

A.I.D. EVALUATION SUMMARY - PART I

PD-ARB-508
67621

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.
2. USE LETTER QUALITY TYPE, NOT "DOT MATRIX" TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit: Mission or AID/W Office (ES#) <u>Indonesia</u>		B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan? Yes <input checked="" type="checkbox"/> Slipped <input type="checkbox"/> Ad Hoc <input type="checkbox"/> Evaluation Plan Submission Date: FY <u>Q</u>		C. Evaluation Timing Interim <input checked="" type="checkbox"/> Final <input type="checkbox"/> Ex Post <input type="checkbox"/> Other <input type="checkbox"/>	
D. Activity or Activities Evaluated (Use the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report.)					

Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
497-0302	Applied Agricultural Research	1980	09/1992	\$33,000	\$33,000

ACTIONS

E. Action Decisions Approved (By Mission or AID/W Office Director) Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
1. Insure increased participation by Indonesian scientists in the Commodity Research component through greater publicity and an expanded research agenda.	G.Like/M.Tajib APD and AARD	07/90
2. Utilize more fully long term training loan funds presently committed in the WINROCK International technical assistance contract.	G.Like/APD, CM, AARD and Winrock	07/90
3. Develop a life of project plan which details the remaining actions to be completed for all project components, timing and responsible office.	G.Like/M.Tajib APD and AARD	09/90
4. Assure sustainability by obtaining from the GOI a commitment that project funded commodities and facilities will be utilized after the PACD of 9/92 and that project activities will be continued past this date.	G.Like/M.Tajib APD and AARD	09/90
5. Develop a New Project Description (NPD) for possible USAID involvement in agricultural research upon the completion of this activity in 1992.	J.Lindborg/ M.Tajib, APD and PPS.	04/91

(Attach extra sheet if necessary)

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: _____ (Month) _____ (Day) _____ (Year)

G. Approvals of Evaluation Summary And Action Decisions:

	Project/Program Officer	Representative of Borrower/Grantor	Evaluation Officer	Mission or AID/W Office Director
Name (Typed)	George E. Like	Dr. Varansih Isbagio	George E. Lewis	Lee Twentyman
Signature	<i>George E. Like</i>	<i>Dr. Varansih Isbagio</i>	<i>George E. Lewis</i>	<i>Lee Twentyman</i>
Date	July 13, 1990	July 24, 1990	7/13/90	7/17/90

A B S T R A C T

II. Evaluation Abstract (Do not exceed the space provided)

The objective of the Applied Agricultural Research Project (AARP) is to assist the Agency for Agricultural Research and Development (AARD) improve research performance through a strengthening of AARD's planning, administrative and management functions and to increase the output of sound applied technologies for increasing and diversifying the production of key secondary crops. The main components of the project include technical assistance, training, improvement/development of research facilities, support of commodity research programs in upland rice, maize and grain legumes and the support of limited special studies.

The purpose of the mid-term evaluation was to provide the Ministry of Agriculture (MOA) and USAID with an assessment of performance to date of selected project components and guidance for future project direction. The evaluation concentrated upon the attainment of End of Project Status (EOPS) benchmarks as stated in the logical framework (logframe), as well as training, technical assistance and commodity research programs.

The findings show that while progress of activities has been slow, there were indications that project goals will be achieved. Increasingly, AARD is supporting, through financing and various forms of technical support, hypotheses testing elsewhere in the agricultural community. AARD leadership and guidance is helping provide work done in universities and the private sector under AARD sponsorship with peer review, quality control, result dissemination, and publicity.

While not changing them, the team recommended EOPs restatements to express them more concretely and to better reflect conditions expected at the end of the project in 1992.

C O S T S

I. Evaluation Costs

1. Evaluation Team

Name	Affiliation	Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Edmund Auchter	DEVRES, Inc.	42	\$83,278	Project funds
Dr. Barizi	DEVRES, Inc.	36		
Ralph Cummings	DEVRES, Inc.	42		
Entang Roekasah	DEVRES, Inc.			

2. Mission/Office Professional Staff

Person-Days (Estimate) 36

3. Borrower/Grantee Professional

Staff Person-Days (Estimate) 20

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recommendations (Try not to exceed the three (3) pages provided)
 Address the following items:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Purpose of evaluation and methodology used • Purpose of activity(ies) evaluated • Findings and conclusions (relate to questions) | <ul style="list-style-type: none"> • Principal recommendations • Lessons learned |
|--|--|

Mission or Office: Indonesia	Date This Summary Prepared: July 1990	Title And Date Of Full Evaluation Report: Mid Term Evaluation of the Indonesian Applied Agricultural Research Proj. Jan.1990
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Purpose of Evaluation and Methodology Used

The general purpose of this mid-term evaluation was to provide the MOA and USAID with an assessment of project performance to date of selected project components and guidance for future project direction. The evaluation sought answers to the following:

1. Are current objectives and outputs consistent with USAID and GOI long term involvement in this sector? What should be done to help prepare for activities in the last years of this project;
2. What changes in the mix of project inputs e.g., TA skills, training programs and commodities to support remaining project activities are needed?;
3. What evidence is there to date of improved GOI skills as a result of this project in the formulation execution and evaluation of agricultural research, the management of agricultural research stations, and the formulation of GOI policy?;
4. What measures can be taken to establish more effective project management arrangements so as not to detract from the technical roles and duties of the contract TA teams?;
5. Are closer links needed between the MOA, Agency for Agricultural Research and Development, private sector organizations and Indonesian Universities involved with agricultural research?;
6. Are closer links needed between this project and related efforts from other donors to promote respective activities and avoid duplication of efforts?;

In addition to the above, the evaluation team was instructed to examine the project logical framework and determine if it is adequate, if changes are required and if purpose level objectives are being achieved.

The evaluation was carried out for six weeks in August and September, 1989, by a four-person team. The team visited Indonesia's principal food crop research stations in Java (BORIF in Bogor, SURIF in Sukarami, MARIF in Malang), Kalimantan (BARIF in Banjarbaru), and Sulawesi (MORIF in Maros). The team interviewed Indonesian officials, academics, USAID and American Embassy Officers, aid officials from OECD donor countries and United Nations and World Bank personnel, businessmen, expatriates providing technical assistance and farmers. A variety of background materials provided by USAID, AARD and others was studied.

B

FINDINGS AND CONCLUSIONS

Technical Assistance

There are current technical assistance contracts funded under this project with two entities, WINROCK Int'l. and the International Service for Nat'l. Agricultural Research (ISNAR). WINROCK initially fielded, in late 1987, a team of 12 long term advisors with expertise in plant sciences, research station development, agricultural economics and communication. The initial success of this team was mixed due to conflicting work descriptions, a lack of available financial resources and limited language ability. In spite of these restrictions, the overall work of the WINROCK consultants has been effective and well received. Some individuals on the WINROCK team had the responsibility and were effective in helping the AARD complete the delivery, installation and utilization of equipment purchased under earlier project activities.

