

PROJECT AUTHORIZATION

PD-MC-913

1. Project Number 931-15-110-525	3. Country	4. Authorization Number 0007
2. Project Title International Rice Research Institute		5. Authorization Date
		6. PROP Dated

7. Life of Project

a. Number of Years of Funding 1 yr. : b. Estimated Duration of Physical Work After Last Year of Funding:

Starting FY 1968 : Terminal FY 1968 :

8. Funding by Fiscal Year (in U.S. \$ or \$ equivalent)	Dollars		P.L. 480 1/	Local Currency			
	Grant	Loan		U.S. Owned		Host Country	
			CCC + Freight	Grant	Loan	Jointly 2/ Programmed	Other
Actual FY	400						
Operational FY							
Budget FY							
B+1 FY							
B+2 FY							
B+3 FY							
All Subsequent FYs							
Total	400						

9. Describe Special Funding Conditions or Recommendations for Implementation.

10. Conditions of Approval of Project.

(Use continuation sheet if necessary)

11. Approved in substance for the life of the project as described in 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 also 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

M/

Title

Date

1/ Use Block 9 to record kinds and quantities of ...

AID 1280-1X  
(7-71)

DEPARTMENT OF STATE  
AGENCY FOR  
INTERNATIONAL DEVELOPMENT

1. Cooperating Country  
TA BUREAU : 8622

Page 1 of 1 Pages

PIO/T

PROJECT IMPLEMENTATION  
ORDER/TECHNICAL  
SERVICES

2. PIO/T No.  
931-0826

3.  Original or  
Amendment No. \_\_\_\_\_

4. Project/Activity No. and Title 910-0826  
International Rice Research Institute  
(IRRI)

DISTRIBUTION

5. Appropriation Symbol  
72-11X1023

6.A. Allotment Symbol and Charge  
402-31-099-00-20-71

6.B. Funds Allotted to:  
 A.I.D./W  Mission

7. Obligation Status  
 Administrative Reservation  Implementing Document

8. Funding Period (Mo., Day, Yr.)  
From 01/01/77 To 12/31/77

9.A. Services to Start (Mo., Day, Yr.)  
Between continuing and \_\_\_\_\_

9.B. Completion date of Services  
(Mo., Day, Yr.) 12/31/77

10.A. Type of Action  
 A.I.D. Contract  Cooperating Country Contract  Participating Agency Service Agreement  Other Grant Agreement

10.B. Authorized Agent

AID/W

Estimated Financing		(1)	(2)	(3)	(4)
		Previous Total	Increase	Decrease	Total to Date
11. Maximum A.I.D. Financing	A. Dollars		2,800,000		2,800,000
	B. U.S.-Owned Local Currency				
12. Cooperating Country Contributions	A. Counterpart		FUNDS REQUESTED BY <i>RCIS</i>		
	B. Other		FOOTNOTED <i>2/1/74</i>		

13. Mission References

14. Instructions to Authorized Agent

SER/CM is requested to execute a Grant Agreement between AID and the International Rice Research Institute to provide partial financial support to that organization's core budget needs. The proposed program is included in Attachment A. Report requirements are contained in Attachment B.  
Method of payment will be by FRLC.

These funds represent part of AID's contribution of up to 25% of the total CGIAR center's budget requirements.

15. Clearances - Show Office Symbol, Signature and Date for all Necessary Clearances.

A. The specifications in the scope of work are technically adequate

TA/AGR: GBaird *GBaird* Date: 11/11/76

B. Funds for the services requested are available

TA/PPU: CMolfetto *CMolfetto* Date: 12/3/76

C. The scope of work lies within the purview of the initiating and approved Agency Programs

TA/AGR: LHesser *LHesser* Date: 12/1/76

D.

TA/PPU: MMozyński *MMozyński* Date: 12/6/76

E.

TA/AGR: DClerk *DClerk* Date: 11-26-76

F.

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: Mr. John Gunning

Title: Chief, TA/PPU

18. Date of Signature

12/1/76

*Wesley* 12/8/76

**ATTACHMENT A**

**PROGRAM PROPOSAL**

**International Rice Research Institute (IRRI)  
(P.O. Box 933, Manila, Philippines)**

**January 1 - December 31, 1977**

**I. OBJECTIVES**

The International Rice Research Institute (IRRI) has as its broad objectives the enhancement of the world's capacity to meet goals of increased output and increased efficiency in the production of rice and associated crops in developing countries; and of improving the well-being of those who produce and utilize rice. IRRI achieves its objectives through research and training programs aimed at helping rice farmers produce more food. Most of the effort is devoted to rice, both that grown under lowland (paddy) and upland conditions. The systems in which rice is grown are receiving attention through a comprehensive multi-disciplinary program with research locations in different agro-climatic regions of South and Southeast Asia.

