF PAKISTAN, acting through the GOVERNMENT OF PAKISTAN (Government) and the UNITED STATES OF AMERICA, acting through the Agency for International Development (A. I. D.).

WHEREAS A. I. D. has provided assistance to the Project consisting of: (i) a dollar loan in the amount of \$7,600,000 (Loan) obligated by the Loan Agreement dated April 30, 1974 (Loan Agreement) to finance technical assistance, training and commodities; (ii) dollar grants aggregating \$562,050 (Grants) obligated by A. I. D. Project Agreements Nos. 74-4, 75-1 and 76-3 (Project Agreements) to finance technical assistance; and (iii) a rupee grant in the amount of Rs. 73,500,000 (Rupee Grant) obligated by Project Agreement No. 74-4 to help finance local costs of new facilities, implementation of research programs and operational costs;

WHEREAS by the AMENDATORY AGREEMENT dated August 28, 1978, the Parties modified the Project by, inter alia:

- (a) redesigning the Project, including division into Phase I and a contingent Phase II;
- (b) entering into certain special covenants;
- (c) reducing the Loan amount to \$6,200,000;

- (d) decreasing the Rupee Grant from Rs. 73, 500, 000 to Rs. 53, 500, 000 with a projection of a total of Rs. 113, 500, 000 if it were decided to proceed to Phase II;
- (e) changing the Terminal Date for Disbursement under the Loan Agreement and the Final Contribution Date under the Grant Agreement to June 30, 1980; and
- (f) revising the Financial Plan accordingly;

WHEREAS the Joint Evaluation Panel has found that progress has been satisfactory and the Project should proceed to Phase II; and

WHEREAS the Parties are agreeable to further Project redesign with appropriate modifications of the Loan Agreement and the Project Agreement as amended by the Amendatory Agreement.

NOW THEREFORE the Parties agree as follows:

#### ARTICLE I

##### Amendment to the Loan Agreement

The Loan Agreement is amended by deleting Section 6.05.

#### ARTICLE II

##### Amendment to the Project Agreements

The Project Agreements are amended by:

- (a) increasing the total U.S. dollar grant amount from \$562,050 to \$762,050; and
- (b) deleting all references to "Estimated Final Contribution Date."

### ARTICLE III

#### Amendment to the Amendatory Agreement

The Amendatory Agreement is amended by:

- (a) deleting Section E of Article III and renumbering "F" to "E";
- (b) deleting Section C of Article IV and renumbering "D" to "C";
- (c) adding a new Article V as follows:

### ARTICLE V

#### Project Assistance Completion Dates

1. The "Project Assistance Completion Date" (PACD), which in the case of commodities and technical assistance financed under the Loan, technical assistance financed under the Grants and goods and services financed under the Rupee Grant, is June 30, 1981 and in the case of training financed under the Loan is September 30, 1982 or in any of the foregoing cases such other date or dates as the Parties may agree to in

writing, is the respective date by which the Parties estimate that all relevant services financed under the Loan or Grants or Rupee Grant will have been performed and all relevant goods financed under the Loan or Grants or Rupee Grants will have been furnished for the Project as contemplated in this Agreement.

2. Except as A. I. D. may otherwise agree in writing A. I. D. will not issue or approve documentation which would authorize disbursement of the Loan or Grants or Rupee Grant for services performed subsequent to the PACD or for goods furnished for the Project, as contemplated in this Agreement, subsequent to the PACD.
3. Requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, are to be received by A. I. D. or any bank described in Section 6.01 of the Loan Agreement in the case of commodities and technical assistance and Rupee financed goods and services no later than nine (9) months following the PACD and in the case of training no later than three (3) months following the PACD, or in any of the foregoing cases such other

period as A. I. D. agrees to in writing. After such period, A. I. D., giving notice in writing to the Government may at any time or times reduce the amount of the Loan, the Grants or the Rupee Grant by all or any part thereof for which requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, were not received before the expiration of said period.

and

- (d) renumbering Article V to "VI".

#### ARTICLE IV

#### FINANCIAL PLAN

A revised Financial Plan is attached hereto as Annex A and made part of this Agreement. Within the limits of each category of funding, the Parties may by Implementation Letter mutually agree to revise the Financial Plan.

#### ARTICLE V

#### INTEGRATION OF DOCUMENTS

In the event of any inconsistency between or among the provisions of the Loan Agreement, the Project Agreements, the Amendatory Agreement and this Agreement, the provisions of this Agreement

shall prevail. Except as modified by this Agreement, the Loan Agreement and the Project Agreements and the Amendatory Agreement shall continue in full force and effect.

IN WITNESS WHEREOF, the Government of Pakistan and the United States of America, each acting through its respective duly authorized representatives, have caused this Agreement to be signed in their names and delivered on the day and year first above written.