WINROCK consultants also undertook with enthusiasm the task of helping the AARD identify "advanced and economically appropriate technologies" to be generated, disseminated and tested. WINROCK consultants, with the active help of ISNAR experts, have helped AARD develop statements of agricultural research policy for each of three major commodity groups that are the research focus of the project. These three "policy papers" are comprehensive manuals containing guidelines and work priorities.

At the request of the COI the makeup of the WINROCK team, in 1989, was reorganized to place more emphasis on short term consultants with expertise in specific problem areas. With this shift in emphasis it is not necessary to further alter the mix of TA skills.

ISNAR has the task to develop a management information system (MIS) to strengthen systems for the management of research programs, finance, personnel and physical facilities within AARD. This MIS is now established, equipped and is being utilized in AARD to assist the Director General, the Secretariat, and the other decision makers in AARD in the management of the agency and the overall achievement of its mission. The World Bank has decided to continue the work of the MIS past the completion of the ISNAR contract and this is one indication of the value and promise of this activity. The ISNAR effort has generally been very effective.

Commodity Research

Few of the funds provided by USAID for financing individual research projects under this component had been spent at the time of the evaluation. Initial difficulties in getting proposals approved and unfamiliarity with funding requirements have hampered the utilization of funds. It is apparent, however, that many of these initial difficulties have been overcome and that this component will reach its potential. Notable also is the close collaboration which has developed between AARD and local agricultural universities in the submission of research proposals and the use of project funds to conduct research work at institutions of higher education.

Due to the amount of time remaining in the project and the available funding, a special effort will be required to completely utilize funds for commodity research activities while maintaining the quality of research conducted.

Training

Long/short term:

Little of the planned long term training had been initiated at the time of the evaluation. Four persons of a planned 20 had received long term training in the current phase of the project. The training of these four was, however, satisfactory in the judgement of the trainees, their supervisors and their colleagues. Final selection of the remaining 16 long term candidates has not yet been completed. A lack of English language proficiency is a major obstacle to selecting qualified candidates and there is a concern that long term, foreign training funds may not be fully utilized.

On job training

The evaluation report noted that a lack of available travel funds had sharply curtailed the extent to which TA personnel (principally WINROCK) could give formal or informal training at points beyond their duty stations and that the TA's efforts to become on site tutors of research method had yielded mixed results. At some stations local seminars and one on one training either together or alternatively have yielded good results. At other research stations the record was mixed. The sharp drop in the number of WINROCK experts in country has forced the AARD and WINROCK to rethink the in country training process.

On job training provided by the ISNAR team has been successful, well received and is one reason why this component has nearly reached its original objectives. This training has consisted of data collection, computer use and application as it applies to the MIS.

Improved GOI Skills:

1. The facilities of the Agency for Agricultural Research and Development (AARD) and particularly those of the Central Research Institute for Food Crops (CRIFC, the office to which six research institutes for food crops report), are adequate to carry out research programs of high scientific standards and to allow its researchers to prepare their results for dissemination and peer review.
2. In the AARD a well staffed and equipped Center for Agricultural Research Programming (CARP) is operating and assisting the AARD Director General to examine current and future issues of research planning, coordination, and evaluation.

3. The CRIFC research program is formulated to be responsive to and interactive with the larger economic policies of the government of Indonesia, and has a significant part focussed on farm level problems.
4. A number of completed or ongoing research studies represent collaborative efforts between AARD research institutes, universities, private sector individuals and international research institutes.

The team believed that the one agricultural commodity policy statement already released, plus the work on the two still in draft during the time of the evaluation was additional evidence of skills in the formulation of research policy. The team also concluded that there was evidence through scientific seminars and discussion groups being held under the auspices of AARD and the TA contractors that agricultural research was leading to a better, more wide spread understanding of the requirements of agricultural policy.

It was also evident to the team that while this project is one of several donor supported agricultural research activities, there was little duplication of effort. Past and current individual projects have addressed distinct yet complementary areas.

The team also stated that it was evident as it interviewed academic researchers throughout the country that understanding of the nations' agricultural research needs was growing and that a wider base of participation in the efforts to meet those research needs had been started.

Logical Framework:

The basic task of the evaluation team was to measure and assess progress to date toward attaining the End of Project Status (EOPS) benchmarks are outlined in the Project Paper and in Amendment No. 1. The members of the team felt that while there were strains apparent in the AARD's efforts to achieve the goals of the project, the objectives of the project could be achieved. The team added that the effort involved in meeting project goals or purpose did not justify significant changes in the project's objectives.

Recommendations:

Project:

Sustainability

Fiscal sustainability is a major problem of Indonesian agricultural research. Aid donor funds have temporarily offset the budget cuts of the nineteen-eighties and now supply most of the funding for the research done in AARD. Although an IBRD project plans to provide operational funding for several years past 1992, this is a make shift solution. AARD has to increase the funding it receives from

Indonesia's central revenues to maintain and enlarge both the quality and the quantity of its research. This could be done by increasing the exposure of AARD to central planners and the awareness of the continued need for a strong agricultural research system and required GOI budgetary support.

Commodity Research

The availability of research funds in this component must be given wider publicity. Commodity coordination committees should also be broadened to include members from the private sector concerned with the commodity, and from government agencies outside agriculture concerned with the commodity in question. AARD senior scientists are designated as commodity coordinators and have overall responsibility for the selection and supervision of this project component. These individuals need additional prestige within the scientific community to make this project component an integral part of AARD.

Research Dissemination

The practice of regular scientific seminars should be made a regular feature at all AARD research stations. These seminars, where staff members discuss their ongoing research, problems and results, are an important mechanism for peer review and the encouraging of timely work.

Post Project

The inclusion of critical path analysis which illustrates the phasing and interaction of all project activities over the whole life of the project should be mandatory in project planning. The analysis must specify the planners' best estimates of time required for each and all activities. The time estimates should be made for each input and all activities in turn until the expected output is achieved.

Training in scientific fields should be through the doctoral level. Steps should be taken to arrange that doctoral research (dissertation research) is done in Indonesia whenever possible, to reduce leakage of candidates and increase the relevance of candidate's academic work to Indonesia.

A significant portion of the TA team for many projects should come in the middle and second half of the project after the groundwork has been laid for their most effective use. Language training should be given to consultants as appropriate before being assigned to the field. TA contracts should also contain operational funds for individual consultants so they will not be totally dependent on budget allocations of the GOI.

MID TERM EVALUATION
OF THE
INDONESIA
APPLIED AGRICULTURAL RESEARCH PROJECT
(487-0302)

Submitted to: George Like
Agricultural
Development Officer
USAID/Indonesia
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ACKNOWLEDGEMENTS

The Devres, Inc. team wishes to thank all the many people who helped them understand the Applied Agricultural Research projects place in Indonesian agriculture.

