

Desk Rice Research
Project file

3860379 (8)

PD-AAD-122

NESA/TECH - Dr. James M. Blume

August 28, 1970

AA/NESA - Edward M. Vinson

2p

India Audit Report No. 7-386-71-7 - International Rice Research
Institute (IRRI) Contract No. AID/nesa-303, Rice Research
Improvement Program Project No. 379

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Attached is an extra copy of the subject audit report for your review and any action which NESA/TECH may consider appropriate. A copy of this report has previously been distributed to your office and the India Desk by the Area Auditor General.

Although the five recommendations presented are assigned to the Office of Agricultural Development, USAID/India for action, the auditors' general discussion of the project, as well as the specific findings and recommendations, will be of interest to NESA/TECH.

A Summary of Major Findings is presented on pages 3 and 4 and you will note in several sections of the report that the USAID Office of Agricultural Development has either not concurred in conclusions of the auditors or considers the discussion of findings by the auditors irrelevant or oversimplified.

The following recommendations and comments by the auditors are of especial interest:

- a) Recommendation No. 1 (see discussion pages 8 and 9) would require amendment of the contract with IRRI, Contract No. AID/nesa-303, and thus would involve action by the USAID and NESA/CO.
- b) In the second paragraph on page 10 the auditors question whether the financing proposed by AID "until fiscal year 1973" would provide adequate time for achieving desired results of the project.

- c) Page 15-16 - The auditors indicate laboratory equipment and supplies amounting to \$150,000 have been delayed more than two years and have not yet been purchased for the project by GOI. The report states "GOI does not appear to share the concern of USAID/I and IRRI personnel and as of early February 1970 had not accepted responsibility for undertaking the procurement; in fact, they were still talking in terms of having IRRI fulfill its contractual procurement commitments which no longer exist." The auditors report that "the work is reaching the stage where further substantial delays in securing the equipment will definitely hinder the program."
- d) Page 25 - The report states that IRRI had advised that existing laboratory space provided by GOI was not adequate but that GOI had initiated action to construct laboratory buildings. The auditors' inference here is that the project has already been delayed by the lack of these facilities and will be further limited by any delay in construction of the buildings.

Attachment - a/s

cc: NESA/SA - CHRecs
NESA/SA - RMuscat L

67-73

request file - 3860379/315
"DRAFT"

3860379(9)

PROP (Revision) RICE RESEARCH IMPROVEMENT

PD-AAD-122

Trans Fambly?

U.S. Obligation Span: FY 1974 through FY 1979

was the
approved

Physical Implementation Span: FY 1975 through FY 1980

not approved

I. Summary Description

15p.

A. Necessity/Justification/Significance

The rice research project has introduced a highly productive pattern for improving agricultural production potential. The All-India Coordinated Rice Improvement Project (AICRIP) assisted under this project has established a pattern of joint research that utilizes U.S. and third country nationals in multi-discipline and multi-location research. This approach has resulted in the release of 15 varieties by the Central Varietal Release Committee and has advanced several hundred crosses into wide scale testing prior to consideration for release. Improved rice varieties were planted on 20% of the 1970-71 rice acreages. The GOI now recognizes the value of the AICRIP approach and has directed the project staff to accelerate their rice research program and make the benefit of this program more widely available.

The GOI has recognized the value of this institution and taken a decision to establish a permanent headquarters. The staff positions were created in May 1971 and a period of 1-3 years may be required to fill the staff positions. The purpose of this PROP revision is to provide for continuation of the USAID input through the period of permanent staff building. This support would enable the rice research program to continue at a high level of productivity.

B. Project Purpose (Goals and Targets)

To support the total agricultural strategy of a 5% growth rate in agricultural production, the purposes of this project are to:

1) accelerate and improve rice research in India by strengthening the operational aspects of the All-India Coordinated Rice Improvement Project (AICRIP), and

2) improve the research capabilities of rice research personnel so that promising rice varieties and improved cultural practices are made available to farmers.

C. Conditions Expected at End of Project
(Minimum Levels of Achievement)

Highly productive, disease and insect resistant varieties along with the package of cultural practices for the major rice producing regions and seasons of India. A research organization, staff and facilities which will have the capability to continue to identify and incorporate genetic improvement as required in the rice varieties and make these available through Commercial Seed Producers to Indian farmers. This program will be coordinated by a well-staffed and well equipped headquarters capable of guidance and assistance to rice research throughout India.

D. General Approach/Plan of Action:

The general plan is to provide a small contract team of rice scientists (six in disciplines of major importance for rice improvement) to conduct research with counterparts at AICRIP's national headquarters and to back-stop and monitor the research of AICRIP cooperators. This team arrived in FY 1968. All of AICRIP's cooperators are rice scientists working at State,

University and Central experiment stations.

The contract specialists will provide leadership in developing and designing cooperative trials to be conducted simultaneously each season throughout the country. In addition, through on-going research at AICRIP's national headquarters, they will provide short-term, specialized on-the-job type training for selected cooperating scientists.

The IRRI will also make available consulting scientists for short periods to visit India and investigate special problems which arise. Additionally, it is planned that long-term (6 to 12 months), post-graduate type research training and study will be provided at IRRI for promising and responsible researchers in subject matter areas important to rice production in India.

Using Trust Fund rupees, AID will support production improvement demonstrations, seminars, and field trials so as to accelerate programs and increase the effectiveness of contract operations.

Through semi-annual, national workshops for AICRIP cooperating scientists, research results will be presented, analyzed and discussed, and new programs developed. The workshops will provide opportunities for scientists from different regions to get acquainted, exchange information and develop an appreciation and understanding of the need for coordination and cooperation in research.

E. Summary Description/Tabular Breakdown of the Required Life of the Project Financial Inputs:

- TO BE COMPLETED

II. Setting or Environment

Rice research in India, which has a relatively long history of scattered effort dating back to the first decade of the Twentieth Century, is undergoing rapid change. In a short period of six years, India has broken with the past, organized its resources and put together a functioning rice research program which has far exceeded expectations.

In 1965, the Government of India through the Indian Council of Agricultural Research (ICAR) initiated the All-India Coordinated Rice Improvement Project (AICRIP). Proceeding on approval in principle from the GOI, ICAR, with the help of the Rockefeller Foundation, received encouragement and breeding materials from the International Rice Research Institute (IRRI), Philippines, and with the cooperation of the Indian States and agricultural universities established a headquarters for the AICRIP on the campus of the Andhra Pradesh Agricultural University at Hyderabad and began operations. Coordinated research trials were initiated during the winter season of 1965-66; thus the AICRIP actually got underway before final GOI financial approval was obtained in 1968. Rs. 11.3 million of Central Government financing have been approved for the period 1968-71. Through a contract with IRRI, USAID is providing the services of experienced rice research experts to work with Indian scientists in strengthening the AICRIP. The IRRI continues to supply breeding materials and occasional technical consultants.

AICRIP's growth and progress has been just short of remarkable. There is a headquarters staff of 25. Through an organizational structure which divides the country into seven zones and 12 regional centers representing regional and area ecological conditions, the AICRIP develops and conducts

experiments at up to 30 locations during a cropping season. The field staff consists of 200. At many locations, two crops a year, kharif and rabi, are grown. Conferences and workshops for AICRIP scientists are held twice a year where results, problems and solutions are discussed and specific plans for the next season are made. The AICRIP headquarters staff, including AID/IRRI personnel, visit and backstop the zonal, regional and local testing sites and personnel and monitor the research underway. Each year, two reports based on the results of the previous cropping season are published and distributed widely. Significant research results to date include the development and release of: two high-yielding rice varieties of Indian origin and a "package of production practices" for the major rice growing areas.

The initial successes of AICRIP, as significant and important as they have been, when viewed against the total rice improvement problem represent only a small beginning. Considered alone, rice, as a crop plant, poses difficult and diverse problems for the researcher.

The fact that rice is grown widely throughout India and is a major food item, perhaps the food, for up to three-fourths of the population gives an indication of the nature and magnitude of the problem. Rice is grown from sea-level to 6000 feet, and on soils which vary from deep loams and clays to shallow laterites, with reaction ranging from extremely acidic to highly alkaline. At some places deep water rice is grown in 15 to 20 feet of water; at other places rice is grown under sub-humid conditions where the rainfall barely reaches 20 inches. In some areas, a single crop is produced once a year, in others, three crops are grown in succession on the same land in a year.

A rice crop may be of 70 days duration or it may take upto seven months to mature, and it can produce reasonable yields under widely differing sunlight and atmospheric conditions of the Indian summer, autumn, and winter. Thus, rice in India - *Oryza sativa*, sub-specie *indica* -- has undergone a selection and adaptation process over the millennia which has resulted in a large number of varieties suitable for use under widely varying conditions. It has been reported that at least 4000 varieties of rice are grown in India. In practically every area or district where rice is grown, there are local varieties which have adapted to the prevailing soil, climatic and biological conditions in line with local needs and preferences for food and fiber -- varieties which are in equilibrium with a particular environment. The implications for research and improvement are clearly apparent.

The technical problems of rice improvement are further complicated by matters of consumer acceptance. Indian consumers tend to prefer slender, fine-grained, non-sticky, aromatic qualities which so far have not been closely associated with high-yielding characteristics. Consumer preference is reflected in prices. The price difference for high over low quality rices may be as much as 100%. The wide price difference can and does act as a disincentive to the spread of the lower quality, higher-yielding rices. Thus, a major concern and problem is that of developing high-yielding, fertilizer-responsive rice varieties which incorporate quality factors acceptable to the Indian consumer.

The quality orientation of rice research in India over the years may be responsible, in part, for general lack of progress in

increasing rice yields in India. From the earliest years, research has been devoted primarily to selection and breeding for quality and better adaptation to prevailing conditions. As a consequence of this approach, Indian scientists developed varieties with outstanding grain quality and adaptation to Indian conditions. Maximizing yields under high levels of fertilization and management did not receive adequate attention. Fertilizer Research that was carried out was compromised by the inherent yield limitations of varieties selected for grain quality rather than yield. In retrospect, considering the existing conditions between the 1930's and the mid-1950's, the direction of research was logical and reasonable. Few commercial inputs, such as fertilizers, were available or in prospect; further, there was no pressure of permanent foodgrain shortages.

Research programs in rice expanded rapidly over the years and by 1960 there were 82 rice "research stations" throughout the country. Practically all of them were controlled and operated by the individual states with little coordination and exchange of information. The Centre Government's first attempt to concentrate and coordinate rice research occurred in 1946 when it took over the Cuttack station in Orissa. Established in 1932, this station was renamed the Central Rice Research Institute and reorganized to undertake fundamental research in all aspects of rice, investigate problems of wide applicability, and act as a center and source of authoritative rice information.

By the late 1950's, concern was developing over impending food problems and pressures began to mount to increase rice yields. At this

time, the Center made another attempt to coordinate rice research programs and introduced a program, with FAO's help, to improve the yields of local indica varieties by cross-breeding with selected, high-yielding japonica varieties. The program was generally unsuccessful and was finally abandoned. ADT-27, an improvement over existing local varieties and currently popular in the Tamil Nadu area, is one of the few successes of the program.