GOVERNMENT OF PAKISTAN

By: Sd/-

Name: Aftab Ahmad Khan  
Title: Secretary, Economic Affairs  
Division

UNITED STATES OF AMERICA

By: Sd/-

Name: Michael H. B. Adler  
Title: Director, U. S. A. I. E.  
Mission to Pakistan

Annex A

REVISED  
SUMMARY FINANCIAL PLAN  
FOR BOTH PHASE I AND PHASE II OF THE PROJECT  
(in 000)

	<u>Dollar Assistance</u> <u>Loan</u>	<u>Grant</u>	<u>AID Rupee</u> <u>Assistance</u> <sup>1/2/</sup>	<u>Government</u> <u>Local</u> <u>Currency</u> <sup>2/</sup>
	\$	\$	Rs.	Rs.
1. Technical Assistance	1,143	762.050	13,700	5,000
2. Training	2,364	-	4,900	2,000
3. Commodities	2,155	-	-	-
4. Priority Research	-	-	57,100	35,000
5. Operation of PARC	-	-	9,000	10,000
6. Construction of PARC	-	-	12,000	11,000
7. Off Campus Housing	-	-	5,500	2,000
8. Contingencies	538	-	11,300	4,000
	<hr/>	<hr/>	<hr/>	<hr/>
Total:	6,200	762.050	113,500	69,000
	=====	=====	=====	=====

1/ Obligation of Rs. 60.0 million in Phase II is subject to availability of funds to A.I.D. for this purpose and to the mutual agreement of the Parties to proceed.

2/ Any local currency expenditure pursuant to the Second Amendatory Agreement will consist of A.I.D. Rupee Assistance funds and Government Local Currency funds in proportion to the amount of the total Rupee contribution of the Parties as set out above.

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DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D.C. 20523

INTENSE REVIEW REQUEST

PAKISTAN: AGRICULTURAL RESEARCH LOAN

# PAKISTAN: AGRICULTURAL RESEARCH LOAN

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## INTENSIVE REVIEW REQUEST

### PAKISTAN: AGRICULTURAL RESEARCH LOAN

The purpose of this paper is to initiate intensive review of a proposed dollar loan in the amount of approximately \$8 million to the Government of Pakistan (GOP) to help finance a five year program for development of Pakistan's research capability.

This project seeks to improve both Center and provincial research institutions through the provision of equipment, training of professional personnel and improvement of research administration. The project further aims to support effective national research coordination through the Agricultural Research Council (ARC). Loan funds will be channeled through ARC, under the general policy guidance of the Ministry of Agriculture. The loan will be utilized to finance training in U.S. and international institutions, short and long term technical advisors, and specialized technical and farm production equipment for the research institutions.

Local currency funding will be supplied by an allocation of U.S.-owned rupees (Mondale Grant) and/or GOP budgetary contributions to ARC. We anticipate that the GOP contributions of both

foreign exchange and local currency would increase over the five year period to assume fully the support requirements of the expanded program by the completion of the project.

### I. Introduction

Agricultural research is no stranger either to the GOP or to the USAID Mission. Research activities in institutes and agricultural colleges predate partition. The ARC has its antecedents in British India. Similarly, USAID has supported agricultural research in Pakistan through technical assistance grants for many years.

The proposed project, however, marks a first attempt to marshal substantial resources of donor and recipient into an integrated five year program. The principal objective is to mount a major research effort to provide sufficient technology to achieve and sustain an agricultural growth rate of at least four percent a year. The proposal also represents a first effort in Pakistan to finance a research program with loan funds. As such, it reflects the GOP's considerable interest in agricultural research as a growth-generating activity.

The inception of this project lies in discussions between agricultural specialists of the GOP and USAID over the past two and one half years. But more recent events have pointed up the urgency and timeliness in developing a specific program during this fiscal year. In October, 1972 the Ministry of Agriculture requested a Pakistan-American Joint Review Team (JRT) to survey the present agricultural research system and to recommend steps for improvement. The JRT has now completed its report (copy of draft attached herewith) and discussions between center and provincial officials later this month are expected to yield an endorsement of its recommendations and ultimately a formal loan application. Meanwhile, the Special Assistant to the President for Agriculture (currently the Acting Minister of Agriculture) has strongly expressed his desire to undertake a major program for agricultural research.

The initial proposal which formed the basis for this IRR was jointly prepared by USAID and a representative of the ARC. Realizing, however, that many of the implementation details of the project will require further discussions both with AID/Washington

offices and with the GOP, we have tried in this preliminary document to focus only on the essential elements of the project. We have consciously attempted to preserve considerable flexibility to permit adjustments not only during the course of loan development, but even after inception of the project. In short we are trying to create an effective process for solving problems as they arise, rather than providing in advance all the solutions. In this exercise we look forward to AID/W assistance and counsel.

~~The prospect of tapping end-of-fiscal year funds will be perceived as additive assistance by the GOP and thus will help to overcome the absence of grant funded elements. For this reason, among others, time is of the essence. We strongly recommend therefore that this proposal be put under intensive review.~~

## II. Background

A. Institutions. Most of the agricultural research relating to crop production is sponsored by provincial Departments of Agriculture and takes place in provincial Agricultural Research Institutes (ARIs). These are located at Tarnab (North West Frontier Province), Lyallpur (Punjab), Quetta (Baluchistan) and

Tandojam (Sind). In addition there are provincial Veterinary Research Institutes (VRIs) located at Lahore and Peshawar. These institutes are responsible for producing the technology for advancing agriculture and animal health in their respective provinces. The number of substations of each Institute varies from one (in Baluchistan) to more than 40 (in Punjab). A few substations have research personnel in residence and carry out major research programs. The majority, however, are used as testing sites; they rely upon sub-professional staff and periodic visits by scientists from the provincial Institute. Funds for operating these institutions come from provincial budgets, grants from ARC, and PL 480. In most institutes about 60-70% of the budget supports professional staff salaries.