The director of CRIFC, Dr. Ibrahim Manwan, and the directors of the research institutes BORIF, SARIF, MORIF, MARIF, SURIF and BARIF and their respective staffs require special thanks for suffering our presence and for answering our many questions. The deans and faculties of the universities and agricultural schools we visited were equally gracious and informative. Our thanks to them all.

Within USAID, our special thanks to Mr. Hatta Wargadalam, without whose patient help and guidance our job would have been much more difficult.

FOREWORD

The primary draft of this report was written by the four man team in Indonesia through September 29 1989.

The substance of the report and early drafts were the product of all the members of the team. The final draft was edited and continuity was written by the chief of party, Edmund Auchter, in November 1989.

All of the team members should be credited with the report, but any omissions or errors are the fault of the editor.

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LIST OF ABBREVIATION AND ACRONYMS

ACRONYM	NAME
AAETE	Agency for Agricultural Education, Training and Extension
AARD	Agency for Agricultural Research and Development
A.I.D.	Agency for International Development (U.S.A)
ARM	World Bank Projects: "Agricultural Research Management"
BAPPENAS	Indonesian development planning & budget agency
BARIF	Banjarbaru Research Institute for Food Crops
BORIF	Bogor Research Institute for Food Crops
BRIEC	Bogor Research Institute for Estate Crops
CADP	Center for Agricultural Data Processing
CAER	Center for Agro-Economic Research
CGIAR	Consultative Group on International Agricultural Research
CRIFC	Coordination Center for Food Crop Research and its director
CSR	Center for Soil Research
DG	Director General
Dinas	Indonesian service agency
EOPS	End of project status
GOI	Government of Indonesia
GRIEC	Gambung Research Institute for Estate Crops
IARC	International Agricultural Research Center
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
JRIEC	Jember Research Institute for Estate Crops
LERIH	Lembaga Research Institute for Horticulture
LIPI	Indonesian Academy of Sciences
LITBANG	Agency for Agricultural Research and Development
Logframe	Logical framework: A.I.D. Planning document
M & E	Monitoring and Evaluation
MARIF	Malang Research Institute for Food Crops
MIS	Management Information System
MOA	Ministry of Agriculture
MORIF	Maros Research Institute for Food Crops
MRIEC	Medan Research Institute for Estate Crops
NARP	National Agricultural Research Project
NLAS	National Library for Agricultural Sciences (of AARD, in Bogor)
O & M	Operation and Maintenance

ODA	Overseas Development Agency (United Kingdom)
PACD	Project Assistance Completion Date
PIU	Project Implementation Unit
PPL	Penyuluh Pertanian Lapangan (Indonesian extension officer)
PPS	Indonesian extension service subject matter specialist
PSRI	Pasuruan Sugar Research Institute
PTP	Perseroan Terbatas Perkebunan: a corporate estate
RC	Research Center
RCC	Research Coordinating Center
RCCAS	Research Coordinating Center for Animal Science
RCCF	Research Coordinating Center for Fisheries
RCCFC	Research Coordinating Center for Food Crops
RCCH	Research Coordinating Center for Horticulture
RCCIC	Research Coordinating Center for Industrial Crops
Repelita	Indonesia's Five Year Plan
RGB	Research Grant Board.
RI	Research Institute
RIAP	Research Institute for Animal Production
RIC	Research Institute for Coconuts
RICA	Research Institute for Coastal Agriculture
RIFF	Research Institute for Freshwater Fisheries
RIMF	Research Institute for Marine Fisheries
RISMC	Research Institute for Spices and Medicinal Crops
RITFC	Research Institute for Tobacco and Fiber Crops
RIVS	Research Institute for Veterinary Science
RMI	Resource Management Incorporated
RMP	Research Master Plan
SA	Special Account
SARIF	Sukamandi Research Institute for Food Crops
SOE	Statement of Expenditure
SORIH	Solok Research Institute for Horticulture
SPRIEC	Sungai Putih Research Institute for Estate Crops
SRIEC	Sembawa Research Institute for Estate Crops
SURIF	Sukarami Research Institute for Food Crops
TA	Technical assistant: professional provided to
Indonesia	
USAID	United States Agency for International Development mission
WINROCK	WINROCK International Institute for Agricultural Development

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EXECUTIVE SUMMARY

In August and September 1989, a four man professional team financed by USAID visited the major food crop research centers of Indonesia's Agency for Agricultural Research and Development (AARD). The Team's purpose was to examine the progress and problems of AARD in using A.I.D. funding, technical assistance, training, and commodities to reach the End of Project Status (EOPS) described in the project documentation. Specifically, we asked:

"What changes need to be made in the project's design or operation to speed achievement of the end of project status and the objectives and goal of the project? What post project steps will have to be taken to consolidate and widen the project's contributions to Indonesian development?"

To provide a framework for our questions we restated the expected End of Project Status (EOPS), incorporating recent additions to the project such as the management information system (MIS). Discussion in this summary briefly mentions only those EOPS which in the team's view are serious potential problems, and need special action to achieve within the A.I.D. project's time frame. Here we also summarize only some of the most important recommendations related to those problems, and briefly put them in context. The full set of team recommendations and our suggested action assignments are in chapters four and five of the main report.

A. Sustainability of Agricultural Research

Since the unexpected Indonesian budget crisis of the early nineteen eighties (when oil export prices collapsed) A.I.D. and other donors have been making financial contributions toward the operating costs of Indonesian agricultural research. Indonesia has been moving to regain full fiscal sustainability for its agricultural research by 1995 or 1996, when it will routinely meet all the operating costs from its own resources.

Until then the World Bank group will contribute to this agricultural research activity, completing installation of many innovations the AARD has begun with USAID help from this project.

Integration of the agricultural research being undertaken in AARD, the universities, and the private sector is an important step toward the end of project status (EOPS) defined as "the fiscal sustainability of Indonesian agricultural research." Progress has been particularly good in promoting university cooperation. To speed up private sector cooperation:

Local consultants should be hired to help AARD identify who in the private sector should be invited to join the research coordination committees set up for each of the target commodity groups.

Simultaneously, the Ministry of Agriculture, AARD and donors must mount a major effort to make better known the nature of Indonesia's new generation of food crop problems and the resulting need for agricultural research. Broad understanding of these problems and their solutions should be promoted among Indonesia's influentials and decision makers by campaigns similar to those mounted by the family planning programs.

B. Project Phasing

Timing, or the phasing of project activities with one another, has been a persistent problem for this project. In the first phase construction activities and commodity deliveries were delayed, even until phase II. The early phasing difficulties are still causing problems.

Short term TAs should include several persons who are especially prepared to complete the checking and installation of laboratory equipment that has arrived in recent months at all of the stations.

C. Research Coordination

A major recent project innovation and objective is the enlargement of AARD's role from an agency that does research to one that coordinates, leads, and manages it in both the government and private sectors. This role is new for both the agency and its staff. Progress to date indicates the new role is likely to be successfully reached by the end of the project (PACD). But it has nevertheless taken more time to install than the project designers allowed for in planning the time phasing of the project inputs.