When the full weight of the food crisis fell in the mid-1960's, India possessed a rather large and extensive rice research set-up which was largely uncoordinated, tradition-bound, in the doldrums, and generally not in line with prevailing needs. On the positive side, some excellent work had been done, facilities existed, and there were sizeable numbers of rice scientists and workers.

Spurred by the example of the IRRI and the overwhelming need to make improvements, the ICAR was able to sell the idea of AICRIP and a project headquarters - research center at a new location free from existing influences. In the few short years of its existence, AICRIP has demonstrated the value of team work and the inter-disciplinary approach to the solution of problems.

The All-India Coordinated approach has proven to be a highly productive program. The program is best illustrated by Figures 1 & 2.

Figure 1 - Progress of AICRIP Testing Program

Figure 2 - Number of AICRIP variety tests conducted in various stages of tests, 1966-1970

This success resulted in the GOI reaching a decision in May 1971 to appoint a permanent AICRIP headquarters staff. The AICRIP

coordinator is now responsible directly to the Indian Council of Agricultural Research and will have a staff of five research fellows and twelve research assistants. It is expected that about one-half of these positions will be filled by early 1973 and it may take until 1975 to bring the staff to full strength with the high caliber of personnel desired for this program. In a conference called by the Secretary of Agriculture on September 1971, the GOI's desire to further accelerate the pace of rice research and the spread effect of known technology was emphasised. The AICRIP Coordinator and all research and extension personnel were reminded of the importance of the rice crop and the vital importance of further accelerating their efforts. These developments are ample evidence that the GOI recognizes the worth of the AICRIP approach and is a major accomplishment of the project thus far.

The transition from temporary to permanent status while accelerating the pace of research and improving the dissemination of research findings is a major undertaking and will require a continuation of assistance for five years. The continued coordinated assistance of USAID, Rockefeller Foundation and Ford Foundation provide the amount and kinds of assistance necessary for firmly establishing AICRIP as a highly productive and permanent institution.

III. Strategy

A basic element of Mission strategy has been and continues to be to encourage and support, with available resources, the development of beneficial agricultural programs. A consequence of this strategy has been an agreement with the GOI to support rice research improvement

as a means of achieving their/our goals in agriculture which we are helping support (See FY 1970 Program Memorandum).

Efficiency in resource utilization has been a major criterial and guide in determining the kind, magnitude, and point of U.S. assistance to rice research in India. Fortunately, the structure and operations of the AICRIP provide an unusual opportunity for channeling assistance. Through a relatively modest input of technicians and participants at the headquarters of AICRIP, practically all organized rice research in India can be reached and influenced.

This aid activity complements other Mission agricultural activities and projects, and is consistent with AID's agricultural program objectives to increase food production and enhance the capabilities of the institutions involved. In addition to make possible immediate material and human benefits through increased rice production, the project supports and fosters a concept of unity and cooperation for the achievement of national objectives.

IV. Planned Targets, Results & Outputs:

The ultimate goal of this project is a growth rate in food grain production of 5% per year. Within this context and India's planned target of achieving food self-sufficiency and raising standards of living the specific conditions to be achieved by this project are:

1. Research-oriented towards increasing rice yields;
2. Headquarters fully staffed with qualified personnel;
3. Headquarters buildings, other facilities and equipment adequate;
4. Adequate AICRIP Budgets.

5. Active AICRIP program utilizing modern techniques and including:

- (a) Breeding and testing of thousands of progeny rows with trials in at least three stages throughout the country;
- (b) Major research programs in Entomology, Agronomy, Physiology and Agricultural Engineering;
- (c) In-service and workshop training and coordinating programs for improving research competence;
- (d) Coordination in transfer of improved rice production from AICRIP through various agencies to the farmer;

6. An estimated 40 million acres planted in high yielding varieties with average yield increases of 2000 to 4000 pounds per acre and with grain quality such that prices realized will be 90% of that traditional variety or higher.

The specified output to be achieved during the continuation of this project are:

- 1. 5 varieties to be released annually after approval of the Central Varietal Release Committee of the GOI.
- 2. Each cropping season thousands of progeny rows of selected crosses incorporating desirable characteristics will be under observation and testing at Hyderabad and 30 locations throughout India. Programs of comparable magnitude will be conducted in agronomy, entomology, physiology, and agricultural engineering.

- (a) In-service training of 30 junior staff and annual research workshops involving 50 rice scientists;
- (b) Participant training for 75 research staff members in advanced research techniques;
- (c) Rice production seminars, conferences and other sessions will improve the competence of 200 extension workers and similar staff.

V. Course of Action:

The outputs of this project will be achieved by providing, under a contract with IRRI, (a) experienced rice scientists to work with Indian counterparts at AICRIP headquarters and with AICRIP cooperators throughout the country in designing, conducting and analysis of field experiments and laboratory research on identifying better rice varieties and production practices; (b) short-term consultants to assist with specialized problems of urgency; (c) in-service and associate training for cooperating Indian scientists at AICRIP headquarters; and (d) specialized training in rice research for Indian scientists at IRRI. The inputs of this project will be phased out as Indian capabilities are developed and assistance efforts are no longer of high priority.

In addition to UNID inputs provided under this project, an India-based IRRI/Rockefeller Foundation scientist will act as contract Chief of Party and AICRIP Joint Coordinator. The Rockefeller Foundation and Ford Foundation will continue to support the project with grants, consultants and special equipment needs.

The ICAR support to the project is estimated at \$400,000 per year. Cooperating stations also will utilize state resources for staff and program support. AID will use Trust Fund rupees to support the contract technicians and thereby accelerate research and training programs at AICRIP headquarters.

Contract Technicians

	75	76	77	78	79
Plant Physiologist	-----				
Agronomist	-----				
Entomologist	-----				
Pathologist	-----				
Communication--	-----				

Consultants

Six men pery year for a total of 12 man months. Consultants to be selected primarily from IRRI staff.

Participants

20 men for total of 80 man months per year throughout project specialization to be specified in annual Operational Work Plans.

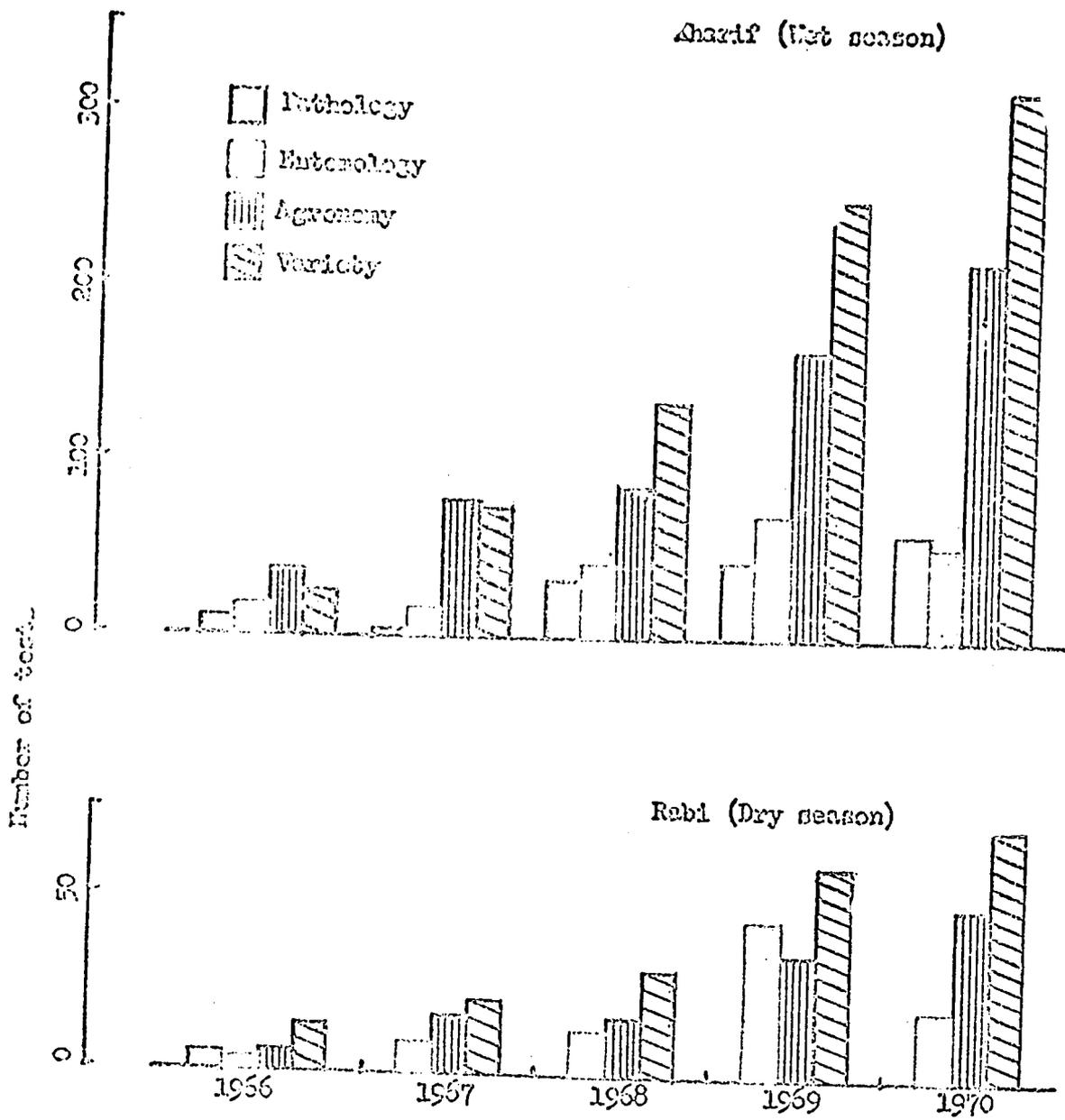


Fig. 1 Progress of AICRIP testing program.