Three educational institutions (West Pakistan Agricultural University (WPAU) at Lyallpur, and the College of Agriculture at Peshawar and Tandojam) contribute to agricultural research. They are responsible to their respective provincial Departments of Education. Staff members are usually expected to allocate 25% of their time to personal research. Their research projects usually

involve scientists from one discipline. Most of the provincial budget for the educational institutions is earmarked for pay of establishment. Additional funds, allowing a greater expenditure for equipment and contingencies, are solicited from PL 480, ARC or other grant sources.

A few speciality institutes, most of them reporting to central ministries, are conducting agricultural or related research. These include the Cotton Research Institute (Multan), the Commonwealth Institute of Biological Control (Rawalpindi), the Irrigation Research Institute (Lahore), the Forest Research Institute (Peshawar), the Atomic Energy Research Center (Tandojam), and the Radiation Genetics Institute (Lyallpur).

Current research in Pakistan is characterized by an emphasis on single disciplines (often plant breeding), with little attention to agronomic practices, pest management, production economics, and water and soil management. Many scientists work on problems of personal interest which do not necessarily take into account national priorities and problems or local agricultural needs.

B. External Assistance. USAID and other donors have in the past contributed toward the development of research capability, but most of the research assistance has focused upon specific programs emphasizing production. Little effort has been made to establish the type of institutional infrastructure which will maintain the research system over time.

The first Pakistan-American joint review of agricultural research in 1968 recommended several fundamental changes in Pakistan's research system, including a restructuring of the ARC and the supply of an expatriate advisor for research capability development.

Implementation of the review recommendations was delayed by the splitting of West Pakistan into four provinces in July 1970, by the civil and international strife of 1971 leading to the separation of the former East Pakistan province, and by the lack of definition of provincial functions following the provincialization of West Pakistan. In spite of these deterrents, the Cabinet

decided in 1971 to implement the Review Team's recommendations with minor modifications.

During the 1970-1972 period an increased recognition of the importance of a national research system developed. The difficulties experienced by the previously functional national wheat research program drew attention to the need for a national coordinated approach and there was an increasing awareness that imported technology could not solve all of Pakistan's agricultural problems. During the period the provinces responded to the need for a concerted approach to research by forming provincial research boards. The functioning of these boards, the changes in organization and function of ARC and the persisting weaknesses in the research systems are discussed in the ARC-USAID publication, "Agricultural Research in Pakistan" (copy attached herewith).

Since July 1970, the Ford Foundation has provided assistance to the rice and maize production programs, including expatriate advisors, equipment for research stations, and program related training. Assistance supplied by U.N. agencies has helped

develop poultry research, veterinary research, plant quarantine, rodent control, and a soil survey. This assistance has included expatriate advisors, equipment and training. In addition, several other countries have provided small amounts of technical and financial assistance in development of research in Pakistan.

In the period from 1970 to the present, USAID has supplied very limited training of staff to support major research problem areas including eight candidates for advanced degrees in U.S. universities, short-term technical assistance in response to specific requests, short term training of seventeen research personnel, and a full-time U.S. research advisor to assist the GOP in the development of Pakistan's research capability. USAID assistance to the development of WPAU, extending over a number of years, terminated in 1971. Through the American University of Beirut program, USAID has sponsored 74 Master's Degree

In response to a request from the Secretary of Agriculture, the USAID in early 1973, <sup>HeL per</sup> arranged for a Pakistan-American Joint

Review Team (JRT) to carry out a second review of agricultural research in Pakistan. The JRT report, completed on March 10, underscored many of the recommendations of the 1968 Report.

Significantly, the JRT emphasizes the need for establishing a coordinated national research program under the overall guidance of ARC. The rationale for such an approach is twofold: (1) to ensure that available resources would be applied most efficiently in furtherance of national development goals, and (2) to facilitate systematic expansion of national research capability to meet anticipated future research needs.

The Team recommended that existing research facilities be strengthened and that a national research center (NRC) be established near the Capital to concentrate on specialized research (such as barani agriculture) and to provide a systematic program of germ plasm importation and screening.

The JRT recommended priorities for research support for each of the provinces and urged that new research activities fully reflect national priorities.

### III. AID Strategy

This is a five-year program of training, technical assistance and commodity support to strengthen the agricultural research system in Pakistan. Channeled through ARC, the Loan will provide foreign exchange for:

- professional training of Pakistani researchers and research administrators in US and international institutions.
- technical assistance to augment research efforts and in-service training in Pakistan research institutions and to advise ARC in planning and administering its program.
- offshore procurement of equipment and supplies for research institutions.
- establishment and operation of a National Research Center during the program period.

As evident from the paragraphs below on negotiating principles, loan conditions and covenants, we expect to establish in pre-Loan discussions and in Loan negotiations some stimulus for institutional development, budgetary commitment and national research planning. More importantly, we believe that the Loan and the dialogue associated with it will ~~establish~~ <sup>SUPPORT THE CURRENT PLAN</sup> agriculture as the <sup>commitment</sup> ~~country's~~ first priority. <sup>TO</sup>

Through reliance on intermediaries, external evaluators and the development of ARC capability, we expect to hold USAID involvement in Loan implementation to a minimum.