The task of commodity coordinator should be the principle source of institutional prestige (as opposed to disciplinary prestige) of the person given the title of commodity coordinator. Commodity conferences must make special efforts to their focus to include consideration of relevant research beyond that financed by the project.

D. Technical Assistance

An innovation introduced to Indonesia's agricultural

development effort by this project was providing the technical assistance team's own research funding through the cooperating country's budgetary and financial system. This contrasts with the practice of other donors here. Their technical assistance personnel in agricultural research usually have an "impress fund" for purchases of seed, fertilizer, land preparation, editing of questionnaires, and similar research costs. AARP-II's approach avoids the danger that the TAs simply "do" research their counterparts cannot replicate when the TA's funding mechanisms are gone. It integrates the work and assures it is more than a demonstration.

Never the less, this innovation had a stumbling start. Using the government of Indonesia's funding system to pass A.I.D. research funds to researchers at field stations delayed full exploitation of many of the TAs. They were left without research funding and they could do very little research work, either cooperatively or alone for sometime. Getting the money through the system has taken over a year. In the next crop year funds will be available, but most of the TAs who were in the field will already have gone home.

Besides the problems of research funding, new roles and systems in AARD created confused terms of reference for many members of the TA team. These increased the frustration of both the technicians and their counter-parts, and contributed to the large number of options for the extension of technical assistance that were not taken up.

There is still pressing need to reinforce the installation of good research methods as a work norm at the research stations beyond the flagship ones at Bogor and Sukamandi.

One or more long term and some short term TA personnel should be added to the team in country especially to give "hands on" tutorial instruction in good experimental method to junior people at the outlying stations. In selecting these TAs, a major consideration should be their ability to communicate. Some short term training should be given by instructors recruited from Indonesian scientists under Winrock subcontracts. These instructors should be given a thorough orientation in the importance of secondary crops to Indonesian agriculture and agricultural research. In addition priority in short term training should be given to techniques of experimentation, analysis and interpretation of experimental data, and presentation of research results for publication.

The team suggests making mandatory detailed critical path analysis of all project mechanisms, activities, and inputs at the project design stage will prevent

repetition of this problem.

Training

The time element has also become crucial if all planned training is to be accomplished by the PACD. The need for students to gain adequate english language competency is a chief cause of delay.

If the pool of training candidates with adequate english is found inadequate six months from now, some english language training could be incorporated into the long term training given overseas. Participants allowed to go in this way would be required to stay in a university dormitory and mix thoroughly with native speakers at least for the first semester of their study on probation. If a candidate does poorly, his or her study program would then be changed to a non-degree program.

The team was fully aware of the importance of this project effort to enlarge the scope of Indonesia's agricultural success. Many farmers do not share the triumph in irrigated rice, as the land suitable for irrigated rice is limited and population is still growing. Ways must be found to increase the yield and net income farmers and agribusiness get from crops grown on the less preferred land. The irrigated rice revolution needs to be replicated for these secondary food crops, corn (maize), grain legumes (soy beans, pigeon peas, etc.) and non irrigated (upland) rice if Indonesian income and its distribution through employment is to grow further.

Secondly, physical sustainability of the land and other natural resources has to be addressed. To grow secondary food crops and rice efficiently using only a sustainable level of chemical inputs, new varieties and techniques have to be developed and tested. The team concluded this project can has, is, and will make a significant contribution to this effort.

CHAPTER 1

WHAT THE EVALUATION IS

A. The Topic

This report evaluates U.S.A.I.D. project 497-0302 Indonesia Applied Agricultural Research Project, as amended in August 1985. For six weeks from August 16 1989 the four members of the evaluation team visited Indonesia's principal food crop research stations on Java (BORIF in Bogor, SURIF in Sukamandi, MARIF in Malang), Sumatra (SARIF in Sukarami, North of Padang), Kalimantan (BARIF in Banjarbaru), and Sulawesi (MORIF, In Maros, northeast of Ujungpandang). We went to other AARD offices such as the headquarters in Pasar Minggu, Jakarta, and the Research Coordinating Center for Food Crops, CRIFC, in Bogor. We interviewed Indonesian officials, academics, USAID and American embassy officers, aid officials from OECD donor countries and the United Nations, World Bank personnel, businessmen, expatriates providing technical assistance, and farmers. We examined a wide variety of background material provided by USAID, the AARD, and others. We pondered this material and their observations and findings, and produced this report.

The report concentrates upon phase two of the project. It is "mid-term" and looks at the situation, now, three years before the Project Assistance Completion Date (PACD). Today, USAID and the Government of Indonesia can still make changes. At the PACD all USAID financing for the project (other than payment of accrued liabilities) is to stop. When the two cooperating governments approved the project they expected it to help bring about the conditions which we call the "expected end of project status" or EOPS by the 1992 PACD. Throughout the evaluation we asked: "How much closer does this part of the project bring the EOPS? Is there a way to get to the EOPS faster?"

1. Purposes

We have three main purposes in this report.

First, we identify improvements in the way this project's inputs are now provided and project activities are carried out. Our focus is on current project activities, essentially those initiated in the second phase since September, 1985. Many current activities are completing work begun in the first phase or are needed follow ups. The first phase put in place most of the physical infrastructure that USAID financed, and helped establish the institutional environment of current activities.

Secondly, we identify some problems and suggest improvements in the way A.I.D. and Indonesia have designed and execute aid and development activities. These came to our attention when we examined this project.

Thirdly, the team examined how the project activities and the project's EOPs line up with the wider strategies of the Government of Indonesia and USAID. In this context we also considered what USAID's future involvement in Indonesia's agricultural research should be, if any.

2. Neither a Report Card nor an Audit

The evaluation is neither a report card on the performance of contractors or USAID, nor an audit. We do not dwell on how well the providers of inputs carry out their responsibilities, nor whether those responsibilities are being met with proper attention to prescribed procedures and accountability. Instead we try to identify the constraints hampering delivery of project inputs and implementation of project activities, and recommend corrective steps.

B. The End Of Project Status: the EOPS

The project papers for AARP-I and AARP-II included logical frameworks (or log frames) which incorporated statements of desired EOPS. Those log frames have been criticized. USAID asked the team to restate the EOPS with more precision. We did so and used the revised EOPS as the framework for our discussion and to judge the progress of the project.

Our restatement of the EOPS uses only existing project elements and objectives. But we describe more concretely the conditions expected at the end of the project than the 1980 and 1985 logical frameworks. We used additional information from the project documents, including contracts. We incorporated post 1985 additions to the project like the amended ISNAR contract. We also incorporated the questions posed in the evaluation team's terms of reference and took into consideration the USAID mission's CDSS and the Core Agricultural Planning document. (The evaluation team's terms of reference are shown in Annex 1).

C. Restated EOPs

This project was designed and is being implemented to help, while also using existing or planned assistance from other donors and projects, bring the following things or conditions into existence by 1992: (Annex 6 compares the old log frames and these EOPS).