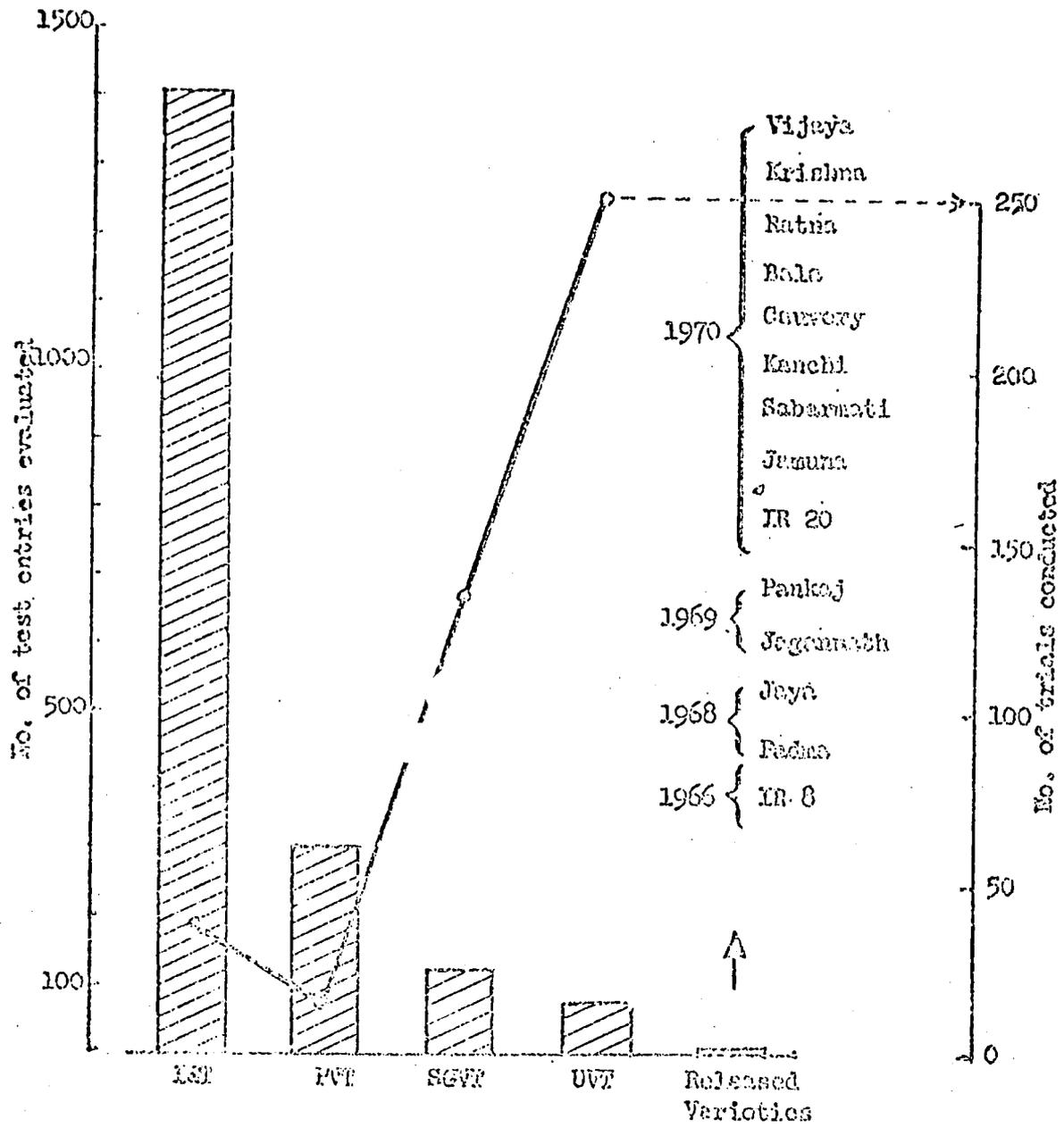


Fig. 2 Number of AICRIP variety tests conducted in various stages of tests, 1966-1970.

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PD-AAD-122

AID 1330-1
(6-64)

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
THE MINISTRY OF FINANCE

AN AGENCY OF THE GOVERNMENT OF INDIA

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 Dec. 28, 1950

ECONOMIC COOPERATION AGREEMENT DATE

(a) as extended DATE Jan. 5, 1952
June 29, 1957

B. AID FINANCING
 DOLLARS LOCAL CURRENCY in year ending June 30, 1970

	PREVIOUS TOTAL	INCREASE	DECREASE	TOTAL TO DATE
	(A)	(B)	(C)	(D)
(a) Total Dollars	0	64,750	0	64,750
(b) Contract Services	0	64,750	0	64,750
(c) Commodities	0	0	0	0
(d) Other Costs	0	0	0	0
C. COOPERATING AGENCY RUPEE FINANCING - SCIENCE EDUCATION				
31.00 = Rs 7.60				
(a) Total Trust Fund Rupees	0	999,500*	0	999,500*
(b) Technical and other Services	0	999,500*	0	999,500*
(c) Commodities	0	0	0	0
(d) Other Costs	0	0	0	0

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

See Annex A for description of project.

*Equivalent to U.S. \$131,513.

11. DATE OF ORIGINAL AGREEMENT
April 30, 1970

12. DATE OF THIS REVISION
Not Applicable

13. ESTIMATED FINAL CONTRIBUTION DATE
March 31, 1973

14. FOR THE COOPERATING GOVERNMENT OR AGENCY

15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

Sd/-
SIGNATURE: S. Santhi DATE: 29 April 1970
TITLE: Deputy Secretary, Ministry of Finance

Sd/-
SIGNATURE: Leonard J. Saccio DATE: _____
TITLE: Director, U.S. A.I.D. Mission to India

PAGE 1 OF 1 PAGES

1. PROJECT/ACTIVITY NO.
386-11-110-379

2. AGREEMENT NO. 147
Supplement No. 3

3. ORIGINAL FOR year ending June 30, 1971
REVISION NO.

4. PROJECT/ACTIVITY TITLE

Rice Research Improvement Program 12p.

5. PROJECT DESCRIPTION AND EXPLANATION

(See Annex A attached)

6. AID APPROPRIATION SYMBOL

Dollars: 72-1101004
Rupees: 72FT800

7. AID ALLOTMENT SYMBOL

054-50-386-00-69-01
147-50-386-00-69-00

PROAG
CONTINUATION
SHEETANNEX A

PROJECT AGREEMENT

BETWEEN AID AND

THE MINISTRY OF FINANCE

AN AGENCY OF THE GOVERNMENT OF

INDIA

1. Project/Activity No.
386-11-110-379

PAGE 1 OF 2 PAGES

2. Agreement No. 147,
Supplement No. 33. Original for year
ending June 30, 1970
Revision No.

3. Project/Activity Title

Rice Research Improvement Program

This Agreement is executed pursuant to the Technical Cooperation Agreement entered into between the Governments of India and the United States of America on January 5, 1952, and is signed by the designated representatives of the two governments - S. Santhi, Deputy Secretary, Ministry of Finance of the Governments of India (hereinafter referred to as the "Representative") and Leonard J. Saccio, Director of the U.S. A.I.D. Mission to India of the Agency for International Development of the Government of the United States of America (hereinafter referred to as the "Director").

Description of Project

In furtherance of the purposes and objectives of Project Agreement No. 147 and its Supplements, U.S. technical assistance will be continued, through March 31, 1971, for implementing Rice Research Improvement Program activities. The attached Operational Work Plan (Annex B) provides details of the activities contemplated during the period April 1, 1970 to March 31, 1971 and is intended to be a guide to the implementation of the project and reflects the intent of the signatories to this Project Agreement. The U.S. assistance will be provided through an extension of the AID contract with the International Rice Research Institute, Philippines.

Through this Supplement No. 3, the USAID hereby agrees to:

- (a) Continue to provide the services of four technicians in the field of entomology, plant pathology, agronomy, and physiology, and in addition, provide one Agriculture Engineer. (The nomination of the fifth technician will be made upon receipt of official position request from the Ministry of Finance);
- (b) Finance up to eight man-months of consultant services;
- (c) Provide \$4,500 for technicians support equipment, such as teaching and demonstration materials;
- (d) Finance up to 104 man-months of participant training at the International Rice Research Institute, Philippines (IRRI) between April 1, 1970 and March 31, 1971 (see *infra*); and
- (e) Arrange and provide for up to three Indian members of the Scientific Advisory Committee (Rice) and other responsible Indian agricultural officials to attend the

PROAG
CONTINUATION
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ANNEX A

PROJECT AGREEMENT
BETWEEN AID AND
THE MINISTRY OF FINANCE

AN AGENCY OF THE GOVERNMENT OF
INDIA

1. Project/Activity No.
386-11-110-379
2. Agreement No. 147,
Supplement No. 3
3. Project/Activity Title

PAGE 1 OF 2 PAGES

3. Original for year
ending June 30, 1970
Revision No.

Rice Research Improvement Program

review and planning meetings on rice research related to the ALL India Coordinated Rice Improvement Program.

The 104 man-months of participant training agreed to be financed herein include:

- estimated 24 man-months for completion of training of 5 participants now at IRRI, Philippines;
- estimated 73 man-months for 10 participants (9 already nominated to USAID and one to be nominated) for 6 to 12 months of training at IRRI pursuant to Supplements No. 1 and No. 2 to Project Agreement No. 147;
- estimated 7 man-months for up to 9 Rice Specialists for observation trips pursuant to Supplement No. 2 to Project Agreement No. 147.

The Government of India will complete and process the selection and nominations of six to twelve participants (in addition to those above stated) for up to 72 man-months of training in Philippines per Annex B hereto. Funds for these additional participants will be provided in FY 1971, subject to their availability; the funding is being deferred as the training of these participants is not likely to begin in calendar year 1970.

For the above mentioned purposes, the USAID hereby makes available \$64,750 of Development Grant funds. It also is agreed that Rs 999,500 will be made available from the GOI Trust Fund administered by the USAID to cover the local support costs of the technicians and consultants and the cost of international travel of participants (Rs 83,600). The funds provided herein together with the funds carried over from prior years are estimated to be sufficient to extend the contract through March 31, 1971.

All other provisions of Project Agreement No. 147 as supplemented and amended will remain unchanged.

OPERATIONAL WORK PLAN
GOVERNMENT OF INDIA FISCAL YEAR - APRIL 1, 1970 - MARCH 31, 1971
RICE RESEARCH IMPROVEMENT

PREFACE

This Operation Work Plan provides a description of the activities contemplated under this project. It is intended to be a guide to the implementation of the project and reflects joint preparation and the intent of signatories. The plan does not commit either government until required administrative and financial clearances have been given by the appropriate authorities. Formal commitment by each Government to the specific actions required will be made by the execution of a Project Agreement.

1. BACKGROUND

A) The review of the work prior to the IRRI/AID nesa 303 contract was reviewed in the 1968 OWP.

During 1968 the IRRI staff members joined the AICRIP staff which was followed by intensification of research in Agronomy, Pathology, Physiology and Entomology as well as the work in breeding. The project received financial approval and by the end of the year some of the States (UP and Tamil Nadu) were utilizing funds supplied by ICAR. Summarization of accomplishments during 1968 was made in the OWP 1969 and reported in detail in Kharif 1968 Progress Reports, Vol 1, 2 and 3 and in Rabi 1969 Progress Report.

During 1969, AICRIP support was extended to Kashmir, Punjab, Mysore, Kerala, Andhra Pradesh, Madhya Pradesh, Assam, Maharashtra.

Assam, Bihar and West Bengal had funds available but these were not utilized pending local arrangements regarding research.

Warangal in Andhra Pradesh was recognized as a center of national importance for research on gall midge and ICAR support extended to the center.

Non-project loan funds for purchase of US equipment had not been utilized. Final arrangements were in process to have India Supply Mission make the purchase of equipment in order to assure confirmation to procurement procedures of AID and GOI.

B) Highlights of the project in 1969, related to the goals set forth, include:

- 1) Two late duration varieties were released in July 1969 - IR 5-114-3-1 and BBS 873. These varieties had been evaluated in Coordinated trials and recommendation for release came from the AICRIP workshop held in April 1969. Results of the first yield trials of slender grain fine quality rice indicated potential yields of 90% of the yield of IR 8 with grain types more in line with consumer demand. Early duration varieties were evaluated in extensive ~~fix~~ district trials in Tanjore in addition to other trials of the AICRIP programs. Additional introductions from IRRI included types like IR 661-1-140-3, IR 579-160-2 and IR 532 ~~and~~ E 576 among the total of 200 selections.
- 2) Breeding programs were actively pursuing the incorporation of stem borer resistance from TKM 6 and gall midge resistance from

W 1263, Siam 29, Ptb 18 and Ptb 21. Resistant dwarf segregates from crosses with IR 8 will be identified this season. Screening was continued to identify additional sources of resistance to stem borer, gall midge and leafhopper. Unfortunately over 3000 selections of the world collection introduced from IRRI did not germinate after quarantine clearance.