Since it includes both training and technical assistance components, the Loan will largely replace over time the grant assistance program for agricultural research currently provided under the "Agricultural Research, West Pakistan" Project (Number 660-296.2). The grant funded project should, however, continue to support at least one USAID technician in the field of Agricultural research as long as required. Furthermore, the grant project should be allowed to proceed to its contemplated

termination date with respect to training and other technical assistance. In this manner, the Loan funds will initially supplement and eventually replace (except for the USAID technician) the grant funded assistance.

#### IV. Objectives

This project has as its principal purpose the rapid expansion of national and provincial capability which will generate a continuing flow of agricultural technology to expand productive efficiency and sustain an adequate rate of agricultural growth. The proposed Loan is designed to develop a system with the following characteristics:

A. Major research problems in agriculture are systematically identified and addressed in specific projects.

B. An effective program is established for the screening and importation of applicable technology and germ plasm from other national and multi-national research centers.

C. Problem oriented multi-disciplinary approaches are emphasized wherever appropriate.

D. A process of continuing review ensures institutional balance between funds, personnel and facilities and equipment.

E. Periodic evaluation highlights future research needs and encourages policy makers to provide adequate support for research.

F. Major attention is given to the establishment of effective linkages between research, extension workers and farmers to facilitate a two-way flow of information.

G. Economic and social research ensures that economic and social values are taken into account in establishing research priorities.

A second objective of this project is to begin producing a substantially expanded flow of technical information which will

~~4. PAGE 17 ADD ITEM H. GET SUBSTANTIALLY INCREASED TRAINING OF RESEARCHERS AND FEEDBACK FROM PRACTICAL RESEARCH EXPERIENCE IN PAKISTAN, AS WELL AS CONTINUING LIAISON WITH OUTSIDE RESEARCH INSTITUTIONS, EVOLVES A STRONG SELF-SUSTAINING GROWTH IN NATIONAL RESEARCH CAPABILITY ~~UNLESS~~.~~

permit immediate improvement in output and increased efficiency in resource use in the production of major food commodities.

Particular attention will be given to those commodities in current domestic short supply, to those offering major export potential, and to those of principal importance in diets of low income people.

The production technology of small farmers will also receive attention. Current commodity research priorities would include wheat (over one million tons imported this year), oil seed (approximately 30,000 tons imported), pulses and livestock products.

Particular emphasis would be given to increased production of forages and feed constraints under the livestock priority.

Specific goals and targets will be established to the extent possible during the review process and procedures agreed upon for modification as necessary to ensure that the program is responsive to changing national needs and to differing rates of progress in achievement of various goals and targets. The following is an illustrative "progress indicators" chart (subject to further refinement) which will be time phased over the project life:

Progress Indicators

Beginning

Year 6

National coordinated research programs:

Wheat, maize

Wheat, maize strengthened, rice, sorghum, oilseeds, pest management, fodder and forage, animal husbandry (management, nutrition) added.

Personnel involved in national coordinated research programs:

30

200

Staff Capability in research institutions:

B.Sc. 374  
M.Sc. 439  
Ph.D. 33  
Practical 50

223  
467  
156 (year 8)  
193

Staff capability at WPAU:

B.Sc. 36  
M.Sc. 217  
Ph.D. 102  
Practical -

36  
197  
122 (year 8)  
20

## V. Project Description

Agriculture is the foundation of the Pakistan economy, providing approximately 60% of GNP and almost all of the export earnings. Currently growth in agricultural output and resource productivity is not keeping pace with domestic food and fiber needs and foreign exchange requirements. Inadequacies in research organization, staffing, and operations have been identified as a major factor limiting more rapid agricultural growth.

The proposed project will address that problem through provision of additional dollar and rupee funds to be utilized to achieve a rapid upgrading of research facilities and equipment, expansion of numbers and levels of training of staff, increase in amounts and flexibility of operating budgets and perhaps most important establish a system for coordinating research on a national basis to reduce duplication and ensure that multi-disciplinary team efforts are concentrated on key problems.

It is proposed to make a loan of approximately \$ 8 million to the Government of Pakistan to be used to finance dollar costs of imported equipment, foreign training and foreign technical assistance in support of the effort.

A single grant of U.S. -owned rupees will be made available to the GOP to augment local currency budget over the planned five year project life. These U.S. rupees will be drawn down heavily during the early years and GOP budget built up rapidly to pick up the total local costs after the five year period. Both the dollars and rupees will be managed by the Agricultural Research Council (ARC) which will have responsibility for implementation of the proposed research program. These funds will be utilized in support of the following major activities:

1. Organization and operations of a national research coordinating mechanism responsive to national priorities. This mechanism described in the 1973 Research Team recommendations will be designed to identify national needs and research requirements implicit in establishing national policies and by review and selective financing of on-going and new policies, ensure that these needs are fully reflected in the national research programs. It will also stimulate and finance national meetings of research technical committees working on specialized problems and liaison with researchers outside Pakistan.
2. Assist in development of provincial research capability and expansion of provincial research programs through financing of facility and staff development and financing of projects of priority importance.

3. Establishment and operation of a national research center located in Islamabad which will have the following functions:

A. Conduct research on barani areas of northern Pakistan including research on cereals, forage crops and their management, and potatoes.