**II. BACKGROUND**

Good weather conditions in most tropical Asia promoted record rice production in 1975. The crises situation which characterized the previous three (3) years was relieved appreciably.

Nevertheless, the world's rice stocks are still low. And long term forecasts suggest an ever increasing shortfall of food for the heavily populated nations of the developing world. Unless crop production trends of the past are improved, a massive inflow of food must come from outside sources or millions in the developing countries face starvation.

Since its organization in 1960, IRRI has contributed to the efforts of scientists and farmers to increase the production of rice in the developing countries, particularly those in Asia. IRRI scientists joined their counterparts from other rice producing countries to redesign the tropical rice plant. Their efforts yielded varieties which would stand erect even in typhoons, would respond with improved yields to added fertility, and would utilize the sun's energy more efficiently than the traditional rices. They developed management practices to suit the new varieties and improved man's knowledge of the processes through which the rice plant produces more grain.

The remarkable yield performance of the new rices and associated technologies encouraged scientists to try to incorporate into rice varieties other desirable characteristics, such as good eating quality according to human preferences and nutritional qualities, particularly the protein content.

Genetic resistance to disease and insect pests were soon incorporated into these new varieties to improve rice plant's resistance to major rice pests and diseases.

Building upon these early successes, IRRI scientists have accelerated their attempts to evaluate and utilize the genetic potential of the rice plant. They discovered natural variability in the world's rices among the 36,000 accessions in the IRRI germ plasm collection.

Working in collaboration with their counterparts in national programs, IRRI scientists are methodically evaluating rice accessions for their resistance to diseases, insect pests, drought, deep water, temperature extremes, and adverse soil conditions. They are intent on producing and testing rice tailored to the specific growing conditions, favorable or poor, where rice crop is grown. Like-wise, their efforts to find improved production practices, including those involving innovative cropping systems, to help small, low-income farmers increase their rice production are being intensified and expanded.

The distribution of IRRI's research and training programs is classified according to different types of rice culture. An approximation of this distribution for 1977 in terms of the beneficiaries of IRRI research results is presented:

Irrigated rice .....	39%
Rainfed (bunded) rice .....	32%
Upland (unbunded) rice .....	23%
Deep water rice .....	6%

### III. ACTIVITIES

#### A. Genetic Evaluation and Utilization:

The primary goals of this interdisciplinary program are the collection of different rice cultivars, the systematic evaluation of their abilities to resist or tolerate natural enemies, and, through selective breeding, the incorporation into new rice varieties of as many as possible of these desirable genetic characteristics; i.e., high yields, resistance to diseases and insect pests, high level of protein, and others. Most of the screening to identify such favorable characteristics is performed at the IRRI headquarters, although an increasing amount is done in cooperation with scientists in national programs. Through the International Rice Testing Program, promising genetic materials from IRRI and from national programs are then furnished to cooperators to evaluate and to use in their national breeding programs.

**B. Control and Management of Rice Pests:**

In this program, cultural, biological, and chemical means are used in combination to manage rice pests such as insects, diseases, and weeds. Increasing efforts are made to develop integrated methods of pest control. Special attention is given to the field evaluation of low cost control and management techniques. The potential ability of the farmer and village processors to adopt new practices is a major consideration of this program.

**C. Irrigation Water Management:**

This program encompasses the development and testing of improved systems of delivering irrigation water to rice farmers and research on the socio-economic factors that can ensure the continued performance of these systems. Such a program is important because water management is a critically limiting factor in rice production, especially during the non-monsoon seasons.

**D. Soil and Crop Management for Rice:**

This program is concerned with soil characteristics which affect rices and with the effect of soil management, nutrient inputs, and crop culture practices on rice yields. The current concern for the efficient use of fertilizer by rice plants coupled with the high costs of these chemicals have made this a priority area. Additionally, different sources of biologically fixed nitrogen including algae, Azolla (water fern), and the rice rhizosphere are being examined as potential sources of nitrogen for the rice plant.

**E. Environment and its Effect on Rice:**

Environmental factors, such as solar radiation, humidity, light, and others, that affect rice plant growth and the response of rice to environmental differences and changes are studied in this program. The effects of microclimate differences on rice insects and diseases and the comparative responses of different rice varieties to environmental changes are investigated.

**F. Constraints on Rice Yields:**

The socio-economic, management, institutional, and policy constraints which prevent rice farmers from adopting high-yielding practices are evaluated and methods to remove those constraints, particularly the ones which research can help remove, are identified. A network of cooperators in national programs are utilizing standardized techniques to ascertain constraints on rice yields in each cooperating country.

**G. Cropping Systems:**

Ascertaining and developing productive and practical cropping systems which involve rice in different agroclimatic zones of the rice growing areas of the world are components of this study area. Rice based cropping systems, the newest of IRRI's research programs, offers a great potential for increasing world food production. Among the systems being studied are: (a) simple changes which permit one or more crops in addition to rice, and (b) more complex systems which involve inter-cropping, sequential cropping, and integrated control of pests.