Incorporation of disease resistance was pursued with intensity. All selections involving Sigadis were screened by artificial inoculation. Additional sources of resistance were more completely identified. The more promising were BJ 1, Lacrosse x Zenith-Mira, and Early Prolific. Crosses involving these sources and IR 8, Jaya and other selections were made.

Resistance to Tungro virus is urgently needed in parts of U.P., Bihar, and West Bengal. Screening has identified four Indian varieties resistant to the disease -- Latisail, and Pankhari 203 (confirming the finding in IARI), Kamod 253, and Khataribhog. Crosses involving Latisail, Khataribhog, and Pankhari 203 were in the F_2 generation and resistant dwarf plants identified this year. Additional artificial infestation and inoculations will be done in F_3 progenies before sending the resistant selections to these states for further evaluation in Kharif 1970. Blast resistant material identified in screening trials was included in yield trials in endemic ~~xx~~ areas.

3) Insecticide trials evaluated some of the established granular insecticides and proved their merit for insect control when applied at different stages in crop growth. Effectivity of insecticides for specific insects was obtained at centers where various insects were prevalent.

4) Research on bacterial leaf blight continued and the reaction of a number of isolates to the different resistant varieties evaluated. Ecological studies of the disease were extended and Genetic studies on resistance were carried out in collaboration with breeding.

Tungro virus research was intensified in order to more quickly transfer resistance to agronomically desirable types. The problem of leaf yellowing in parts of UP and Bihar was identified to be tungro virus. Field survey was undertaken this year in relevant areas.

5) Agronomic research was intensified on the efficiency of nitrogen utilization through studies on time of application in relation to plant growth, in relation to water~~man~~ management, and in relation to methods of application and incorporation.

New varieties were studied to determine their response to levels of nitrogen fertilization. Effects of various treatments on yield components were studied to more fully evaluate the effects of treatments on performance.

6) Physiological studies related to dry matter accumulation, indicated patterns of dry matter production which might be the most desirable in maximizing grain production. Growth patterns for different seasons were studied for some of the principal dwarf indicas.

7) Research capabilities have been improved through short term workshops for pathologists, entomologists, and breeders. Men from northern states were deputed to AICRIP for growing "off season" nurseries to advance their material on extra generation. These men had more opportunity to get acquainted with principal procedures and techniques of breeding.

Direct employment of men provided training for 5 men during the year.

8) Publication to disseminate information included in progress reports for two seasons, articles in Indian Farming on "Jaya and Padma" data on N-P-K trial and N application.

II. GOALS AND OBJECTIVES

A) Goals: Goals and objectives, as set forth, are those which constitute goals of the All-India Coordinated Rice Improvement Project. Implementation and acceleration of these goals are the goals of the contract and of this OWP.

Specific goals for this OWP period include:

- 1) Breeding high yielding, stiff strawed fertilizer-responsive varieties acceptable to the Indian market.

- 2) Continuation of breeding programs to incorporate insect and disease resistance into agronomically desirable strains.
- 3) Continuation of entomological research to determine more effective control measures for major insect pests such as stem borer, gall midge, and leaf and planthoppers.
- 4) Continuation of pathological research on bacterial, virus, and fungal diseases of rice.
- 5) Agronomic research in utilization of fertilizers by the new varieties and selections under development and other factors necessary for maximization of yields of new varieties in farmers' fields.
- 6) Studies on plant physiology relating vegetative development, yield components, light transmission, photosynthesis and dry matter production of different dwarf indica varieties.
- 7) Development of research capabilities of Indian institutions and personnel.

B) Preconditions

Primary preconditions regarding the project have already been met by sanction of the AICRIP plan for the next three years. Implementation of these plans will vary with the availability of personnel to fill the posts that have been created by the project and the multi-disciplined approach to rice research.

Facilities for office and laboratories are being provided by ICAR and/or APU. Present headquarters facilities are with APU and the IARI Regional Center. Funds in the ICAR budget will enable additional accommodation inputs of nearly 10,000 Sq.ft.

III. INPUTS

A) U.S.

1) Technical Research Services

Type of Technicians	No.	Duration months	Work location	Position of Counterpart
Entomologist	1	24 mon. 1/4/70 - 31/3/72	R ^o Nagar	Entomologist AICRIP
Plant Pathologist	1	24 mon. 1/4/70 - 31/3/72	R ^o Nagar	Pathologist AICRIP
Agronomist	1	24 mon. 1/4/70 - 31/3/72	R ^o Nagar	Agronomist AICRIP
Physiologist	1	24 mon. 1/4/70 - 31/3/72	R ^o Nagar	Physiologist AICRIP
Agricultural Engineer	1	24 mon. 1/4/70 - 31/3/72	R ^o Nagar	Agril. Engineer
Jt. Coordinator	1	Indefinite duration under RF/IARI funding	R ^o Nagar	Coordinator AICRIP
Short-term consultants	8	12 man-months each year		

- 2) Participants (Subject to selection by States, ICAR and Coordinators) for training in specified research fields at IRRI.

72 man-months, 6-12 participants.

	<u>No.</u>	<u>Months.</u>	<u>Estimated Departure Date</u>
Rice Pathology	2	18	
Rice Breeding	2	12	
Rice Agronomy	2	18	
Rice Entomology	2	12	
Ag. Engr. (Exp. Stn. Development)	1	12	

3) Commodities

None

4) Other inputs

The contractor is authorized to utilize contract funds to cover travel and per diem for up to three (3) Indian members of the Scientific Advisory Committee (Rice), and other responsible Indian Agricultural officials, to attend review and planning meetings on rice research related to the AICRIP and/or IRRI, for periods varying from 1 to 3 weeks in duration. In addition, the US AID may provide, as required and mutually agreed upon, assistance in funding and arranging seminars, workshops and/or other technical meetings and demonstrations to popularize and support the research program objectives of the AICRIP and this project.

B) GOI Inputs

1) Standard provisions

Office space and lab space, new 10,000 sq.ft.

2) Counterparts

All AID personnel will have counterpart staffing provided at the Hyderabad Center in support of the research and coordinating activities of the coordinating cell of AICRIP.

3) Additional buildings, equipment, ~~and~~ etc., to be provided by ICAR and APAU.

4) GOI Non-project loan funds provided for equipment in support of the project amount to \$ 127000. Purchases are to be made by ISM during 1970.

5) The ICAR has allocated Rs. 5,879,687 to meet the expenditure of the project on an All-India basis during 1969-70 and Rs. 2,700,498 for 1970-71. The State Governments and Agricultural Universities have also made provision for the implementation of the project.

Signatures:

A. S. Joshi

Indian Council of Agricultural Research,
Ministry of Food, Agriculture, CD & Coop.
Government of India.

Date: 20th March, 1970

[Signature]

US AID Mission to India

Date: March 20, 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
MINISTRY OF FINANCE
AN AGENCY OF THE GOVERNMENT OF INDIA (GOI)

3860379 (11)

PD-AAD-122

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 implemented:

GENERAL AGREEMENT FOR TECHNICAL COOPERATION DATE Dec 28, 1950

ECONOMIC COOPERATION AGREEMENT DATE

(other) DATE Jan 5, 1952
 as extended June 29, 1957

1. PROJECT/ACTIVITY NO. 386-11-110-379 PAGE 1 OF 1 PAGES

2. AGREEMENT NO. 147, Supplement No. 4 3. ORIGINAL OR REVISION-1 RES. (R.V. 71)

4. PROJECT/ACTIVITY TITLE
 Rice Research Improvement Program 14 p.

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

6. AID APPROPRIATION SYMBOL Dollars: 72-1111004 7. AID ALLOTMENT SYMBOL
 Rupees: 72FT800 154-50-386-00-19-11
 147-50-386-00-11-00

8. AID FINANCING	PREVIOUS TOTAL INVESTMENT	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
<input checked="" type="checkbox"/> DOLLARS <input type="checkbox"/> LOCAL CURRENCY	June 30, 1971			
(a) Total Dollars	0	99,500	0	99,500
(b) Contract Services	0	95,500	0	95,500
(c) Commodities	0	4,000	0	4,000
(d) Other Costs	0	0	0	0
9. COOPERATING AGENCY FINANCING - EQUIVALENT Rupees \$1.00 = Rs 7.60 Trust Fund				
(a) Total Rupees	0	1,554,000*	0	1,554,000*
(b) Technical and other Services	0	1,554,000	0	1,554,000
(c) Commodities	0	0	0	0
(d) Other Costs	0	0	0	0

10. SPECIAL PROVISIONS (For Additional Conditions, Annex A Enclosure)

See Annex A for description of Project.

* Equivalent to U.S. \$204,474.

11. DATE OF ORIGINAL AGREEMENT
 May 28 1971

12. DATE OF THIS REVISION
 Not Applicable

13. ESTIMATED FINAL CONTRIBUTION DATE
 March 31, 1974

14. FOR THE COOPERATING GOVERNMENT OR AGENCY

15. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

Sd/-
 SIGNATURE: S. Santhi DATE: 28.5.71
 TITLE: Deputy Secretary Ministry of Finance

Sd/-
 SIGNATURE: Howard E. Houston DATE: May 28, 1971
 TITLE: Director, U.S. A.I.D. Mission to India

PROJECT AGREEMENT
BETWEEN AID AND

THE MINISTRY OF FINANCE

AN AGENCY OF THE GOVERNMENT OF
INDIA1. Project/Activity No.
386-11-110-379

PAGE 1 OF 3 PAGES

2. Agreement No. 147
Supplement No. 43. Original or
Revision No. (FY 71)

3. Project/Activity Title

Rice Research Improvement Program

This Supplementary Project Agreement is executed pursuant to the Technical Cooperation Agreement entered into between the Governments of India and the United States of America on January 5, 1952, and is signed by the designated representatives of the two governments - S. Santhi, Deputy Secretary, Ministry of Finance of the Government of India (hereinafter referred to as the "Representative") and Howard E. Houston, Director, U.S. Agency for International Development Mission to India of the United States of America (hereinafter referred to as the "Director").

Description of Project

In furtherance of the purposes and objectives of Project Agreement No. 147, and its Supplements, U.S. technical assistance will be continued for implementing Rice Research Improvement Program activities. The attached Operational Work Plan (Annex B) provides details of the activities contemplated during the period April 1, 1971 to June 30, 1972 and is intended to be a guide to the implementation of the project and reflects the intent of the signatories to this Project Agreement. The U.S. assistance will be provided through an extension of the AID contract with the International Rice Research Institute, Philippines. More specifically, A.I.D. hereby agrees to:

- (a) Continue the services of five technicians in the fields of entomology, plant pathology, agronomy, physiology, and agricultural engineering.
- (b) Finance up to fifteen man-months of consultant services;
- (c) Provide \$5,000 for technician support equipment, such as teaching and demonstration materials;
- (d) Finance participant training for ten participants for a period varying from six to nine months each and observation tours for nine officials for about three weeks each at the International Rice Research Institute, Philippines.
- (e) Arrange and provide for up to three members of the Scientific Advisory Committee (Rice) and other responsible Indian agricultural officials to attend the review and planning meetings on rice research related to the All India Coordinated Rice Improvement Program for periods varying from one to three weeks in duration.