The expected End of Project Status :

In AARD

1. The facilities of AARD, and particularly those of CRIFC (The Central Research Institute for Food Crops the office to which the six research institutes for food crops report), are adequate to carry out its research program at a high scientific standard, and to allow its researchers to prepare their results for dissemination and peer review.

2. AARD's routine and development budget allocations are larger than in the mid nineteen eighties, having progressively increased. AARD allocations are enough to maintain its physical plant, its equipment, and its professional contacts, while continuing to improve the quality, quantity, and relevance of its own research and that it coordinates and perhaps helps fund elsewhere.

3. In the AARD (LITBANG) a well staffed and equipped Center for Agricultural Research Programming (CARP) is operating and assisting the AARD Director General to examine current and future issues of research planning, coordination, and evaluation.

4. Five persons or more in AARD have received graduate training in the management sciences and others in the agency have received similar non degree training.

5. A management information system (MIS) is equipped, established and running in AARD to assist the Director General, the secretariat, and the other components of AARD in the management of the agency and the achievement of its mission.

In CRIFC

1. The Central Research Institute for Food Crops (CRIFC) of LITBANG coordinates an operating applied agricultural research program of high scientific quality, with each of the research institutes under its direction producing work appropriate to it.

2. The quality of the work is evidenced by its presentation for peer review and publication.

3. This CRIFC research program incorporates an emphasis on three groups of secondary food crops (palawiga crops): maize, grain legumes and non-irrigated or upland rice. The emphasis is demonstrated by the development and preparation for release of new varieties and techniques in these secondary food crops.

- a) The techniques and varieties released are proven useful by the increases in total national production of 2 to 3 percent yearly that follow their release.

4. The emphasis on secondary food crops is spelled out in policy papers (at least two), each of which comprehensively explain the policy and guide research in one commodity group or problem area.

5. For each of these commodity groups, a commodity coordinator, assisted by a specially formed technical committee which he or she chairs, plans and coordinates all research with respect to that commodity.

6. The coordination encompasses work done outside LITBANG in cooperation with the agency, whether financed in whole or in part by LITBANG or financed elsewhere.

7. The technical committee for each commodity group reviews research results and (utilizing whatever resources are available to it or which it can mobilize) recommends appropriate changes in research activities, and in relevant government policies and activities.

8. Each technical committee is chaired by the respective commodity coordinator and the vice chairman is recruited from a university research faculty. Members are drawn from the research community in both the government and the private sectors as well as the universities. The members represent important sectors of the agricultural and agribusiness communities, users and producers of the research.

9. The technical committees identify criteria for research support allocations.

10. Annual workshops of each technical committee assess research results and performance, the priorities of future research, and the effectiveness of the past year's research budget commitments and disbursements. The workshops actively promote research cooperation between the research institutes, the universities, private sector individuals and entities, and the international research institutes.

11. Research in the CRIFC centers concerning the commodities of concentration incorporates or takes account of questions such as the impact of existing marketing institutions and practices, and of different farming systems and inter cropping patterns upon the commodities growth. Agricultural engineering, soil physics and similar special subjects are also emphasized.

12. There is increased knowledge of, interest in, and contribution to agricultural use of seed technology, biotechnology, soil management, and economic analysis in the CRIFC stations and staff.

13. The CRIFC research program is formulated to be responsive to and interactive with the larger economic policies of the government of Indonesia, and has a significant part focussed on farm level problems. For example, the need to increase the value added within Indonesia of items consumed abroad but originating here helps define the research undertaken and its priorities.

14. CRIFC research stations have active linkages with

- a) regional and other universities;
- b) private sector entities or companies;
- c) other governmental entities including regional and provincial ones; and

all this is evidenced by regular discussion of agricultural research policies, achievements and problems.

15. A number of completed research studies and some ongoing ones are collaborations between the research institutes, universities, private sector individuals and units, and the international research institutes.

16. Staffing of foodcrop institutes includes :

- a) 25 PhD holders;
- b) 80 MS holders; and
- c) at least forty people having received training abroad under AARP-II; of which
- d) fifteen hold masters degrees in an agricultural science.

17. Sukarami and Maros, in addition to being operating research stations, are station and research farm management support services training centers.

D. The wider framework

This project is part of a larger development environment. The environment is established by the government of Indonesia plus all the programs and the stated objectives, current and future, of the donors including U.S.A.I.D. There are many projects that have an impact upon Indonesian agriculture and Indonesian agricultural research. The team therefore had to look quickly at many projects. Surprisingly we found a great deal of complementarity, but no real duplication.

1. Documents

The evaluation team also looked at how the program lines up with the larger picture. The chief source of government plans and objectives for such review was REPELITA (Rencana Pembangunan Lima Tahun: The government of Indonesia's five year development plan, now in its fifth version: REPELITA V.). Current U.S.A.I.D. plans and objectives are detailed primarily in the Jakarta USAID mission's Country Development Strategy Statement (CDSS) of January 1988. The team deepened its understanding of these basic documents by extensive interviews and supplementary explanatory and interpretive materials. One important such supplementary document specified in the team's terms of reference is a detailed study of current USAID objectives and plans in the agricultural sector. This paper is known as the "Core Agricultural Review" (Review of the Agriculture and Rural Development Program) and was prepared by a consulting team fielded by Chemonics Incorporated and led by Milton Barnett in December 1988.

As described in the CDSS the AID program in Indonesia is now designed to concentrate upon

- o first, increasing Indonesian income, and
- o second, increasing that income in ways that also increase the extent and equity of that income's distribution through employment.

Since 1982, another USAID program design objective has been to minimize the damage to development from expenditure slowdowns and reduced activity that revenue cuts due to international trade conditions have forced upon Indonesia. This has been implemented even as available funding has shrunk for the U.S. aid program. Increasing the efficiency (ratio of desired outputs to inputs) of development activities has become more and more urgent.

USAID activities encourage deregulation, increased simplicity, and openness to private, non-governmental activity. This emphasis on the private sector and the use of the market to inform decisions is a deliberate and pervasive attempt to increase efficiency.

2. Sustainability

Sustainability has become a crucial issue. Sustainability is defined in physical terms as the property of things done in ways that preserve the resources used, especially the natural resources, thereby allowing continuation of the income creating activities for the long run. Sustainability is also defined in financial and fiscal terms: sustainable activities and particularly institutional

and capital investments are those designed and made in ways that provide for the operating and maintenance costs as long as needed.

Operationally, physical sustainability, including the preservation of natural resources, is described in the CDSS as best guaranteed by seeing "the real costs of resource use are borne by producers and users". Fiscal or financial sustainability, similarly, is often operationally obtained by cost recovery. In Indonesia the fiscal sustainability of many activities has been brought into question by the fiscal crisis.