**H. Machinery Development:**

This program includes the testing of machinery for use by small farmers and small millers and considers the local capabilities to manufacture, market, and use the products developed through this IRRI program. Primary emphasis is placed on the design and development of machinery for: (a) crop production, (b) post-harvest handling of rice on farms and in villages, and (c) crops grown in systems which include rice. Encouragement of timely operations which will both increase the amount of food delivered to the consumer and permit maximization of labor inputs is top priority in this program.

**I. Consequences of New Technology:**

The social and economic consequences of the new rice varieties and the associated new technologies are evaluated in this program. The effects of the new rices and the associated technology on income distribution, labor requirements, changes in size of land holdings and on overall economic development are assessed. This is a new program area, although some research has been done in previous years under the category of constraints on rice yields.

**J. Training:**

Training is an integral part of the above program areas, and training is complementary to the research component of these programs. Training helps supplement that given in national programs and is of two types: (a) production-oriented short courses focused on either rice production or on the production of rice-based cropping systems, and (b) research-oriented on-the-job training programs.

Since 1962 when the training program was initiated, 1,055 trainees have participated in IRRI's regular training programs, and more than 1,000 have taken the 2-week short courses devoted to rice production. Practical field problems are emphasized in both the 6-month and 2-week training courses.

More than 430 participants have been institute scholars or fellows, most of whom have accomplished their academic work at the University of the Philippines at Los Banos. As of the end of 1975, 69 post-doctoral fellows had participated in IRRI's training program. The effects of such training programs can be seen in the quality of research done in national programs.

Training components of the expanded international networks were continued in 1976 and included cropping systems, Genetic Evaluation and Utilization (GEU), International Rice Testing, agron-economic constraints and farm machinery development. Short term on-the-job training at IRRI is being emphasized, although some practical training will be accomplished through visits by IRRI scientists to cooperating country programs.

K. International Programs:

IRRI's international program continued to provide services designed to improve national capabilities and to carry out collaborative research and network activities to help solve problems affecting rice production across a wide range of environmental conditions.

For example, in 1975, IRRI sponsored four different workshops and conferences which brought together about 300 scientists to review results of cooperative work and to develop plans for future cooperation in different areas. Also, IRRI continued to supply rice literature and publications, germ plasm, and improved genetic materials to rice scientists around the world. During 1975, 205 rice scientists from 28 different countries participated in formal degree training and on-the-job training at IRRI.

IRRI was involved in cooperative country projects designed to strengthen national capabilities in Bangladesh, Indonesia, the Philippines, and Sri Lanka; 20 IRRI scientists worked in these projects. The \$1.3 million budget for these country projects was provided by seven different donors. New projects are being negotiated with Pakistan and Sri Lanka.

The improvement of national capabilities enables IRRI to shift the emphasis in its international activities from cooperative country projects to other appropriate mechanisms to ensure long-term linkages and continuing collaboration with national research centers.

IRRI's collaborative project in India implemented under an agreement with the Indian Council of Agricultural Research yielded valuable information on the range of variation in brown plant-hoppers and helped to identify new sources of resistance to the insect. It is proposed that this project be expanded to strengthen regional collaboration in the Indian subcontinent. Also, IRRI has developed memoranda of understanding with CIAT in Latin America and IITA and WARDA in Africa to provide a basis for IRRI's collaboration in rice research on a regional basis in those geographical areas.

A major goal of IRRI's international program is to establish effective linkages with national research centers. For this purpose, IRRI continued to strengthen international networks which have facilitated and accelerated exchange of ideas, research methodologies, and research products not only between IRRI and individual national programs, but also among national programs. These networks reflect IRRI's recognition that research programs must be linked to multi-locational investigations and its research products must be evaluated across a wide range of environments to ensure that they are relevant to national needs. The four networks currently being implemented are the International Rice Testing Program, International Rice Agro-Economic Network, Rice Cropping Systems Network, and Farm Machinery Development Network.

IV. CAPITAL EXPENDITURES

A total of \$2,945,000 will be needed in 1977 to complete or initiate work on the following building/facilities at IRRI:

- A. Genetic Resources Laboratory
- B. Dormitory
- C. Greenhouse - headhouse facilities
- D. Develop 190 hectares of land



REPORT PROVISIONS

- A. The following reports shall be prepared:
1. One hundred (100) copies of the Comprehensive Annual Report on overall program and fiscal matters for the entire calendar year for which the grant was made;
  2. Five (5) copies of a report describing proposed program and funding requirements for the ensuing calendar year (due by June 1977);
  3. Five (5) copies of such other reports as may be prepared or requested from time to time on various other program activities.
- B. The indicated number of copies of the above stated reports shall be submitted to the Technical Specialist indicated below:
- Dr. Guy Baird  
Associate Director, Research  
Technical Assistance Bureau  
Office of Agriculture  
Agency for International Development  
Washington, D. C. 20523
- C. Additionally, one copy of each report shall be submitted to the Grant Officer whose name appears on the Grant.