PROAG
CONTINUATION
SHEET

ANNEX A

PROJECT AGREEMENT
BETWEEN AID AND

THE MINISTRY OF FINANCE

AN AGENCY OF THE GOVERNMENT OF
INDIA

1. Project/Activity No.
386-11-110-379

PAGE 2 OF 3 PAGES

2. Agreement No. 147,
Supplement No. 4

3. Original or
Revision No. (FY 71)

3. Project/Activity Title

Rice Research Improvement Program

A.I.D., through this Supplement No. 4, makes available \$99,500 of Development Grant funds to extend the present contract with the International Rice Research Institute, Philippines, for services through March 31, 1972. It also is agreed that Rs 1,554,000 will be made available from the GOI Trust Fund administered by A.I.D. to cover local support costs of the technicians and consultants, cost of international travel of participants, and a limited amount of technician-support commodities. The funds provided herein together with the funds carried over from prior years are estimated to be sufficient to extend the contract through March 31, 1972. Forward funding is limited to the period through March 31, 1972, according to A.I.D. regulations. It is understood that any part of funds provided herein for the U.S. technicians, consultants and participants which remains unutilized as of March 31, 1972 may be used toward their cost beyond March 31, 1972. Additional funds necessary to extend the contract with the International Rice Research Institute, Philippines beyond March 31, 1972, will be provided in FY 1972, subject to their availability.

Funding provided in this Supplement No. 4 for period April 1, 1971 through March 31, 1972 covers:

- a) approximately fifty-seven man-months of technician services;
- b) approximately twelve man-months of consultant services;
- c) \$4,000 for technician support equipment such as teaching and demonstration materials;
- d) attendance for up to three members of the Scientific Advisory Committee (Rice) and other officials at the review and planning meetings on rice research; and
- e) approximately eighty-seven man-months of participant training at the International Rice Research Institute, Philippines, which includes:
 - Estimated 47 man-months for completion of training of eight participants now at the International Rice Research Institute, Philippines;
 - estimated 33 man-months for nine participants (eight already nominated to A.I.D. and one to be nominated) for nine to twelve months of training at the International Rice Research Institute, Philippines, pursuant to Supplement No.3 to Project Agreement No. 147;

PROJECT AGREEMENT
BETWEEN AID AND

THE MINISTRY OF FINANCE

AN AGENCY OF THE GOVERNMENT OF
INDIA

1. Project/Activity No.

386-11-110-379

2. Agreement No. 147,

Supplement No. 4

3. Project/Activity Title

Rice Research Improvement Program

PAGE 3 OF 3 PAGES

3. Original or
Revision No. (FY 71)

-- estimated 7 man-months for up to nine rice specialists for observation trips pursuant to Supplement No. 3 to Project Agreement No. 147.

The Government of India will complete and process the selection and nominations of up to ten participants for training of six to twelve months each and of nine rice specialists for observation trips at the International Rice Research Institute, Philippines per Annex B attached hereto. Funds for these additional participants will be provided in FY 1972, subject to their availability; the funding is being deferred as the training of these participants is not likely to begin in calendar year 1971.

The Government of India will, for GOI-requested technicians and consultants, provide office space, equipment, furnishings and supplies, stenographic, secretarial, translation and interpreting services and pay the cost of official communications.

The Government of India will, for participants selected for training at the International Rice Research Institute, Philippines, pay their salaries while in training abroad, intra-India travel and transportation costs to and from New Delhi and other pre-departure expenses.

It is also understood that the Government of India will provide support to the project as described in Annex B (Operational Work Plan).

The Indian Council of Agricultural Research, and the Ministry of Food, Agriculture and Community Development and Cooperation shall be responsible for the general administration and supervision of this project.

OPERATIONAL WORK PLAN

PROJECT TITLE : Rice Research Improvement
PROJECT NUMBER : 386-11-110-379
PERIOD : April 1, 1971 to June 30, 1972

INTRODUCTION

This Operational Work Plan provides a description of the activities contemplated under this project. It is intended to be a guide to the implementation of the project and reflects joint preparation and the intent of signatories. The plan does not commit either government until required administrative and financial clearances have been given by the appropriate authorities. Formal commitment by each Government to the specific actions required will be made by the execution of a Project Agreement.

I. BACKGROUND

A. The All India Coordinated Rice Improvement Project (AICRIP) was initiated in 1965, with its center at Hyderabad. From a one-center program, the program envisaged center support to a number of rice research stations in order to accelerate rice research findings, and ultimately, increase production.

Early activity was a center-sponsored Coordinated Program with some center support at Rajendranagar and assistance by one foreign agency, the Rockefeller Foundation, who provided services of the Joint Coordinator, some temporary technical staff, and strategic foreign equipment and supplies.

With the formal approval of the AICRIP, support became ^{main} available to 19 centers and 3 testing centers in 1968 with ultimately another center added to provide national support to work on gall midge resistance at Warangal, Andhra Pradesh.

With the signing of agreements in 1967 between USAID and the GOI additional foreign assistance was provided under an AID contract with IRRI to supply additional technical assistance in four research areas, local temporary technical staff, and some locally available indigenous equipment.

Associated with this contract was the agreement on the part of GOI to supply foreign exchange for some strategic equipment and the construction of essential office and laboratory facilities.

B. Accomplishments

Work of the Coordinated Program which was designed as a multi-disciplined multi-location approach, has expanded annually to fulfill the needs of the diverse agro-climatic zones of the country.

Results obtained have been, in general, commensurate with the accelerated effort provided. Acceleration has been irregular but generally effective in spreading new varieties and increasing national production.

The introduction of Taichung (Native) 1 and IR-8 provided varieties for immediate use in production and allowed time for

crossing and isolation of varieties emanating from the breeding programs established as a result of the Coordinated Program and from breeding material supplied by the International Rice Research Institute.

The release of new varieties began in late 1968 and additional varieties have been released each year since. Earlier releases stressed production of grain while more recently factors such as grain quality, disease resistance, insect resistance, and maturity have been important considerations in addition to grain yield. At the same time, breeding had provided new varieties for farmer production, research in agronomy provided information on the rates of nitrogen fertilization and timing of these applications. Physiological research has studied effects of plant type on yield and yield components and effects of season on the same yield factors. Patterns of dry matter production were studied in periodic monthly sowings throughout the year. Nutritional problems of upland rice have been pursued, clarified, and corrective remedies provided. Research in pathology has identified sources of resistance to bacterial leaf blight, tungro virus, and blast. Crossing programs have incorporated these sources of resistance into material of agronomic value. Likewise, entomology research has identified sources of resistance to gall midge, stem borer, and leafhopper and crossing programs are incorporating these into agronomic type.

C. Highlights of the Project in 1970

1. Nine new varieties were released during this year based on results obtained in the three previous seasons. Releases

included early maturing varieties which could also be used in direct seeding; early maturity dwarf varieties for transplanting which can replace existing varieties in dry seasons where water supplies are limited; early midseason varieties, one with stem borer resistance and good grain quality and two others adapted to different areas of India; one scented variety for north India; and one medium late duration variety with better grain quality than IR-8; and an introduction from IRRI with moderate resistance to bacterial leaf blight, tungro, blast, and leafhopper.

2. Significant progress was made this year toward the identification of a tungro resistant variety for northeast India, gall midge resistant varieties for areas where this insect is endemic, bacterial leaf blight resistant material, dwarf lines with seed dormancy, photosensitive dwarf material, and especially promising productive selections with good to excellent grain type and good yield. It is significant that sources of resistance in all cases have been provided by Indian varieties.

3. Expansion of testing programs into district trials assisted by staffing from Ford Foundation and plans for early activation of support for research in plant protection provided by support from the same agency.

4. A surveillance program was inaugurated under the leadership of the Central Plant Protection Directorate,

the Ford Foundation, and Plant Protection Units of five States -- Uttar Pradesh, Bihar, West Bengal, Madhya Pradesh, and Orissa. Staff from AICRIP was provided for training and identification of suspected virus infected plants and other problems.

5. Activities in dissemination of information have been intensified thru publication of articles in national journals, staff participation in training program in numerous locations principal of which were University of Agricultural Sciences, Bangalore; Central Rice Research Institute, Cuttack; and the surveillance program. In addition, training was provided to visiting groups from district of Guntur in Andhra Pradesh and Mandya in Mysore, and members of the APP teams and their counterparts.

6. Staff participation in international activities included a consultancy of the Project Coordinator for 2 months to advise the Government of Indonesia on a National Rice Research Program (NRRP) for that country. The AID staff and two Indian scientists attended the research conferences at IRRI in April. Scientific papers were presented at the American Society of Agronomy meetings which was co-authored by the coordinators and a paper presented at the American Phytopathological Society meetings by the AID Plant Pathologist.

The AICRIP has had visitors from Thailand, Indonesia, Nepal, IRRI, and rice scientists from the USA as well as

administrators from numerous agencies.

7. During the year, seven scientists have been sent as participant trainees to IRRI.

II. GOALS AND OBJECTIVES

A. Goals

Goals and objectives, as set forth, are those which constitute goals of the All India Coordinated Rice Improvement Project. Implementation and acceleration of these goals are the objectives of this OWP and of the AID/IRRI contract.

Specific activities of this OWP period includes:

1. Breeding high yielding, stiff-strawed fertilizer-responsive varieties acceptable to the Indian market.
2. Continuation of breeding programs to incorporate insect and disease resistance into agronomically desirable strains.
3. Continuation of entomological research to determine more effective control measures for major insect pests such as stem borer, gall midge, and leaf and planthoppers.
4. Continuation of pathological research on bacterial, viral, and fungal diseases of rice.
5. Agronomic research in utilization of fertilizers by the new varieties and selections under development and

other factors necessary for maximization of yields of new varieties in farmers' fields.

6. Studies on plant physiology relating vegetative development, yield components, light transmission, photosynthesis and dry matter production of different dwarf indica varieties.

B. Preconditions

Primary preconditions regarding the project have already been met by sanction of the AICRIP plan for the next two years. Implementation of these plans will vary with the availability of personnel to fill the posts that have been created by the project and the multi-disciplined approach to rice research.

Facilities for office and laboratories are being provided by ICAR and/or A.P. Agricultural University. Present headquarters facilities are with APAD and the IARI Regional Center. Funds in the ICAR budget will enable additional accommodation inputs of nearly 24,000 sq. ft. Buildings to be provided by ICAR will be under construction by June 1970 and should be completed by June 1971.

III. INPUTS

A. U.S.

1. Technical Research Services

Type of Technicians	No.	Plan for	Proposed for		Work Location	Position of Counterpart
		1/4/71 to 30/6/72 (Mon.)	AID-FY 1973 (Mon.)	1974 (Mon.)		
Entomologist	1	15	12	12	R ^o Nagar	Entomologist AICRIP
Plant Pathologist	1	15	12	12	R ^o Nagar	Pathologist AICRIP
Agronomist	1	15	12	12	R ^o Nagar	Agronomist AICRIP
Physiologist	1	15	12	12	R ^o Nagar	Physiologist AICRIP
Agri. Engineer	1	15	12	12	R ^o Nagar	Agri. Engineer AICRIP
Joint Coordinator (Rockefeller Foundation)	1	Indefinite duration under RF/IRRI funding.			R ^o Nagar	Coordinator
Short-term Consultants	8	15	12	12		
		Man-Mon.	Man-Mon.	Man-Mon.		