3. REPELITA and Agricultural Research

REPELITA V, and the Guidelines of State Policy (GBHN) all underline the continued importance of agricultural research. A simple and incomplete listing of some of the main points therein, will make clearer the consistency of USAID's priorities with Indonesia's:

- o sustain food crop self sufficiency;
- o raise producer productivity and increase value added to agricultural products;
- o raise farm incomes and expand employment opportunities;
- o diversify production and broaden commodity markets through new product development;
- o preserve and protect the nation's natural resources so as to achieve a sustainable pattern of agricultural development.

Some new directions are also included in REPELITA V important for the focus of AARP-II, such as

- o The desire to promote regional development by determining the commodities which have a comparative advantage in agro economic system of the region and emphasizing their production.
- o Developing agricultural production systems which are less susceptible to the seasonality of climate and assist in the application of these technological packages within the regions.

The priorities for research are again presented in the Agricultural Research Policy Statement prepared by AARD and its associated Action Plan. AARP-II is consistent with all of these documents.

Agricultural research provides the new varieties and techniques needed by farmers to reach the goals, targets, and hopes articulated in these documents. The policy framework must provide environment in which farmers get and use these new varieties and techniques profitably. That means, among other things, policy must allow the market "to get the prices right". Such correct policy is a necessary condition for success. Unfortunately, it is not a sufficient one and expensive investments still need to be made. The "correct" policy environment is needed to encourage and nurture expensive investments to come forth; and in addition where incomes are low outside investment (private and official: business and aid) still need to be provided in a timely manner.

4. Longer term plans

Another question in the foreground of the evaluation is the extent to which current activities are consistent with the Indonesian government's longer term plans for agricultural research and USAID's planned involvement in that field. Our forward look did not stop at a horizon created by the expected end of the project, nor even REPELITA V. We looked beyond that to how the project was preparing for post-project activities, whether by A.I.D., by the government, or by other donors. Our principle guide to those future activities was the CDSS and other mission documents.

E. Complementary projects and activities

The AARP-II project is only one of many activities, financed by many donors, all working to improve agricultural research in Indonesia. To understand this project's contribution to the (EOPS) it has to be seen within its whole constellation of A.I.D. and other donor activities. The relevant set of activities extends beyond the AARD and even the ministries concerned mainly with agriculture and rural development to the funding and operation of education and certain other infrastructure and governmental functions. AARP-II is making unique contributions, but to look at it in isolation is to see it distorted. Some of the most relevant other projects are USAID's Secondary Food Crops Development (497 - 0304), Sumatra Agricultural Research (497 - 0263), Agriculture and Rural Sector Support Program (497-0357), the World Bank Group's Agricultural Research and Extension, and National Agricultural Research.

F. AARP-II's special characteristics

AARP-II does not duplicate the other donor agricultural research activities. It is complementary to the project extension focus of many of those projects and incorporates features from

lessons learned in other activities. It builds upon the foundation laid by the others, and counts upon still others to complete the task it is carrying forward.

1. Emphasis upon secondary crops

First among AARP-II's distinguishing characteristics is its emphasis upon the secondary food crops. This emphasis also existed in the Secondary Food Crops project which concentrated upon extension. But the emphasis is still new to Indonesia. It is important to Indonesian agriculture and appropriate to USAID's wider objectives.

The overwhelming priority of rice in Indonesia has created an imbalance in thinking about the country's agriculture. Rice dominates Indonesian diets, and is the one item that everyone who can afford it has at nearly every meal. In the formation of Indonesian policy, in policy execution, in the search for research solutions to problems and in the dissemination of research's results, rice has gotten the most attention. The results are real and domestic rice production has risen dramatically.

Not every farmer has land that is suitable for rice, especially not irrigated rice. To increase incomes across the spectrum of opportunity and population agricultural research must find ways to increase productivity in other food crops, and on land that for reasons of location, soil conditions, or other circumstances will not do for irrigated rice. Once provided by research the extension agencies can then bring them to farmers, who will adopt them if the policy framework is right.

2. Economic and farming systems considerations

Secondly, an important, notable, but not unique facet of the AARP-II is its emphasis upon farming systems: the applied research results will only be useful if imbedded in the way actual Indonesian farmers, and small farmers, really farm and can farm. Recommendations must be realistic in terms of what the farmers can do with the resources available to them.

3. MIS: The management information system

Thirdly, under AARP-II work has begun on an important addition to the way Indonesian agricultural research will be managed. This addition involves the use of a computer based system for the gathering, ordering, storage, and retrieval when needed of information about research (whether planned, in progress or completed), research staffs, research funding, and available resources. The work on this management information system (MIS) has begun under AARP-II, but the available time and funding cannot take it beyond the thorough testing of a methodology and a pilot effort at installation. In any case the effort of AARP-II is concentrated upon food crops. The final installation of the MIS

will be with World Bank financed equipment and technical assistance. This will be provided under the newly negotiated Agricultural Research Management-II (ARM-II) project, aimed at improving management throughout LITBANG.

4. TAs working within the system

Another special characteristic of AARP-II is the special effort being made to have the technical assistance personnel (TAs) work within the administrative system, and particularly the funding system of AARD. This situation contrasts sharply with that of many other donors who have technical assistance personnel working in Indonesia. In nearly every case those TAs have access to separate funds for such project purposes as the purchase of small equipment, the hiring of labor or even minor technical help, travel and representation. Their work is oriented to research outputs, rather than to the long term improvement of the AARD system, which is the objective of AARD-II. When they go home, they will leave some research results, and the results that any "demonstration" may leave. The researchers they leave behind may not be able to replicate their work.

The WINROCK team working in the AARD does not have this separate funding. They have transport and local travel funds, but from the outset of their tours the research activities which they undertook with their counterparts could only be financed from funds that came to their work location through the channels of the AARD budgets, routine and development. The only equipment available to them was the equipment also available to the Indonesian researchers at the station at which they worked, except for vehicles or personally owned items. They had no funds outside of those in the research station budget with which to hire laborers for land preparation, lay out experimental plots, tending to rain gauges, edit survey questionnaires, or to meet similar research needs. They were intended to help the Indonesians do research, not to do it themselves.

5. Commodity Studies financing

AARP-II also incorporated a research funding mechanism intended to promote the involvement of people outside of AARD, particularly university research and teaching personnel in agricultural research. Although the basic ideas were not unique to AARP-II, the project was the first opportunity for AARD to test this way of funding independent researchers while assuring that their work was relevant to the national research priorities and program. The experience with this Funding for Commodities and Special Studies Research activity of the project and the lessons learnt from it are discussed below. It should be noted that a new World Bank financed project for AARD (ARM-II) will replicate the activity with improvements based on the experience with AARP-II.

This World Bank follow on activity places AARP-II in line with USAID's desire to develop projects that establish policy directions and are pilots for follow on activities by other donors who can infuse larger amounts of capital.