AID 1980-1X (B-70)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	1. Cooperating Country Worldwide 3148606	3. <input checked="" type="checkbox"/> Original or Amendment No. _____	
		2. PIO/T No. 931-11-130-826-73		
		4. Project/Activity No. and Title International Rice Research Institute		
		PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES o/c 259		

DISTRIBUTION	5. Appropriation Symbol 72-11X1023		6.A. Allotment symbol and Charge 403-31-099-00-20-41		6.B. Fund. Allotted to: <input checked="" type="checkbox"/> A.I.D./w <input type="checkbox"/> Mission	
	7. Obligation Status <input checked="" type="checkbox"/> Administrative Reservation <input type="checkbox"/> Subobligation				8. Funding Period (Mo., Day, Yr.) From 1/1/74 to 12/31/74	
	9.A. Service to Start (Mo., Day, Yr.) Between 1/1/74 and _____				9.B. Completion date of Services (Mo., Day, Yr.) 12/31/74	
	10.A. Type of Action <input type="checkbox"/> A.I.D. Contract <input type="checkbox"/> Cooperating Country Contract <input type="checkbox"/> Participating Agency Service Agreement				Other: <input checked="" type="checkbox"/> GRANT AGREEMENT	
	10.B. Authorized Agent					
	AID/W					
	Estimated Financing		(1)	(2)	(3)	(4)
	\$1.00 =		Previous Total	Increase	Decrease	Total to Date
	11. Maximum A.I.D. Financing	A. Dollars		\$1,100,000		\$1,100,000
		B. U.S.-Owned Local Currency				
12. Cooperating Country Contributions	A. Counterpart					
	B. Other					

FUNDS RESERVED BY

*JMB*

POSTED 1-18-74

SER/EM/CSD

13. Mission References	14. Instructions to Authorized Agent
	<p>This PIO/T requests the Contract Office to execute a grant with the International Rice Research Institute (IRRI), in the amount of \$1,100,000 for CY 1974. These grant funds will be utilized by IRRI as a part of their overall CY 1974 work plan attached as A. Other donor contributions are a part of this work plan. Special provisions are attached as Attachment B.</p> <p>The use of these AID funds shall be attributed exclusively to the core budget portion of IRRI's overall budget.</p>

15. Clearances - Show Office Symbol, Signature and Date for all Necessary Clearances.			
A. The specifications in the scope of work are technically adequate		B. Funds for the services requested are available	
TA/AGR, S. Litzenberger	<i>[Signature]</i> Date: 1/20/74		
C. The scope of work lies within the purview of the initiating office and approved Agency Programs		D.	
TA/AGR, O. Kelley	<i>[Signature]</i> Date: 1/21/74	TA/PM, C. Fritz	Date:
E.		F.	
TA/AGR, J. B. Cordaro	<i>[Signature]</i> Date: 1/21/74		
TA/AGR, G. Baird	<i>[Signature]</i> Date: 1/21/74		

16. For the cooperating country: The terms and conditions set forth here - are hereby agreed to	17. For the Agency for International Development	18. Date of Issuance
Signature and date	<i>[Signature]</i> Signature: David G. Mathiasen, TA/PM	
Title:	Title: Assoc. Ass't. Administrator	

The International Rice Research Institute (IRRI)

Statement of Work

January 1, 1974 Through December 1974

The overall objective of this Grant is to strengthen the worldwide network of international and national institutions engaged in rice research, consulting, extension and training activities.

In addition to its principal activity of rice research and training, IRRI is engaged in limited work on multiple cropping. Expansion of the multiple cropping project into a comprehensive multi-disciplinary program of research to improve cropping systems for the rice-growing areas of South and Southeast Asia is envisaged starting in 1974. For this expansion, new staff, land, and laboratory facilities are needed. Additional facilities and staff are also requested for research on up-land rice.

The International Rice Research Institute (IRRI) has as its broad objectives the enhancement of the world's capacity to meet goals of increased output and increased efficiency in the production of rice in developing countries. IRRI is one of the six international centers supported by the Consultative Group (CG) on International Agricultural Research. The U.S. is a donor member of the CG and through AID is committed to provide up to 25% of the combined core and capital budgets of IRRI.