* 15-month period is to adjust from GOI fiscal year to AID fiscal year.

2. Participants

(Subject to selection by States, ICAR and Coordinators for training specified research fields at IRRI.)

During the period April 1, 1971 thru June 30, 1972 participant training is proposed as follows:

<u>Field of Training</u>	<u>No. of Participants</u>	<u>Man-Months</u>
Observation & Study tour (three weeks)	9	7
Rice Breeding (six months)	2	12
Rice Agronomy (nine months)	2	18
Rice Physiology (nine months)	2	18
Rice Entomology (six months)	2	12
Agri. Engineering (six months)	2	12
	19	79

Also, 10 participants for a total 72 man-months per year are proposed for FY 1973 and FY 1974.

3. Commodities

Teaching and demonstration aids for period April 1, 1971 to June 30, 1972 total of \$ 5,000. Estimated for FY 1973 and FY 1974 \$ 4,000 each year.

4. Other Items

The contractor is authorized to utilize contract funds to cover travel and per diem for up to three (3) Indian members of the Scientific Advisory Committee (Rice), and other responsible Indian Agricultural officials, to attend review and planning meetings on rice research related to the AICRIP and/or IRRI, for periods varying from 1 to 3 weeks in duration. In addition, the USAID may provide, as required and mutually agreed upon, assistance in funding and arranging seminars, workshops and/or other technical meetings and demonstrations to popularize and support the research program objectives of the AICRIP and this project.

B. GOI INPUTS1. Standard Provisions

Office space and lab. space, new	10,800 sq. ft.
Greenhouse	4,000 sq. ft.
Service building and sheds (storage)	4,600 sq. ft.
Staff housing	4,685 sq. ft.
	<hr/>
	24,085 sq. ft.
	<hr/>

2. Counterparts

All AID personnel will have counterpart staffing provided at the Hyderabad Center in support of the research and coordinating activities of the coordinating cell of AICRIP.

3. Additional buildings, equipment, etc., to be provided by ICAR and A.P. Agricultural University.

4. GOI Non-project loan funds provided for equipment in support of the project amount to \$ 127,000. Purchases are to be made by the India Supply Mission during 1971.

5. The ICAR has allocated Rs. 2,700,498 to meet the expenditure of the project on an All-India basis during 1970-71 and Rs. 2,401,302 for 1971-72. The State Governments and Agricultural Universities have also made provisions for the implementation of the project. Total expenditures for the Fourth Plan are Rs. 16,013,143.

SKatal

Indian Council of Agr. Research

Date: 12 May, 1971

Russell O. Olson

U. S. Agency for International Dev.

Date: 11 May 1971

3860379(12)

AID 1330
(10-3-61)

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

PD-AAD-122

AN AGENCY OF THE GOVERNMENT OF INDIA (GOI)

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 Dec. 28, 1950

ECONOMIC COOPERATION AGREEMENT DATE

(as extended) as extended June 23, 1957 DATE Jan. 5, 1952

1. PROJECT/ACTIVITY NO. 386-11-110-379 PAGE 1 OF 2 PAGES

2. AGREEMENT NO. 147, Amendment No. 1 to Suppl. No. 5 ORIGINAL OR REVISION (FY 72)

3. PROJECT/ACTIVITY TITLE Rice Research Improvement Program 3p.

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

5. AID APPROPRIATION SYMBOL 6. AID ALLOTMENT SYMBOL

72 Dollars: 72-11210-4 254-50-386-00-69-33
Rupees: 72FT800 147-50-386-00-69-00

8. AID FINANCING	9. PREVIOUS TOTAL	10. INCREASE		11. TOTAL TO DATE
		(B)	(C)	
<input checked="" type="checkbox"/> DOLLARS <input type="checkbox"/> LOCAL CURRENCY	30, 1952			
(a) Total Dollars	100,000	0	24,500	75,500 ^{a/}
(b) Contract Services	100,000	0	24,500	75,500
(c) Commodities	0	0	0	0
(d) Other Costs	0	0	0	0
12. COOPERATING AGENCY FINANCING - RUPEES				
(a) Total Trust Fund Rupees	920,000*	64,000	0	984,000**
(b) Technical and other Services	920,000	64,000	0	984,000
(c) Commodities	0	0	0	0
(d) Other Costs	0	0	0	0

13. SPECIAL PROVISIONS (Use Additional Combinations Above, if Necessary)

See Annex A for description of project.

a/ Includes approximately \$13,500 for technician support commodities.

* Equivalent to U.S. \$121,052

**Equivalent to U.S. \$129,47

14. DATE OF ORIGINAL AGREEMENT November 23, 1971

15. DATE OF THIS REVISION September 21, 1972

16. ESTIMATED FINAL CONTRIBUTION DATE June 30, 1973

17. FOR THE COOPERATING GOVERNMENT OR AGENCY

SIGNATURE: S. Santhi DATE: 19.9.72

18. FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT

SIGNATURE: Howard E. Houston DATE: /ed/

TITLE: Director (IC) Dept. of Finance U.S.A.I.D. Mission to India

Ministry of Finance

U.S.A.I.D. Mission to India

AID 1980-13 (9-70) PRO AG CONTINUATION SHEET ANNEX A	PROJECT AGREEMENT BETWEEN AID AND THE MINISTRY OF FINANCE AN AGENCY OF THE GOVERNMENT OF INDIA	1. Project/Activity No. 386-11-110-379	PAGE <u>1</u> OF <u>2</u> PAGES
		2. Agreement No. 147, Amendment No. 1 to Suppl. No. 5	3. <input type="checkbox"/> Original or Revision No. <u>1</u> (FY 72)
		3. Project/Activity Title Rice Research Improvement Program	

This Supplementary Project Agreement is signed pursuant to the Technical Cooperation Agreement entered into between the Governments of India and the United States of America on January 5, 1952 and is signed by the designated representatives of the two governments - S. Sathi, Director (TC) of the Ministry of Finance of the Government of India (hereinafter referred to as the "Representative") and Howard E. Houston, Minister-Director of the U.S.A.I.D. Mission to India of the Agency for International Development of the United States of America (hereinafter referred to as the "Director").

Description of Project

1. Funds were provided in Supplement No. 5 to Project Agreement No. 147 to continue U.S. technical assistance for the Rice Research Improvement Program beyond March 31, 1972. Based upon recent plans for this project, this Amendment No. 1 clarifies and amends certain provisions of Supplement No. 5, and makes necessary adjustments in the funds provided therein.

2. It is agreed hereby that during the period April 1, 1972 through June 30, 1973, A.I.D. will provide:

- (a) the services of four long-term technicians for approximately forty-eight man-months. These technicians include Reed C. Bunker (Entomologist), Ernest Nunn (Agricultural Engineer), H. Sakai (Plant Breeder), each for a period of fifteen man-months and H. Ten Have (Agronomist) who departed June 17, 1972.
- (b) approximately two man-months of participant training for S.S. Sajjan who returned in May, 1972 after completion of training.
- (c) a limited amount of technician support commodities such as teaching and demonstration materials.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: _____ DATE: _____
 TITLE: _____

SIGNATURE: _____ DATE: _____
 TITLE: _____

AID 1987-12 12-701 PRO AG CONTINUATION SHEET ANNEX <u>A</u>	PROJECT AGREEMENT BETWEEN AID AND THE MINISTRY OF FINANCE	1. Project/Activity No. 386-11-110-379	PAGE <u>2</u> OF <u>2</u> PAGES
	AN AGENCY OF THE GOVERNMENT OF INDIA	2. Agreement No. 147, Amend- ment 1 to Suppl. No. 5	3. <input type="checkbox"/> Original or Revision No. <u>1</u> (FY 72)
		3. Project/Activity Title Rice Research Improvement Program	

3. In order to adjust the funds provided in Supplement No. 5 in accordance with project inputs detailed in Paragraph 2 above, it is agreed hereby to:

- (a) deobligate \$24,500 of the Development Grant Funds, and
- (b) provide additional Rs. 64,000 from the GOI Trust Fund administered by A.I.D.

4. The rupees made available under this project through Supplement No. 5, as herein amended, will cover technician allowances; international travel costs; local support costs of technicians including within India travel; cost of local professional and administrative staff; technician and project support commodities; and cost of demonstrations, seminar and research activities.

5. It is estimated that the funds provided in Supplement No. 5, as herein amended, will extend the present contract with the International Rice Research Institute, Philippines (IRRI) through June 30, 1973.

6. It is confirmed hereby that no funds have been provided herein for contractor executive visitor to come to India during FY 1973.

7. It is also agreed hereby to amend Project Agreement No. 147 signed May 25, 1967 to delete the following paragraph therein:

"The Government of India will make available foreign exchange up to the amount of \$150,000 to the IRRI to procure supplies and equipment not available in India but deemed essential for the development of the project."

8. Except as modified herein, all provisions and conditions of Supplement No. 5 will apply to this Amendment also.

For the Cooperating Government or Agency

For the Agency for International Development

SIGNATURE: _____ DATE: _____
 TITLE: _____

SIGNATURE: _____ DATE: _____
 TITLE: _____

Country: INDIA

PROJECT DATA

TABLE III

PROJECT TITLE Rice Research Improvement	ACTIVITY Agriculture and Natural Resources	FUNDS TA
PROJECT NUMBER 386-11-110-379	PRIOR REFERENCE Page 63, FY 1969 PDB	INITIAL OBLIGATION FY: 1967
		SCHEDULED FINAL OBLIGATION FY: 1973

Project Target and Course of Action: Rice is India's most important foodgrain and, therefore, improvements in its production are essential to the country's long range growth and to the goal of self-sufficiency. Improved rice varieties such as Taichung Native-"1", IR-8, and ADT-27 are in production and are proving their value. However, these like all varieties must be tested for their reaction to diverse environments (including changing soil conditions and advances in production technology) and their susceptibility to particular insects and local diseases. The Indian Government has initiated "The All-India Coordinated Rice Improvement Program" to undertake a more rapid investigation of rice production problems.

To assist in this effort, A.I.D. has contracted with the International Rice Research Institute (IRRI) in the Philippines to provide: specialists to work with Indian counterparts; short-term IRRI consultants on urgent problems; and training for Indians at IRRI.

Progress to Date: The Kharif (winter harvest) trials just completed provide sufficient additional data to support the release of the first two varieties (Jaya and Padma) which are the result of the coordinated rice research effort. Research programs have been initiated making use of cultural, chemical, and

biological methods for controlling rice insects and disease. Some 3,000 rice progenies were screened for resistance to blast disease and 23 insecticide-use trials were conducted. Workshop meetings, bringing together all cooperating researchers, have been held, the most recent in November 1968.

The experience of the past eighteen months makes plain that the research program is a long term matter and that U.S. assistance is essential for several more years at least. The program will include the upgrading of the work of research stations, the development of new varieties and the training of additional Indian scientists.