6. AARD as Research Coordination Agency

Finally, AARP is to move AARD from a nearly exclusive concern with doing research to a role as a research coordinator and manager. In this role the agency will be able to draw upon research capability throughout Indonesia. As the principal source of information about what agricultural research work is going on it will be able to combine the results of that work and prepare it for further dissemination and use. Without spending large sums it will be able to coordinate work in the universities and the private sector, and steer it into the priority areas of Indonesian agriculture. Many of the mechanisms of this project help AARD to play this larger role, but a principal one is the establishment of the commodity group coordinators and commodity group committees. These committees and their various satellites at the research institutes will keep the commodity coordinators (and so his superiors) fully informed on relevant research going forward throughout the country, in universities and the private sector as well as in government agencies. The strengthening of AARD's ties with the international research institutions and networks also is an important part of the project.

CHAPTER 2

PROBLEMS REACHING EOPS Project Mechanisms , Activities and Inputs

A. The Analytical Framework

For analysis, the team divided the project elements into:

Mechanisms:

The new ways of organization or doing things the project introduces to reach its objectives. Illustrative examples are the coordination of research by commodity committees, which will promote the new emphasis upon secondary, Palawiga , crops. Another example is making AID funding for research studies available to the university faculties through AARD.

Activities:

These are what the project personnel, direct hire or contract do, or what the project finances. Illustrative examples are promotion of the importance of agricultural research, tutorial teaching at research stations or coaching people in the preparation of research and reports; or the erection of buildings.

Inputs:

Financing is the important AID input. However, it is the item financed which is necessary to reaching the objective, so this analysis refers to it as the input and takes the financing for granted. Thus the technical assistance or overseas training that are financed by the project are the object of our analysis. Other examples in this project are the AID financing for research studies and OJT (on the job training activities). Although the necessary concentration upon what is financed rather than how fast money is moved may seem obvious, project critics have not always adequately distinguished between them.

B. Problems and Successes of the Mechanisms

The team considered all the major mechanisms, activities and inputs of this project. Space limits our written discussion to those whose current success or problems are going to make the biggest impact on the EOPS.

1. Commodity groups, coordinators, and committees

Increasing the attention given secondary food crops in Indonesian agriculture is a major project objective. Coordination of research on the target commodity groups is an important mechanism of this effort. Coordinating research done outside of AARP (also community referred to as LITBANG) is however a new concept. Using a LITBANG staff member as the commodity coordinator assisted by a broad based committee also had no ready models to follow. The coordinators have been appointed, but the mechanism is only slowly taking hold.

The role of a commodity coordinator was new. With no readily apparent models to follow, the research practitioners chosen for the job primarily for their technical competence did not jump into the task of promoting research in "their" commodity group. They were also inhibited from taking charge of all research dealing with "their" commodity by legitimate concern about infringements upon the duties and responsibilities of the director of CRIFC or the research stations. Consequently they addressed what they knew best: the technical aspects and merits of proposals for research funding.

The coordinators were also hampered by a perceived lack of travel funds. They did not know that USAID had made project funds available to visit the stations at which the research work was done. They didn't know how much funding was available for commodity group conferences. They are now finding out. But the building up of the mechanism of coordination has been delayed for a year.

It was the coordinators' perceptions that the most important element of their committees' tasks was to parcel out the research funding from AID and to make sure it was used well. Since this included funds to be spent by universities and outside agencies as well as AARD it absorbed their time and attention. When they defined their task in this light, their justified confidence in their ability to make technical judgements about the research sustained their work. The result was that the committees and the conference that was held (which the evaluation team attended) and which concentrated heavily upon the proposals from universities did a good job.

The criteria for research funding were well chosen. The coordinators built wide understanding of the criteria for the funding of the research, and the kinds of question that need to be answered. The effort is a good start.

At the research stations work has been reorganized from a disciplinary to a commodity focus. This is solid groundwork for attention to the commodities and needs to be strengthened. The commodity work groups and committees at the station need to meet regularly with the coordinator. There have been meetings between

station directors and key members of station commodity committees with the coordinators, but these focussed on their own research or evaluating university requests for funding. It did not focus on coordinating research across stations, let alone outside them.

Coordination is seen as the job of higher authority and the coordination committees can clearly work only with the active support of the director of CRIFC. That support has been given. Notable examples were noted by the Team in CRIFC staff meetings (which included the directors from the regional stations) where the work plans of CRIFC research and the individual stations were discussed. These work plans had to a remarkable extent been developed in collaboration with the station staffs.

2. Commodity priorities

Less encouraging is the continued impact of the pervasive priority of irrigated rice in Indonesia. It creates a milieu the commodity coordinator has to change as he or she successfully shifts priorities. Often his personal priorities have only just begun to shift. AARD may have to experiment to find the right candidates for the job, and then positively load rewards to researchers to promote the target commodities. Since technical competence in an agricultural science has to be a major criterion for the job (as for most in the AARD) even if the agency casts its net beyond its own membership it has a small pool of potential candidates. Since the primary task for the coordinator has to be coordination of research in his commodity it cannot be an added duty. Too many other duties for the coordinator make the novel coordination task too difficult.

3. Private Sector and public participation

Fully exploiting the potential contributions of the private sector and market mechanisms to development is an A.I.D. priority that transcend or permeates all A.I.D. assistance. This fact makes the current absence of a significant private sector presence on the commodity committees a serious barrier to achievement of the EOPS. The private sector cannot simply "be invited to join". Specific individuals, firms, or trade associations have to be singled out and asked to join. This is unfamiliar territory for the coordinators, it will take time and effort. Elsewhere the team has discussed some of the problems in making private sector participation operational in Indonesian agricultural research, but opportunities do exist.

4. University participation

The mechanism of funding university research is now becoming very successful after a slow start. AARD is getting more and more university participation. The favorable results are many:

- o University participation with increased concentration upon secondary food crops in faculty

research and thinking will make help transform public and professional thinking quickly;

- o The interaction between AARD staff and university faculty researchers will move more quickly from a personal to a functional and professional basis; and
- o A basis may be created for future formal collaboration and cross appointments.

Earlier problems getting the mechanism working included inadequate publicity among the universities and their faculties, an accompanying lack of understanding about the criteria for judging applications, and delays in getting everybody together to make the necessary pre-funding evaluations in a timely manner. Overcoming these problems is an important signal that there are real improvements in LITBANG's ability to manage research, especially so because many of these problems have apparently been ironed out below the top.

This progress on the cooperative research between LITBANG and the universities has now become one of this project's mechanisms that will be replicated in the new world bank financed Agricultural Management Project-II (ARM-II). This meets an important USAID CDSS objective: launching pilot development efforts for replication by others.

5. Training

AARD continues to suffer from the limited number of trained scientists in Indonesia and the many demands for them. A.I.D. has been a generous in building Indonesian agricultural research capabilities. Unfortunately this great interest and generosity in agricultural research multiplied the negative impact of A.I.D.'s decision a decade ago to sharply curtail some future financing of advanced degree training because the immediate benefits to the poorest members of the population were not obviously and immediately apparent. The World Bank and others (Japan, Australia) have picked up some of the slack. But in AARP-II A.I.D. is still limiting its financing of advanced degree training to master's degrees with the stated hope that the World Bank will take some of the best M.Sc. candidates and finance their studies through the doctoral level.