B. Provide for systematic introduction of plant material and maintain a plant germ plasm bank.

C. Conduct research and provide technical guidance to the states on pest management.

D. Carry out economic research including research on production economics, farm management, marketing and selected policy and macro economic analysis to provide direction for researchers in priority selection. Economists attached to the center will also participate on interdisciplinary research teams.

E. Conduct research on other specialized problems not being adequately handled at provincial centers.

F. Establish and operate a provincial communications center providing communications materials for the center and providing training in communications.

G. Provide practical training on research techniques and methodology in various disciplines bearing on the established research priorities.

The national center is expected to be a focal point for agricultural research at the national level, including a high visibility to the national legislative and administrative bodies, a resource base for scientists deputed to talent-deficit institutions, an operations base for several national coordinators, and a center for liaison with the international research community.

## VI. Current and Projected Budgets

Rupee budget for existing agricultural research institutions in Pakistan this FY is about Rs. 12.5 million, an increase of about 15% over FY 72. The proposed program would increase the budget available to these institutions by about 10-15% (in real terms) per annum over a five year period, to about Rs. 25-30 million per annum in FY 1978. This will require Rs. 38 million additional funds. The colleges and WPAU currently have virtually no budget for research. We propose to make available about Rs. 8 million for additional research in these and other institutions over the five year period. The total of about Rs. 46 million will be made available primarily through the major national research programs, but grants for specialized research are also expected at WPAU and other institutions with specialized capabilities. The total cost of the research programs at existing institutions over the period would be about Rs. 110 million, with the Mondale grant supplying about Rs. 60 million (including rupees costs of training). Assuming the numbers of staff remain fairly constant (which will be generally encouraged), this would raise the per scientist expenditure from the current Rs. 14,000 to Rs. 30,000 (Compared to over \$40,000 in U.S. institutions.)

The rupee budget support for a national research center is estimated at Rs. 3 million per year, assuming a cadre of about 25 senior scientists. The expenditure per scientist man year is estimated at about Rs. 80,000 excluding capital development and plant maintenance. Assuming the physical plant costs Rs. 20 million, maintenance costs at 5% would be Rs. 1 million per annum.

The construction costs of a national center are initially estimated at Rs. 20 million. Physical plant needs were estimated from function and staff composition and based on local construction costs. ~~We expect to refine these substantially with information of similar costs from India.~~

Thus total rupee requirement for the period is about Rs. 160 million, with a Mondale grant covering about Rs. 100 million.

Dollar commodity needs in existing research institutions were estimated by discussing current resources and immediate needs in each major institution, then projecting these needs over a five year period. Currently identified needs are minimal and the demand for foreign exchange support for research can be expected to increase as programs ~~are~~ move more rapidly with

upgraded staff. Excluding the national center, about \$200,000 per annum will be needed in FX. This will purchase traction and tillage equipment, plot planters, threshers, sprayers, limited laboratory equipment, and pickup trucks for outreach facility.

The first estimate of FX costs for developing a national research center is about <sup>1.6</sup>~~\$~~ million, including \$500,000 for traction and tillage equipment, \$300,000 for initial laboratory equipment, \$300,000 for glasshouses, and about \$10,000 per senior scientist man year. These will be refined following receipt of information on operating and initial equipment costs at ICRISAT, IARI and the coordinated programs operating in India.

Technical Assistance demands identified within existing institutions are about 80 man years over the 5 year period. Our judgment is that the College of Agriculture at Tandojam is not prepared to efficiently utilize the technical assistance it envisions, and that the TA needs in other research institutes can best be supplied through national coordinated programs. Considering the need to develop research leadership in Pakistan, we expect to supply 8 technicians to the national research center. These include advisors to wheat, rice, production systems,

sorghum and oilseed national coordinators, and advisors to the central station director, station manager and production economics section. In each case the advisor should be available as soon as GOP has appointed his counterpart. Including 10 man years for unforeseen and short term consultants, we estimate the TA at 40 man years.

The staff training needed in each institution has been analyzed by the institution director. We have tempered these needs, considering the institution's current staff position, major priority research programs, ability of the institution to spare staff for training, the potential for training within Pakistan, associated costs, and have assumed the continued availability of AUB for masters level training. Dollar costs, assuming all practical training and half the doctoral training would have to be done outside Pakistan, and assuming 4 years for a Ph. D., would be \$3.4 million. Rupee costs would be about Rs. 7.6 million, including transportation for external training, the capitation fee at WPAU and grants to the home institution to offset part of the training costs.

7. PAGE 24 AT BOTTOM ADD NEW PARA QTE IN SUMMARY THE PRIORITY DOLLAR COSTS FOR THE FIVE YEAR DEVELOPMENT PERIOD WOULD TOTAL APPROX.

\$8 MILLION AND LOCAL CURRENCY COSTS APPROX RS160 MILLION WITH BOTH BASED ON LATE 1972 CURRENCY PURCHASING POWER. THE DOLLAR REQUIREMENTS ARE BROKEN DOWN AS FOLLOWS: COMMODITIES, NRC: \$1.6 MILLION, COMMODITIES EXISTING INSTITUTIONS \$1.2 MILLION, PARTICIPANTS TRAINING OUTSIDE PAKISTAN (1451 MAN YEARS) \$3.4 MILLION, FOREIGN TECHNICIANS (140 MAN YEARS) \$2.0 MILLION, TOTAL \$8.0 MILLION.