FY 1970 Program: The four U.S. technicians will continue to assist in research, training, and dissemination programs by conducting and directing specific activities affecting the accomplishment of the rice improvement program. Research areas to be covered are: Breeding and testing appropriate high-yielding, fertilizer-responsive varieties acceptable to the Indian market; entomological research to determine effective control measures for major insect pests, such as leaf hoppers, stem borers, and gall flies; agronomic research on the use of fertilizers and other factors necessary to maximize yields of new varieties in farmers' fields; studies on plant

U.S. DOLLAR COSTS (In Thousands)				OBLIGATIONS						PRINCIPAL CONTRACTOR/AGENCY International Rice Research Institute (IRRI)
	Obligations	Expenditures	Unliquidated	Estimated FY 1969			Proposed FY 1970			
				Direct AID	Contract/Other Agency	Total	Direct AID	Contract/Other Agency	Total	
Through 6/30/68	287	70	217	--	77	77	--	130	130	386 0379 (13) PD-AAD-122
Estimated FY 69	100	153		--	18	18	--	32	32	
Estimated through 6/30/69	387	223	164	--	5	5	--	5	5	
		Future Year Obligations	Estimated Total Cost	--	--	--	--	--	--	
Proposed FY 70	167	540	1,094	--	100	100	--	167	167	

Country: INDIA

PROJECT DATA

TABLE III

PROJECT TITLE	ACTIVITY		FUNDS
	Rice Research Improvement	Agriculture and Natural Resources	
PROJECT NUMBER 386-11-110-379	PRIOR REFERENCE	INITIAL OBLIGATION	SCHEDULED FINAL OBLIGATION
	Page 63, FY 1969 PDB	FY: 1967	FY: 1973

physiology and their reaction under various environments; performance of the various types of rice varieties as well as performance of tall and dwarf varieties within these types.

U.S. Technicians: Four IRRI technicians and 8 six-week consultants in the fields of plant breeding, entomology, pathology, agronomy, and pest disease.

Participants: Eight Indian scientists will be sent to IRRI in the Philippines for 6 to 12 months to study rice breeding and production.

Commodities: Includes seeds, fertilizers, pest control, chemicals, and laboratory equipment.

JOINT PROJECT IMPLEMENTATION PLAN PART I - WORK SCHEDULE		1. COOPERATING COUNTRY India	2. PROJECT TITLE Rice Research Improvement	3. PROJECT NUMBER 386-11-110-379	4. DATE (Month, Day, Year) July 14, 1970
5. RESPONSIBLE PROJECT COORDINATOR John S. Ballis		6. RESPONSIBLE COOPERATING COUNTRY AGENCY AICRIP		7. COOPERATING SPONSOR Rockefeller Foundation	
<input type="checkbox"/> DRAFT <input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION NO.					

9. NO.	8. DESCRIPTION OF MAJOR ACTIONS OR STEPS	10. PRIMARY ACTION AGENT	11. TARGET DATES			12. TIME SPAN (Optional)													
			PREPARATORY ACTION	PHYSICAL START	PHYSICAL COMPLETION	FY- 70	FY- 71	FY- 72	FY- 73	FY- 74	FY-								
	Breeding																		
1.	Send first two varieties for field trials at F4 stage to West Bengal, Bihar and Rajendranagar: test for resistance and yield	CC/C		May 70	Oct 70														
2.	Multiply first two varieties: F5 stage	CC/C		Nov 70	Apr 71														
3.	Release one or both of these varieties for seed production; F6 stage	CC/C		May 71	Oct 71														
4.	Cross and advance more varieties one, two and three seasons behind first two	CC/C		1967	Oct 73	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.	Continue crossing, backcrossing, and screening, using BJ and other resistant varieties	CC/C		1967	June 74	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.	Continue looking for resistant varieties, crossing with HYV	CC/C		1968	June 74	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7.	Initiate yield trials with best available cross	CC/C		May 70	Oct 71														
8.	Release first variety	CC/C		May 72	May 72														
9.	Advance one resistant variety to F5, F6 and F7 stages	CC/C		Nov 69	Oct 70	X	X	X	X										
10.	If adequate resistance, release this variety	CC/C		Nov 70	Nov 70														
11.	Continue looking for more resistant varieties, crossing these with HYV	CC/C		1967	Jun 74	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.	Advance cross made with near-immune variety to yield trials	CC/C		Nov 69	Oct 70	X	X	X	X										
13.	Multiply this variety	CC/C		Nov 70	Oct 71														
14.	Release to seed growers	CC/C		Nov 71	Nov 71														
15.	Initiate search for resistant varieties, cross with HYV	CC/C		Nov 69	Apr 70	X	X	X											
16.	Continue crossing, back crossing and screening	CC/C		Mar 70	Jun 74	X	X	X	X	X	X	X	X	X	X	X	X	X	X
17.	Multiply & release first high yielding, slender grain dwarf variety	CC/C		Nov 69	Apr 70	X	X												

3860379 (14)
 PD-ADD-122

JOINT PROJECT IMPLEMENTATION PLAN PART II - SELECTED OUTPUT INDICATORS		1. COOPERATING COUNTRY India	2. PROJECT TITLE Rice Research Improvement		3. PROJECT NUMBER 386-11-110-379	4. DATE (Month, Day, Year) July 14, 1970		<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION NO.	
5. CODE (For AID/W use only)	6. IDENTIFICATION OF OUTPUT AND SPECIFIC TARGETS	7. TIME PHASED ACCOMPLISHMENT							
		TO DATE	FY- 70	FY- 71	FY- 72	FY- 73	FY- 74	FY-	PROJECTED TOTAL
	Top Priority: Release tungro virus resistant variety to seed growers: 1. First variety 2. Later varieties 3. Release variety which incorporates leaf blight-resistant into High Yielding Varieties Release variety which incorporates blast resistance into HYV 4. First Variety 5. Later Varieties Release variety which incorporates stem borer resistance into HYV 6. First Variety 7. Later Varieties 8. Release variety which incorporates gall midge resistance into HYV 9. Release variety which incorporates leaf hopper resistance into HYV Improve taste and cooking quality of HYV Grain 10. Release first variety 11. Release later varieties 12. Maintain or increase yield while incorporating above characteristics into HYV 13. Locate effective chemical and other control measures for major insect pests 14. Develop chemical, cultural and other controls for tungro virus, leaf blight, and blast 15. Develop more efficient cultural methods 16. Reorient rice research in India towards a multi-disciplinary, all-India, coordinated approach 17. Establish programs to translate research findings into useable, practical information for farmer use and for general dissemination			1	1	1			3
					Not possible to forecast				2
						1		1	1
					Not possible to forecast				1
						1			1
					Not possible to forecast				
				1					
				Continuous					
				Continuous					
				Not possible to forecast					
				Not possible to forecast					
				Continuous					
				Continuous					
				Continuous					

JOINT PROJECT IMPLEMENTATION PLAN PART III - PERSONNEL REQUIREMENTS		1. COOPERATING COUNTRY India	2. PROJECT TITLE Rice Research Improvement				3. PROJECT NO 386-11-110-379	4. DATE (Month, Day, Year) July 14, 1970				<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION NO.	
CATEGORY OF PERSONNEL	6. TIME PHASED REQUIREMENTS										7. TOTAL REQUIREMENTS		
	FY. 70		FY. 71		FY. 72		FY. 73		FY. 74		MY	FUNDS	
	MM	FUNDS	MM	FUNDS	MM	FUNDS	MM	FUNDS	MM	FUNDS			
A. UNITED STATES CONTRIBUTION (Funds shown in U.S. \$ Thousands)													
1. AID DIRECT HIRE													
a. U.S.													
b. Local													
c. Third Country													
2. PASA													
a. Obligations													
b. Expenditures													
3. AID CONTRACTOR EMPLOYEES													
a. Obligations	57	61.0*	66	135.0	72	127.0	72	130.0	66				
b. Expenditures	57	103.5	66	102.6	72	118.3							
4. AID INDIVIDUALLY CONTRACTED EMPLOYEES													
5. BORROWER GRANTEE CONTRACT EMPLOYEES													
6.													
B. COOPERATING COUNTRY CONTRIBUTION (Funds shown in equivalent U.S. \$ Thousands)													
1. CENTRAL GOVERNMENT		\$1,061.3		\$518.1		\$382.9		\$396.4		\$407.0		\$2,765.7	
2. REGIONAL, STATE PROVINCIAL OR LOCAL GOVT.													
3.													
4.													
C. OTHER DONORS OR COOPERATING SPONSORS CONTRIBUTION (Funds shown in equivalent U.S. \$ Thousands)													
1. Rockefeller Foundation: Total Contribution	12	65.00	12	65.00	12	65.00	12	65.00	12	65.00			
2.													
3.													

Rate of exchange: U.S. \$1 = R . . . 0

JOINT PROJECT IMPLEMENTATION PLAN PART IV - PARTICIPANT REQUIREMENTS		1. COOPERATING COUNTRY India		2. PROJECT TITLE Rice Research Improvement			3. PROJECT NUMBER 386-11-110-379		4. DATE (Month, Day, Year) July 14, 1970		<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION NO.					
8. FIELD OF SPECIALIZATION	6. NO.	7. TYPE	8. PLANNED DEPARTURE DATE	9. DURATION OF TRAINING	10. FUND REQUIREMENTS (Shown in U.S. \$ Thousands or equivalent)											
					U.S.					COOPERATING COUNTRY						
					FY-70	FY-71	FY-72	FY-73	FY-74	TOTAL	FY-70	FY-71	FY-72	FY-73	FY-74	TOTAL
Rice Breeding	2	BT	1970	6 mos	3.0											
	2	BT	1971	6 mos		3.0					.7					
Rice Pathology	2	BT	1970	9 mos	4.5						.7					
	2	BT	1971	9 mos		4.5						.7				
Rice Agronomy	2	BT	1970	9 mos	4.5						.7					
	2	BT	1971	6 mos		3.0						.7				
Experiment Station Management	1	BT	1970	12 mos	3.0						.7					
	1	BT	1971	12 mos		3.0						.7				
Short-term Observations	9	BT	1970	1 mo.	2.0						5.9					
To be determined	20	BT	1972	4 mos			20.0									
	20	BT	1973	4 mos				20.0						13.3		
	20	BT	1974	4 mos					20.0						13.3	13.3

1/ Indicate by combination of letters if participants are 1st - A - AID Directly Financed, B - Contract Financed, or C - Cooperating Country Financed.
 2nd - U - U.S. Training, T - Third Country Training or X - Combined U.S. Third Country Training