**A. The IRRI Program**

IRRI programs concentrate on these activities:

1. Spreading the benefits of modern technology,
2. Built in resistance to insects and diseases,
3. Distribution of improved genetic material,
4. Lowering the cost of insecticide use,
5. Understanding disease outbreaks
6. Growing rice without irrigation
7. Upland rice,
8. Nutritive value of rice.
9. Varieties for deep water,
10. New weapons in the war on weeds,
11. Low cost zinc deficiency remedy,
12. Nitrogen fixation,
13. The rice plant and its environment,
14. Cropping systems,
15. Power tillers,
16. Socio-economic aspects of modern technology,
17. Training,
18. Outreach.

**B. Specifically**

1. Today's seed-fertilizer technology is largely suited to more favorable environments. But most rice-growing areas have highly unstable environments: insects, pathogens, and unreliable water supply limit the adoption and profitability of the new technology. In fact, rice has more serious insect enemies than any other cereal crop. The pests can be controlled with chemicals, but the cost is high. To spread the benefits of research to more people, today's technology must be improved. Much of IRRI's current research is aimed at making the technology more successful in unfavorable environments and at lowering the costs and reducing risks of producing high yields.

2. The high yield potential and outstanding grain quality of IR22 and IR24 have not been enough to gain them wide acceptance from farmers. But IR20, which has resistance to several diseases and insects has become the most popular variety in the Philippines, South Vietnam, and Bangladesh, although its yield potential is lower than that of IR22 or IR24. The lesson is that new varieties must have resistance to most major insects and diseases. And such varieties are on the way.

The most promising selections now in advanced testing are IR1529-680-3, IR1541-76-3, and IR1514A-EGG6. These selections are all resistant to bacterial blight, blast, and green leafhopper. The IR1541 and IR1514A lines are also resistant to tungro and brown planthopper and moderately resistant to sheath blight. The IR1529 line is moderately resistant to tungro. All three selections have good grain quality and high yield potential. Seed of these three selections is being multiplied and one or more may be named a variety this year.

More recent selections now in the fourth and fifth generations have such a broad spectrum of resistance to insects and diseases that they could be grown without chemical protection on farms in many areas. Selections from IR2061 and IR2153 have high-level resistance to brown planthopper, green leafhopper, grassy stunt virus, tungro virus, bacterial blight, blast and moderate resistance to bacterial leaf streak.

Unfortunately no genetic source of high resistance to stem borers has been found in IRRI's varietal collection. As a result most new selections have at best a moderate level of resistance to this insect. Current studies to improve the level of resistance through genetic recombination following crosses between partially resistant lines has shown promise and will be continued.

3. IRRI's role in creating improved genetic materials for use by national research programs in building new varieties is expanding. During the last year, IRRI has supplied 69 countries with over 10,000 seed samples of its breeding lines and unimproved varieties from the germ plasm bank. Many countries have reselected genetic lines developed at IRRI and released them as varieties. Other than varieties named by IRRI itself, 23 IRRI lines have been named commercial varieties in 15 nations, including six varieties named during the last 12 months.

4. Research on cropping systems led to significant findings about the effect of crop combinations on insects and weeds. In one study, corn planted alone had six times as many corn borer larvae as corn in which peanuts had been interplanted. In another study, corn planted alone yielded substantially less grain than corn in which mungbeans had been interplanted. The mungbeans reduced weed growth without competing severely with the corn. The high productivity and biological stability of such crop combinations have important implications for modern tropical agriculture.

IRRI's multiple cropping program will show a marked expansion of research on areas of key importance to the intensification of cropping patterns in tropical Asia. The goal will be to increase the productivity of farm resources and raise income levels on farms that produce rainfed or irrigated rice as the main crop during the monsoon season. The focus will be on rainfed areas because improved cropping systems for these areas will benefit a majority of the rural population, but intensive cropping systems will also be developed for fully irrigated areas. The program comprises research, information dissemination, and training. A separate proposal giving detailed information on the program of work and the facilities needed is being submitted to the Technical Advisory Committee.

SUPPORT TO IRRI

	<u>Actual Support - 1973</u>	<u>Anticipated Support - 1974</u>
Canada	\$ 100	\$ -
IDA	120	-
Rockefeller Foundation	620	700
U.K.	345	485
U.S. (AID)	725	1,100
Ford Foundation	750	750
IDRC	-	350
Japap	229	280
Others	<u>004</u>	<u>1,075</u>
Total	\$2,893	\$4,740

## Special Provisions

### 1. Reports

A. The following reports shall be submitted to the TA/AGR Technical Specialist as stated in B below:

(1) Comprehensive Annual Report on overall program and fiscal matters for CY 1974 in 100 copies.

(2) Report prepared in connection with annual International Centers Week. (This report will describe proposed program and funding requirement for CY 1975 in five copies)

(3) Reports that may be prepared from time to time on various program activities.

B. The AID/Technical Specialist is: Dr. Guy B. Baird  
Associate Director Research  
Technical Assistance Bureau  
Office of Agriculture  
Washington, D.C. 20523

General Grant/Program questions can be addressed to:

Mrs J. B. Cordaro, Chief  
Program Division  
Technical Assistance Bureau  
Office of Agriculture  
Washington, D.C. 20523

who serves as alternate Technical Specialist to Dr. Baird.