## VII. Economic and Financial Considerations

Imports of wheat this year will amount to approximately one million tons at a cost of nearly \$150 million. Vegetable oil imports will reach approximately 80,000 tons at a cost of \$25 to \$30 million. While imports of other grains and pulses have been negligible, it is evident that supplies, particularly of pulses and livestock products, are inadequate to meet needs. As a result, large numbers of people in Pakistan suffer from protein and calorie deficiencies. The nutritional problem results partly from misguided price and other agricultural policies. Although these policies seek to hold down food prices they often destroy production incentives, cause general shortages, and the loss of employment opportunities. As an example of the unemployment factor, it would have required nearly one million workers over the growing and harvest season to produce the one million tons of wheat and 80,000 tons of oil imported this year.

The extremely low prices of livestock discourage production. An estimated 150,000 male buffalo calves are abandoned to starve because the prices of meat are held too low for their economic exploitation. Similarly, other species tend to be inadequately fed,

cared for and developed. The price of beef is <sup>controlled</sup> established at <sup>under 0.5</sup> ~~approximately~~ 15 cents a pound <sup>of CARCASS</sup> and exports are prohibited to ensure its availability for low income people. While such policies serve the middle and upper income urban consumers, they deny to large numbers of rural workers the benefits of full employment.

Foodgrain import requirements for 1975 and 1980 are projected at 1.5 million tons and 4 million tons, respectively. In the absence of effective output-increasing policies and programs, the import cost will grow to more than \$400 million by 1980 for foodgrains and probably \$50 million or more for oils. Livestock export possibilities, particularly for beef, mutton, poultry and eggs in the immediate area are very substantial and growing rapidly. Illustratively, Iran currently imports approximately one million beef carcasses per year at a cost of \$ million. Pakistan could supply animal products to Iran and many of the other oil rich countries of the area.

<sup>Despite</sup> ~~With~~ the largest concentrated irrigation area in the world (approximately 31 million acres under effective water control), Pakistan's yields are <sup>very</sup> low. Similarly, the approximately eight million acres of barani cereal production and much larger area of forage and

range land yield an output only a fraction of what could be achieved with appropriate cereal and forage varieties and better management of land and water resources. As little as a one percent improvement in efficiency in agricultural production by the end of the project life would return approximately \$30 million per year, much more than the proposed investment in this program over 5 years. Potential exports of livestock products and wheat and oil import savings would pay the full dollar costs of the Loan in a single year.

In summary, agricultural output must increase by at least 4 percent per year for Pakistan to feed and clothe its growing population. Because the cultivated land area and available water are limited, the necessary rate of increase can only be achieved with a constant stream of new technology. Agricultural research is one of the essential elements of sustained agricultural growth. The Green Revolution, set in motion by new seed varieties, is a dramatic example of what effective research can accomplish.

This project is aimed at bringing about significant improvements in resource utilization and agricultural production. It will encourage the identification of principal policy disincentives, anomalies, resource and infrastructure deficiencies and the development of remedial actions.

**GIVEN POTENTIAL**

**THE GROWING FX NEEDS, PLANNED GROWTH IN GNP AND EMPLOYMENT, AND IN IMPROVED DISTRIBUTION OF INCOME, THE GOAL ON AGRICULTURAL GROWTH SHOULD BE CONSIDERABLY HIGHER, PERHAPS 6 TO 7 PERCENT FOR THE NEXT DECADE UNQTE.**

### VIII. Implementation Plan

#### A. The borrower and implementing agency

The GOP will be the borrower with primary implementation responsibility assigned to the Agricultural Research Council. Secondary research responsibility will be assigned the various provincial research institutions and organizations which, under grants from ARC , will carry out a major part of the priority research work, some of the training of research personnel and channel technical information to extension workers and farmers. A national research center will be established by the ARC with funds from this project and will be operated by the ARC. Its role as defined in detail in the 1973 Research Review Team report, would be primarily specialized research of national importance, training, economic analysis particularly related to policy, operation of plant introduction and plant protection and communication units.

To carry out its responsibility the ARC will be strengthened both in administration and technical capability by increases in staff and staff training as well as provision of specialized expertise from foreign advisors and consultants. The governing committee of the Council also will be expanded to bring in additional representation from the province research organizations, farmers and agro-industrial representatives.

The major weaknesses of the existing system addressed by this research project are:

1. Inadequate quantity and flexibility of operating budgets.
2. Inadequate numbers and training of professional personnel.
3. Inadequate facilities and equipment and library materials.
4. Inadequate communication among researchers within the country and <sup>with</sup> researchers in other parts of the world.
5. Inadequate communication with policy makers and others

identifying national priorities and with farmers and agro-industry.

As a result of these communication gaps research frequently reflects neither priorities established for the country nor the farmers views of their need and often does not get to the farmers, in any case.