Rate of exchange:
 U.S. \$1 = **Rs 7.60**

JOINT PROJECT IMPLEMENTATION PLAN PART V - COMMODITY AND OTHER REQUIREMENTS - TECHNICAL ASSISTANCE		1. COOPERATING COUNTRY India		4. DATE (Month, Day, Year) July 14, 1970				
2. PROJECT TITLE Rice Research Improvement		3. PROJECT NUMBER 386-11-110-379		<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION NO.				
6. DESCRIPTION	7. DATE RE-REQUIRED	8. FUND REQUIREMENTS						
		FY-70	FY-71	FY-72	FY-73	FY-74	TOTAL	
A. U.S. INPUTS (U.S. \$ Thousands or equivalent)								
Demonstration Materials	GB	Annually	13.0	5.0	4.0	4	1	
Land shaping equipment, 25 KW generator, field equipment, lab equipment and supplies		1969		127.0	Non-Project USAID Loan			
B. COOPERATING COUNTRY INPUTS (Funds in equivalent U.S. \$ Thousands)								
Physical Facilities: Office, Lab, Storage Building		1968		21.3				
Lab equipment and supplies		1969		23.0	GOI Foreign Exchange			
C. OTHER DONOR INPUTS (Funds in equivalent U.S. \$ Thousands)								
1/ Indicate as appropriate by letter code whether inputs are: G - Grant Financed or L - Loan Financed For U.S. Commodities only, indicate by letter code whether they are: A - AID Procured; B - Contractor Procured; or C - Cooperating Country Procured						Rate of exchange: U.S. \$1 = Rs 7.60		

PROJECT LOGICAL FRAMEWORK

PROJECT LOGICAL FRAMEWORK
Page 2 of 2 Pages

Evaluation
for Period: Jan. 1, 1970 to June 3

Date Prepared: November 15, 1971
Original

Project Title: Rice Research Improvement 386-11-110-379 (Contd.)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal:	Measure of Goal Achievement:		
Project Purpose:	<p>Conditions Expected at End of Project:</p> <p>(c) In-service and workshop training and coordinating programs for improving research competence.</p> <p>(d) Cooperation in transfer of improved rice production from AICRIP through various agencies to the farmer.</p> <p>6. An estimated 15 million acres planted in high yielding varieties with average yield increases of 2000 to 4000 pounds per acre and with grain quality of not less than 90% of traditional varieties as indicated by market prices.</p>	6. GCI production and other statistical reports.	4. Adequate credit and other inputs to support production increases.
Outputs	Magnitude of Outputs:		
<p>4. Workshops.</p> <p>5. Seminars and conferences.</p> <p>6. Revised AICRIP systems for research design and evaluation, data compilation, and data evaluation.</p> <p>7. Research and progress reports.</p> <p>Inputs:</p> <p>4. Commodities - \$20,000 for Teaching and Demonstration Aids.</p> <p>5. USAID Project Manager (Part-time basis).</p> <p>6. Trust Fund - \$400,000 as Equivalent for Demonstration Projects, Seminars, Workshops and Administrative Support.</p> <p>Staffing Provision</p> <p>7. ICRP Joint Coordinator</p> <p>8. ICRP - Not. as Equivalent of \$2,100,000.</p> <p>9. AICRIP - Not. as Equivalent of \$1,500,000.</p> <p>10. Individual State Support - Not quantifiable.</p>	<p>4. Two national and seven semi each year.</p> <p>5. Two in FY 1972 and four in both FY 1973 and FY 1974.</p> <p>6. Systems to encompass AICRIP operations.</p> <p>7. Current and for distribution to all concerned scientists.</p> <p>Implementation Schedule (Target Dates):</p> <p>Items 4 through 10: These inputs continue throughout the life of the project.</p>	<p>4. Contractor and AICRIP reports.</p> <p>5. Contractor and AICRIP reports.</p> <p>6. Contractor/Project Manager reports and observations.</p> <p>7. Copies of reports.</p> <p>4. Contractor Purchase Orders and/or USAID P/O/Co.</p> <p>5. USAID Personnel Records.</p> <p>6. USAID Trust Fund Reports.</p> <p>7. Contractor/Project Manager Observations.</p> <p>8 & 9. ICRP and AICRIP Budget Allocations and Expenditure.</p> <p>10. Contractor/Project Manager Reports and Observations.</p>	<p>Clearance</p> <p>Project Manager</p> <p>Division Chief</p> <p>Program Officer</p>

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2p.

Project Title: Rice Research Improvement

Y85-11-110-379

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																																																																																
<p>Program or Sector Goal:</p> <p>Continued rapid growth in agricultural production in India.</p>	<p>Messure of Goal Achievement:</p> <p>An average increase in Indian agricultural production of 5% per annum.</p>	<p>GOI agricultural production and other statistical reports.</p>	<ol style="list-style-type: none"> 1. Future GOI Five-Year Plans continue emphasis on foodgrain production. 2. GOI policies and administration directed toward encouraging and facilitating foodgrain production. 3. Adequate number of trained agricultural scientists. 4. Availability of other production inputs to support foodgrain production. 5. Normal weather conditions. 																																																																																																
<p>Project Purpose:</p> <p>Establishment of an effective All-India Coordinated Rice Improvement Project (AICRIP) with an adequate organization and operational techniques for coordinating rice research throughout India.</p>	<p>Conditions Expected at End of Project:</p> <ol style="list-style-type: none"> 1. Research oriented boards increasing rice yields. 2. Seed-teams fully staffed with qualified personnel. 3. Production buildings, other facilities and equipment adequate. 4. Adequate AICRIP Budget. 5. Active AICRIP program utilizing modern techniques and techniques: <ol style="list-style-type: none"> (a) Erase-ling and testing of thousands of progeny rows with trials in at least three stages throughout the country. (b) Major research programs in Entomology, Agronomy, Myriology and Agricultural Engineering. <p style="text-align: right;">Contd.. page 2</p>	<ol style="list-style-type: none"> 1. Review of AICRIP research plans. 2. Contractor's Reports and AICRIP records. 3. Contractor's Reports and Project Manager visits. 4. Review of Budgets. 5. (a) GOI, State and AICRIP statistics and reports. (b) AICRIP Records. (c) AICRIP Records and Contractor Reports. (d) GOI, State and AICRIP statistics and reports. (e) GOI reports. <p style="text-align: right;">Contd..page 2</p>	<ol style="list-style-type: none"> 1. Revision of GOI, ICAR, state and other administrative procedures, budgets and other documentation to maximize the benefits of improved rice production technology as indicated by research program. 2. Progressive expansion of coordinated program based upon wide recognition of project accomplishments. 3. Adequate infrastructure for multiplication of seeds, supply of inputs, training on new production technology and marketing of total crop at incentive prices. <p style="text-align: right;">Contd...page 2</p>																																																																																																
<p>Outputs:</p> <ol style="list-style-type: none"> 1. Rice yield, high quality, disease and insect resistance varieties with well defined production characteristics. 2. Research oriented agencies and teams trials to identify improved varieties and associate packages of cultural practices. 3. Rice research scientists with improved capability and with increased knowledge of advanced techniques and research in their field. <p style="text-align: right;">Contd...page 2</p>	<p>Magnitude of Outputs:</p> <ol style="list-style-type: none"> 1. 5-10 varieties to be released annually after approval of the Central Varietal Selection Committee of the GOI. 2. Each cropping season thousands of progeny rows of selected crosses incorporating desirable characteristics will be under observation and testing at Hyderabad and as many as 30 locations throughout India. Programs of comparable magnitude will be conducted in agronomy, entomology, physiology and agricultural engineering. 3. a. In-service training of 30 junior staff and annual research workshops involving 30 rice scientists. b. Particpant training for 75 research staff members in advanced research techniques. c. Rice production seminars, conferences and other sessions will improve the competence of 200 extension workers and similar staff. <p style="text-align: right;">Contd..p.2</p>	<ol style="list-style-type: none"> 1. AICRIP and ICAR reports. 2. AICRIP reports. 3. GOI, AICRIP, USAID and State Reports. <p style="text-align: right;">Contd...page 2</p>	<ol style="list-style-type: none"> 1. Desirable genetic characteristics are identified expeditiously and successfully combined in suitable combinations for major rice traits. 2. Agronomy, Entomology and other research identifies major production components expeditiously and further identifies economic means for high production levels under extensive Indian conditions. 3. Adequate coordination at administrative levels of all research institutions to support project coordination at research level. 4. Adequate communications to ensure close coordination of research in progressive and timely compilation, analysis and reporting of seasonal data for projected sequences of varietal development. 																																																																																																
<p>Inputs (ICRIP Contract)</p> <ol style="list-style-type: none"> 1. Scientists - 5 2. Consultants - Number/M 3. Participants - Number/M <p style="text-align: right;">Contd..page 2</p>	<p>Implementation Schedule (Target Dates):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>IX 1970</th> <th>1971</th> <th>1972</th> <th>1973</th> <th>1974</th> </tr> </thead> <tbody> <tr> <td>1. Scientists</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Physiologist</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td> Agronomist</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td> Entomologist</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td> Pathologist</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td> Agr. Engr.</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>2. Consultants</td> <td>6/12</td> <td>8/12</td> <td>8/15</td> <td>6/12</td> <td>6/12</td> </tr> <tr> <td>3. Participants</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Breeding</td> <td>2/12</td> <td>2/12</td> <td>2/12</td> <td>-</td> <td>-</td> </tr> <tr> <td> Pathology</td> <td>2/18</td> <td>2/18</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td> Agronomy</td> <td>2/18</td> <td>2/12</td> <td>2/18</td> <td>-</td> <td>-</td> </tr> <tr> <td> Entomology</td> <td>2/12</td> <td>2/12</td> <td>2/12</td> <td>-</td> <td>-</td> </tr> <tr> <td> Agr. Engineer</td> <td>1/12</td> <td>1/12</td> <td>8/12</td> <td>-</td> <td>-</td> </tr> <tr> <td> Study Tour</td> <td>9/7</td> <td>9/7</td> <td>9/7</td> <td>-</td> <td>-</td> </tr> <tr> <td> Not Specified</td> <td>-</td> <td>-</td> <td>2/18</td> <td>10/79</td> <td>10/79</td> </tr> </tbody> </table>		IX 1970	1971	1972	1973	1974	1. Scientists						Physiologist	X	X	X	X	X	Agronomist	X	X	X	X	X	Entomologist	X	X	X	X	X	Pathologist	X	X	X	X	X	Agr. Engr.	X	X	X	X	X	2. Consultants	6/12	8/12	8/15	6/12	6/12	3. Participants						Breeding	2/12	2/12	2/12	-	-	Pathology	2/18	2/18	-	-	-	Agronomy	2/18	2/12	2/18	-	-	Entomology	2/12	2/12	2/12	-	-	Agr. Engineer	1/12	1/12	8/12	-	-	Study Tour	9/7	9/7	9/7	-	-	Not Specified	-	-	2/18	10/79	10/79	<ol style="list-style-type: none"> 1. Contractor Reports and Project Manager Observations. 2. Contractor Reports and Project Manager Observations. 3. USAID PIO/Ps. <p style="text-align: right;">Contd..page 2</p>	<ol style="list-style-type: none"> 1. Timely nomination and clearance of qualified scientists and consultants. 2. Timely recruitment and appointment of Indian staff. 3. Qualified and competent participants selected and available as scheduled. 4. GOI/ICAR provision of budget, staff and facilities per project plan. <p style="text-align: right;">cc: Br. Freeman, AICRIP Clearances</p> <p>AG/AsJSBalls Project Manager AG/ENWenberg Division Chief EP/AGUEvans Program Office :MShack :ELCrist</p>
	IX 1970	1971	1972	1973	1974																																																																																														
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Agr. Engineer	1/12	1/12	8/12	-	-																																																																																														
Study Tour	9/7	9/7	9/7	-	-																																																																																														
Not Specified	-	-	2/18	10/79	10/79																																																																																														