C. In addition to the report requirements of A above, Grantee shall send one (1) copy of the technical and annual reports (items 1 and 3 above) to all AID Missions. Grantee will be advised, by the Technical Specialist, of these recipients and changes as they occur.

### 2.

A. PIO/ T is subject to AID regulations governing grants of funds.

B. Except as specifically authorized by AID/W, all services financed with funds from this grant agreement must be obtained from U.S. sources.

C. Except as specifically authorized by AID/W, the purchase of commodities financed under this PIO/T must be limited to the U.S. under Geographic Code 000.

D. The Federal Reserve Letter of Credit (FRLC) method of financing is to be used and funds are to be advanced periodically as needed by the Grantee in accordance with AID's terms and conditions for such reimbursement.

AID 1280-1X (7-71)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	1. Cooperating Country	
		2. PIOT No. <b>931-11-130-826-73-3168612</b>	3. <input type="checkbox"/> Original or Amendment No. <b>9</b>
		4. Project/Activity No. and Title <b>International Rice Research Institute (IRRI)</b>	

DISTRIBUTION	5. Appropriation Symbol <b>93-11X1073</b>	6.A. Allotment Symbol and Charge <b>496402-91-099-0C-20-01</b>	6.B. Funds Allotted to: <input type="checkbox"/> A.I.D./W <input type="checkbox"/> Mission
	7. Obligation Status <input type="checkbox"/> Administrative Reservation <input type="checkbox"/> Implementing Document		8. Funding Period (Mo., Day, Yr.) From <b>9/16/75</b> To <b>9/30/76</b>
	9.A. Services to Start (Mo., Day, Yr.) Between _____ and _____		9.B. Completion date of Services (Mo., Day, Yr.)
	10.A. Type of Action <input type="checkbox"/> A.I.D. Contract <input type="checkbox"/> Cooperating Country Contract <input type="checkbox"/> Participating Agency Service Agreement <input checked="" type="checkbox"/> Other <b>Grant Agreement</b>		

10.B. Authorized Agent					
Estimated Financing		(1)	(2)	(3)	(4)
		Previous Total	Increase	Decrease	Total to Date
11. Maximum A.I.D. Financing	A. Dollars		1,790,000		1,790,000
	B. U.S.-Owned Local Currency		<del>2,400,000</del>	FUNDS RESERVED	<del>2,400,000</del>
12. Cooperating Country Contributions	A. Counterpart			POSTED	9/16/75
	B. Other			SET/EM/CD	

13. Mission References

14. Instructions to Authorized Agent

The Contract Office is requested to execute a Grant Agreement between the IRRI and AID for CY 1976. The funds provided represent AID's contribution of up to 25% of the core and capital budget of that Institute.

The program to be conducted is included as Attachment A. Special Provisions are contained in Attachment B.

Use of the funds shall be attributed to both the core and capital portions of IRRI's overall budget.

15. Clearances - Show Office Symbol, Signature and Date for all Necessary Clearances.

A. The specifications in the scope of work are technically adequate	B. Funds for the services requested are available
SA/ACR: <b>GRBaird</b> Date: _____	SA/ACR: <b>Cholfetto</b> Date: _____
C. The scope of work lies within the purview of the initiating and approved Agency Programs	D.
SA/ACR: <b>WESSER</b> Date: _____	SA/ACR: <b>WOLYAKI</b> Date: _____

16. For the cooperating country: The terms and conditions set forth herein are hereby agreed to	17. For the Agency for International Development	18. Date of Signature
Signature and date: _____	Signature: _____	
Title: _____	Title: _____	

The International Rice Research Institute (IRRI)

Program Description

January 1, 1976 through December 31, 1976

The overall objective of this Grant is to strengthen the worldwide network of international and national institutions engaged in rice research, consulting, extension and training activities.

- ✓ The International Rice Research Institute (IRRI) has as its broad objectives the enhancement of the world's capacity to meet goals of increased output and increased efficiency in the production of rice and associated crops in developing countries; and of improving the well-being of those who produce and utilize rice. IRRI is one of the twelve international centers supported by the Consultative Group (CG) on International Agricultural Research. The U.S. is a donor member of the CG and through AID is committed to provide up to 25% of the combined core and capital budgets of IRRI.

IRRI achieves its objectives through research and training programs aimed at helping rice farmers produce more food. Most of the effort is devoted to rice, both that grown under lowland (paddy) and upland conditions. The systems in which rice is grown are receiving attention through a comprehensive multi-disciplinary program with research locations in different agro-climatic regions of South and Southeast Asia.