#### B. Role of Intermediaries

The GOP and officials of ARC recognize that some outside expertise will be required in execution of the program and is considering alternatives before arranging for such professional input. The question of whether one or more contractors or other intermediaries will be utilized, has not yet been answered. It is clear that a strong link with the international research centers such as CIMMYT, IRRI, CIAP, etc. is desired by the GOP for the specialized commodities with which these institutions deal. However, there are some areas such as forage <sup>grasses</sup> and forage legumes and oil seeds, which would be accorded a high priority but for which no international centers

yet exist. Neither do international institutes exist for such supporting inputs as economics, marketing, credit, agricultural policy research. For these specialized needs the GOP likely will attempt to establish a relationship on a bilateral basis. The AID loan proceeds will be available to finance, to the extent required, support groups from international institutes, (e. g., IRRI, CIMMYT, etc. as well as contract costs of such support procured from the U.S. institutions. In addition to providing consultants and long term advisors these intermediaries would be expected to provide specialized training and assist in identification of equipment requirements and assist in procurement of specialized equipment.

While AID may provide some advice and counsel on alternatives, the selection of intermediaries and contracting with them will be the responsibility of the GOP with funds made available for this purpose from the dollar loan through letters of credit.

#### C. Implementation scheduling

Detailed plans for this project have not yet been developed and the research team report provides mainly general guidelines rather than detail. Substantial detail will be evolved during the intensive review processes including schedules for major inputs and outputs for at least the first year's operations. It is anticipated that detailed plans for the first year will be completed by the time the

loan is signed and general schedules worked out for the next two to three years. By the end of the first year it should be possible to complete fairly detailed plans through the third year of operation and a general scheduling for the entire five years.

Work on the national research center will be started immediately but likely will take the next two years to become fully functional. As a result during the first two years major emphasis will be on improvement of existing provincial stations and conduct of priority research activities at these sites stimulated and supported by proceeds of the loan and grant. The coordinating mechanisms including national technical committees should become fully functional within the first six to twelve months.

A system of evaluation and review will be established as described below to ensure that projects and programs are carried out according to schedule.

#### D. Financial administration

Dollar loan funds will be released in tranches tied to periodic reviews by GOP, AID, and external evaluators as described in detail in Section IX. The local currency contribution of AID similarly will be released in semi-annual increments based on budgets submitted by ARC and reviewed and approved by the Ministry of Agriculture and AID. Budget support of the provinces and the center and their timely release will be considerations in making decisions on release

of both dollar tranches and semi-annual rupee advances.

E. Mission role and staffing requirements

The USAID Mission will support the GOP to the extent required in implementation of the research program to be financed by the proposed loan. In the early phases, probably the first two years, it is anticipated that significant start up problems will be required. During this period the Mission will assign a full time AID officer experienced in agricultural research as AID's project manager, and will provide some additional support from other AID officers. During this period the GOP will, of course, have full responsibility for all aspects of the project including selection of a contractor or contractors, procurement, staffing, etc.

After the project has begun to function smoothly AID involvement would be limited strictly to its statutory requirements for loan implementation and monitoring. Its substantive role would be limited largely to participation with GOP in periodic review and evaluation required for decisions on tranche releases of dollars and rupee fund advances. With the elimination of the full time direct hire research advisor after the first two years of operation, principal responsibility within AID would be assigned to the Agriculture Officer working in consort with other interested offices in the Mission (CD, CO, Legal, Program).

IX. Negotiating Principles, Loan Conditions and Covenants

Specific policy requirements for the loan will evolve from further discussions with the GOP. Similarly, we can expect to refine the goals and procedures for implementation in discussions with AID/W. The institutional and policy framework for the loan will be tempered in pre-loan discussions with Center and Provincial officials and ultimately in loan negotiations with the Economic Affairs Division (EAD). With these caveats in mind, we may summarize in general terms the policy and implementation approach envisioned.

A. Minimum requirements prior to loan authorization

As a first step, we expect from the GOP a strong endorsement of the need for strengthening the agricultural research system. This would probably come in the form of official action upon the Joint Review Team Report just released. We would want GOP assurance that the Center and Provinces are acting in concert and that no substantial conflict exists which would jeopardize project implementation. We understand that the central Ministry of Agriculture plans to solicit comments from the provincial Departments of Agriculture and that we will be apprised of the results of their discussions later this month. In debriefing the USAID Mission on March 9, the Team expressed its view that the Team Report would be accepted by provincial officials.

Since the major thrust of the loan is the development of ARC as a viable coordinating institution, we need a GOP commitment to channel the loan funds through the Council, to vest in it the authority to administer a national research system and to provide such additional capability in ARC as required for its "executing agency" role under the loan.

If the GOP desires to move ahead on the development of a national research center (as we have reason to believe will be the case), such a decision should be communicated to us. We need to know the proposed size, scope and location of the facility in order to refine our cost estimates.

Finally, we require a satisfactory GOP commitment to provide local currency support during the entire project period, and to provide in its budget for full support of the expanded program from the sixth year on. This increased rupee funding in early years could be provided totally or partly through a Mondale rupee grant (which we would prefer) or through the normal GOP budgeting process. The latter we fear might not occur<sup>as</sup> early as the project. We would want an undertaking of the Government of Pakistan to continue both rupee and foreign exchange support at expanded levels to the research system after AID funding is exhausted, and would expect to see GOP budget systematically increased from the first year to reach the

required levels by the sixth year. If major shortfalls occurred AID could take necessary action to modify its inputs at an early date.

We expect that all of the foregoing assurances and undertakings will find satisfactory expression in the formal GOP loan request. We also look forward to having for inclusion in the loan paper a jointly-developed implementation plan establishing the workability of the entire project.