The two major components of the research and training (R & T) program at IRRI are : (a) rice production and (b) cropping systems in which rice is grown. Each of these programs requires interdisciplinary research and training efforts at the IRRI headquarters in the Philippines as well as coordination with cooperative national research and training programs in rice-producing nations.

A. The IRRI Program

IRRI's research and efforts is organized into eleven interdisciplinary research and training programs. These will permit sharper focus on the applied problems of rice productions and utilization. These programs and the approximate percentage of budgetary allocation to support them for 1976 are:

Genetic evaluation and utilization.....	34%
Control and management of rice pests.....	11%
Irrigation water management.....	4%
Soil and crop management.....	9%
Environment and its effects on rice.....	3%
Post-harvest management of rice.....	1%
Constraints on rice yields.....	4%
Increased rice yield potentials.....	1%
Cropping systems.....	23%
Machinery development.....	8%
Consequence of new technology.....	2%

## B. Specific Objectives

### 1. Genetic Evaluation and Utilization of Rice

The primary goals of this interdisciplinary program are to collect and systematically evaluate the abilities of different rice strains to resist or tolerate natural enemies, and, through selective breeding, to incorporate into new rice varieties as many as possible of these favorable genetic characteristics, i.e., high yields, resistance to diseases and pests, high levels of protein, and others. Most of the screening to identify such favorable characteristics is done at the IRRI headquarters. Through the International Testing Program, samples of promising genetic materials are then furnished to cooperators to evaluate and to use in their national breeding programs.

### 2. Control and Management of Rice Pests

Cultural, biological, and chemical means are used in this program to manage insect, disease, and weed pests of the rice plant. Special attention is given to the field evaluation of low cost control and management techniques. The potential ability of the farmer to adopt new practices is a major consideration of this program.

### 3. Irrigation Water Management

This program encompasses the development and testing of improved systems of delivering irrigation water to rice farmers and of innovative social organizations to assure the continuation of these systems. This activity is

important because water management appears to be a critically limiting factor in rice production.

#### 4. Soil and Crop Management for Rice

This program is concerned with soil characteristics which affect rice and with the effect of soil management, nutrient inputs, and crop culture on rice yields. The current concern for fertilizer efficiency and the high prices for these chemicals have made this a priority area.

#### 5. Environment and its Effect on Rice

Environmental factors, such as solar radiation, humidity, light, and others, that affect rice plant growth and the response of rice to environment differences and changes are studied in this program. The effects of micro-climate differences on rice insects and diseases and the comparative responses of different rice varieties to environmental changes are investigated.

#### 6. Post-harvest Management of Rice

Storage, processing, distribution, and marketing of rice are considered in this area, with emphasis placed on small farm operations. A relatively small part of IRRI's research and training funds are used in this program since production problems appeared to require attention first.

#### 7. Constraints on Rice Yields

The evaluation of socio-economic, management, institutional, and policy constraints which prevent rice farmers from adopting high-yielding practices, and the determination of methods to remove those constraints are components of this program. Particular attention is given to those constraints which research can help remove. A network of cooperators in national programs are utilizing common techniques to ascertain constraints on rice yields in each cooperating country.

#### 8. Increasing Rice Yield Potentials

This program encompasses activities, including basic research, directed toward gaining new knowledge to enhance the productive potential of the rice plant. This research is aimed primarily at breaking through existing biological and ecological barriers to improving rice productivity.

#### 9. Cropping Systems

Ascertaining and developing productive and practical cropping systems which involve rice in different agroclimatic zones of the rice-growing areas of the world are components of this study area. Cropping systems, the newest of IRRI's research programs, offers great potential for increasing world food production. Among the systems being studied are: (a) simple changes which

permit one crop in addition to rice, and (b) more complex systems which involve intercropping, sequential cropping, and integrated control of pests.

#### 10. Machinery Development

This program includes the testing of machinery for use by small farmers and small millers; consideration is given to the indigenous capabilities to manufacture, market, and use the products developed through this IRRI program. Primary attention is given to the design and development of machinery for: (a) crop production, (b) post-harvest handling of rice on farms and in villages, and (c) crops grown in systems which include rice. Encouragement of timely operations which will not only increase the amount of food delivered to the consumer, but also will permit maximization of labor inputs is top priority in this program.

#### 11. Consequences of New Technology

Evaluation of the social and economic consequences of the new rice varieties and the associated new technologies are components of this program. Particular attention is given to effects on income distribution, labor requirements, changes in size of land holdings and effects on overall economic development. This is a new program area although some research has been done in previous years under the category of constraints on rice yields.