B. Minimum requirements prior to loan agreement signing

Before signing the loan agreement, we want to be assured that the GOP has formulated a workable process for personnel management (recruitment, pay and promotion policies) in both the ARC and national center. This may be achieved either within the existing bureaucratic framework or by establishing separate service rules. The primary objective is to attract and keep qualified scientists in their specialty fields. We want to know that if one approach fails to achieve the objective, additional efforts will be made until the problem is solved.

As evident from the paragraphs above, ARC's role in the project is critical. We need assurance that ARC has the physical capability and bureaucratic standing to implement its many responsibilities. It is unclear at present whether ARC should become an autonomous body rather than continue its relationship with the central Ministry of Agriculture. Probably the prudent course would be to continue the

existing arrangement with an understanding that alternative organizational approaches will be adopted if the present one proves inadequate. As a minimum we need to know that sufficient personnel for ARC and the national center are available to utilize the initial phases of technical assistance under the loan (particularly in administration and procurement areas.)

In order for the National Research Center to be eligible for financing, the GOP should have initiated the process of obtaining necessary rights-of-way to land required for the Center.

With respect to local currency requirements for the entire project, definite steps establishing a commitment of Government resources should be taken prior to loan signing. If Mondale rupees are to be used, the ProAg covering such a grant should be signed before the loan agreement or concurrently with it. ~~If normal budgeting~~

10. PAGE 36 PARA 2 CHANGE LAST SENTENCE TO READ QTE IF FUNDS ARE TO COME FROM THE REGULAR GOP BUDGET, WE SHOULD BE ASSURED THAT SUFFICIENT FUNDS FOR THE ENTIRE PERIOD ARE RESERVED WHEN THE PROJECT IS INITIATED UNQTE.

#### C. Conditions precedent to disbursement

We envision a tranching arrangement for the loan which would be tied to periodic reviews by external evaluators and AID. Under this process, releases of funds would not only be time-phased but they would be tied to the specific accomplishments necessary to utilize the particular inputs under the project. Contributions for the

National Research Center, for example, would be deferred until the necessary land rights have been acquired. While contributions under an initial tranche might permit the recruitment of consultants to assist in planning for the Center, commodity procurement (for laboratory and field equipment) would be conditioned upon the establishment of a work plan and architectural/engineering studies acceptable to USAID.

Similarly, initial disbursements for research project commodities would depend upon: (i) the promulgation by ARC of detailed guidelines for research project selection and commodity procurement satisfactory to AID and (ii) the establishment of equipment procurement and maintenance offices within ARC. We would not, however, want to defer financing the recruitment of technicians who could assist ARC in developing such guidelines and equipment capability.

Under the tranching approach, initial disbursements would largely be directed toward the provision of technical assistance, training and the establishment of a national research center. Subsequent disbursements would fund specific research projects and commodity items, including short- and long-term advisors.

#### D. Covenants

In order to restrict the statement of Covenants to specific activities which can be objectively monitored, it may be desirable to include more generalized policy goals in the Preamble ("Whereas" clauses) of the loan agreement. These would include such project purposes as the following:

- 1) increasing "linkages" among research, educational and extension organizations in Pakistan;
- 2) increasing "linkages" among local, international and foreign research institutions;
- 3) the intention of the GOP to recognize agricultural research as supportive of national priorities and to encourage research in such areas which benefit the small farmer and poorest consumers.

The "Covenants" section would include commitments by the Government:

- to establish and review each year national research priorities;
- to cooperate fully with the external review teams;
- to study service rules affecting research scientists in the non-autonomous agencies and to establish an implementation plan for correcting their major constraints to efficient management of research personnel.

-- to provide sufficient local currency during the project period and to maintain both local currency and foreign exchange support at expanded levels after project funding terminates.

X. Evaluation and review

Initial establishment of adequate review and coordination mechanisms will be the key to effective utilization of the funds in achievement of the objectives outlined. The Research Review Team report, accepted by central government officials, stresses the need and outlines recommendations for continuing review of research activity and planning for new activities in relation to national goals. It stresses also national coordination of research, establishment of linkages with outside research organizations. The general guidelines on review and evaluation set forth by the Research Review Team will be followed. In addition, an annual review will be carried out with the Ministry of Agriculture and USAID cooperating. This will form the basis for both dollar and rupee fund release and related program decisions. In addition, it is planned to bring in outside members for a biannual review of total research progress in the country and the effectiveness of AID's contribution. This team would include Pakistani representatives as well as representatives from the U. S. and

one or more other countries. While its recommendations would go beyond the USAID supported project, it is expected that these would be extremely valuable in making decisions on the USAID supported project.

## XI. Issues

The most serious issues currently foreseen center about:

1. Role of ARC vis-a-vis other research institutions in Pakistan and the extent to which it will be able to carry out its expanded coordination function.

2. GOP financial and administrative procedures particularly covering personnel and application of operating funds.

3. GOP commitment to and probability of actual release of adequate local currency to meet program needs.

4. Establishment and implementation of adequate review procedures with the GOP.

5. Several national policies currently in force which appear to seriously discourage investment by farmers in new technology and general agricultural modernization.

It is anticipated that other issues will be included in the intensive review process and will be dealt with in the loan paper.