#### C. Distribution of Research and Training Programs

It is difficult to accurately classify the distribution of IRRI's research and training programs as they relate to different types of rice culture. The following is an approximation of this distribution for 1976 in terms of the beneficiaries of IRRI research results:

Irrigated rice.....	37%
Rainfed (bunded) rice .....	35%
Upland (unbunded) rice .....	23%
Deep water rice .....	5%

#### D. Training

IRRI staff and institutional support for the research training of young scientists and educators from the rice-growing areas of the world is included in each of the research programs above. Some of the recipients of training at IRRI are enrolled in formal degree programs at the University of the Philippines at Los Banos. Others participate in practical on-the-job short courses which prepare them for field-oriented research and training programs in their home countries.

In 1975 we initiated training components of the expanded international networks. Special training programs have been started in cropping systems, CEU, International Testing, agro-economic constraints and farm machinery development. Short term on-the-job training at IRRI is being emphasized, although some practical training will be accomplished through visits by IRRI scientists to cooperating country programs.

#### **E. Outreach Activities (international program)**

The ultimate test of new technologies and varieties developed at IRRI is in the farmers field, not only in the Philippines but wherever rice is grown. To evaluate new and innovative practices and genetic materials under a wide range of agro-climatological conditions, strong cooperating national research organizations are needed. IRRI is intensifying its efforts to cooperate with and strengthen these organizations through its outreach program.

Efforts are being expanded to help cooperating countries by furnishing biological materials and sharing results from the IRRI programs. In addition, IRRI is assisting selected rice-growing countries through special cooperative projects which provide for resident IRRI scientists to work as members of national teams. Furthermore, the Institute collaborates with researchers in these countries on international testing programs, such as those designed for evaluating new lines and varieties for insect and disease resistance, and those involving cooperative fertilizer and pesticide trials. Cooperative planning efforts with Bangladesh, Pakistan, Sri Lanka, and Indonesia focus on the long range rice research and training needs in these countries. A collaborative program has been established with India whereby research and training of mutual benefit can be accomplished. In addition, formal and on-the-job training programs were conducted at IRRI for 157 scientists and educators from 24 countries.

In 1974, 20 senior scientists worked in six countries, in special research and training activities in the international program. The total budget for the special projects supporting the international program in 1974 was \$2,040,000 and was provided by eight different donors.

#### **F. Capital Investment**

In 1975, \$3,267,000 was budgeted for capital construction items and equipment. These funds were intended primarily for the construction of a new laboratory/training conference center, the initial development of the newly acquired land areas, the construction of six staff houses, and the construction of a number of smaller field and greenhouse units.

Inflationary costs have prevented the complete implementation of the planned construction program. The laboratory/training conference complex is being constructed but additional funds will be needed in 1976 for its completion. Only 5 of the 6 staff houses will be constructed in 1975 and the planned renovation of old laboratories will be delayed until next year. Likewise, the land development is well under way, but the major costs for this activity will be borne in 1976.

The \$2,273,000 requested for capital items in 1976 includes \$120,000 to provide a 20-day working capital and \$2,153,000 for capital construction and equipment. The specific items to be funded are as follows:

1. Completion of the laboratory/training center complex
2. Renovation of existing buildings
3. Staff houses
4. GEU screening facilities
5. Farm building and development
6. Microwave system/mini computer
7. Genetics resources laboratory (initial phase)

International Rice Research Institute  
Proposed Budget Requirements

1 January - 31 December 1976

1. Core Operations

Research	\$4,058,000
Conferences/Training	348,000
Library, etc.	434,000
General Administration	624,000
General Operations	999,000
Other	214,000

Total Core	<u>\$6,677,000</u>
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2. Capital Expenditures	2,273,000
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Total Net Budget Requirements	<u>\$8,950,000</u>
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## Attachment B

### Special Provisions

#### A. Capital Expenditures

Grant funds within the amount stated in paragraph 1 of the basic grant letter may be used for new construction, alterations or improvements to buildings fixtures or facilities (up to 25% of the total grant).

#### B. Reports

1. The following reports shall be prepared and submitted to A.I.D. as stated below:

(a) One hundred (100) copies of the Comprehensive Annual Report on overall program and fiscal matters for the entire calendar year for which the grant was made;

(b) Five (5) copies of the report prepared in connection with the annual International Centers Week. (This report will describe proposed program and funding requirements for the ensuing calendar year.)

(c) Five (5) copies of such other reports as may be prepared or requested from time-to-time on various other program activities.

2. Copies of the above stated reports shall be submitted to the Technical Specialist who also should be consulted on questions of a technical nature;

Dr. Guy B. Baird  
Associate Director Research  
Technical Assistance Bureau  
Office of Agriculture  
Agency for International Development  
Washington, D. C. 20523

Additionally, one copy of each report shall be submitted to the Grant Officer whose name appears on the grant.

3. The TA/AGR program specialist should be consulted on questions of a general program/budget nature at the following address :

John W. Wiles  
Program Analyst  
TA/AGR, AID  
Washington, D. C. 20523

4. Questions concerning the administration of the grant by its terms and conditions shall be addressed to the Grant Officer.