The management training portion of the project is well underway. The EOPS on setting up MIS, management training, and establishing management capabilities will likely be successfully achieved for a variety of reasons. The core of agricultural research, however is the physical sciences. The final selection of candidates in those disciplines and their crucial English comprehension is a tight scheduling problem. The EOPS on persons trained in agricultural science may be reached, but special attention is required.

C. The Inputs: Technical Assistance

1. Technical assistance timing

Both phases of the AARP project were designed so that A.I.D. could be the development banker, financing the provision of the inputs and monitoring rather than otherwise getting deeply involved in project implementation. The first phase contractor had many problems, but eventually almost all the inputs were delivered except for certain commodities. The hiring of a subcontractor for the procurement did not solve this problem. It remained until the combined efforts of USAID and the LITBANG staff finally got the commodities for the laboratories and experimental farms of the outlying research stations delivered.

Many of those deliveries have come very recently, when the appropriate technical assistance people were no longer available to help the Indonesians check on the equipment. The Indonesians, particularly at the outlying stations, have little familiarity with this equipment. Some of it is configured in idiosyncratic ways. There is understandable reluctance to assemble and try it blindly, lest it be permanently and irreparably damaged. This is not a fault of the current technical assistance contractor. Many technicians left because their initial two year contracts had expired and with few exceptions the options for their extension were not taken up as provided for in the project. Others are not familiar with the equipment either.

The laboratory installation problem will be solved. The AARD has declared its intention of using the remaining technical assistance funding for short term assistance. The equipment installation is a clear case of the need.

But it graphically illustrates a basic problem of this project. Elements are always getting out of time phase with each other. Timing has often gone wrong, a problem that is exacerbated by the constraints imposed on timing by the crop year and the monsoon.

The phasing problem will continue and will require decisive action by the AARD, USAID, and the contractor. The time when the technicians' presence at the stations will be most productive is just beginning. The research programs are now taking on the disciplined focus that the designers of phase II intended. The A.I.D. research money is finally flowing to the stations, strengthening the advice and help of the TAs. Because many of the earlier TAs are gone, all parties must redouble their efforts to bring in appropriate, carefully selected TAs for the remainder of the USAID project.

2. TA Effectiveness and Research Funding

The causes of the technicians' leaving are familiar: language and physical isolation, frustration at timing, and lack of working funds. The technicians did not have the language and it took them half their tour to learn to communicate. The duty stations are scattered, and some are remote. Recruiting qualified Indonesians for them is difficult and recruiting qualified expatriates more so.

But some causes of their frustration are unique to this project. Elsewhere we have discussed how and why the project is requiring the expatriate technicians to get most of their research funding through the Indonesian budget system. AID is providing financing for them. But it is channeled through the Indonesian system and puts the money through each system's filters serially; the funding suffers delays at each of the filters in turn.

Putting AID money through the system was a new idea, at least in AARD. Being a new idea, there was considerable confusion about how the technicians were to apply for research and operating funds. At one point the stations were told to prepare all research proposals involving project funds in English, because the Indonesians assumed that USAID would act as the primary filter for USAID funding. The commodity coordinating committees apportioning the funds then returned the proposals to be rewritten in Indonesian, so they could appraise them. Adding this delay to all the others, by the time the funding was approved the crop year had passed. No research could begin until the next crop year.

The problem was made especially frustrating for the USAID financed technicians by the presence on the stations of other expatriates (mainly Japanese and Dutch) who have control of their own experimental funding. They hire additional help (for questionnaire editing, land preparation, etc.) and buy minor supplies (fertilizer, gasoline, spare parts, etc.) from donor funds they control and for which they account. The time, attention, and energy of the Indonesians on the station, who following budget cuts had little research money of their own, drifted to working with those who had the money to get things done. On the other hand the Americans did not learn how to work the system. Many never did learn exactly how the Indonesian system worked.

Aside from donor funds there is little money on the stations available for research. There is strong competition for those funds. The best trained and most experienced researchers, who need the expatriates least, get the lion's share. This also limits the TA's opportunities for demonstration. The mix of disciplines among the AID funded expatriates was deliberately chosen to provide help to each station in the station's weakest disciplines, so this effect was amplified. Those most inclined to seek out the Winrock peoples' help and advice have the least research finance, and the least research to do.

AID took steps to meet this problem by providing the technicians with "on the job training funds" (OJT funds) so they could arrange for some of the same things as their foreign colleagues without changing the project mechanism drastically. This helped. But the OJT funds came late, parcelled out mainly through the system, and in any case were relatively small.

The worst effect of the paucity of research that could be done with funds assigned to the Winrock technicians was the way it inhibited the technicians' influence. They were limited in their ability to influence experimental practice or to teach by example.

Fortunately, these problems are now working to a successful resolution. What must now be done is to continue to provide effective technical assistance, incorporating the hard lessons learnt to bring the project to a successful conclusion.

3. TA Terms of reference

The TAs' terms of reference were often unclear, and confusing. They were often inflated, calling for the station director or the national commodity coordinator as the technician's major counterpart. (Sometimes both.) Sometimes the technician's terms of reference asked him to work with a unit in Bogor, (e.g. the Agro-Economic survey) while he was posted to a remote station.

With technicians stationed in Sulawesi, Sumatra, or west Java, these terms were unrealistic in terms of both travel funding and time. They could not realistically become active counterparts to the commodity coordinators while at outlying stations. Given their communications problems they could not even readily be active participants in the research management work of the national committees. But it took them awhile to find that out.

It was equally unrealistic to expect the station directors to be active counterparts. Although there are few Indonesian research funds, there are some. There are also Dutch, Australian, ECAFE, Asean, Canadian, Japanese, IRRI, ICRISAT, etc. funds and technicians. There are experimental farms with equipment and caretakers, relations with the local KANWIL and other agencies in and out of the ministry of agriculture, and all the personnel, maintenance and accountability problems of the station and its subsidiary farms and facilities for the director to worry about. He had little time for the technicians, but usually managed to find some, even if not as a counterpart.

4. TA Effectiveness as tutors

This left the possibility that the TAs could reorient their work to become tutors of research method and ways of presenting experimental results. Almost all tried, with mixed

results. The ecological conditions at the immediate location of the station often does not match the stations mandate (see Annex 2).

The stations locations are historical, and moving their capital facilities is prohibitively expensive. The solution has been to do as much research work as possible on farms under the control of the research institute and with the correct ecological conditions. Such locations are often just distant enough to be expensive and inconvenient to reach even though at a workable distance.

Although research has to be done at sometimes distant experimental farms there are only minuscule travel funds available. As a result the researchers have little opportunity to visit the site of "their" plots. Four visits in a crop year would be more than usual. Careful daily observation of the progress of experiments at those sites has to be left to agricultural high school graduates stationed there, who also prepare the plots and place the experiment in according to the researcher's instructions. Researchers are unsure of the reliability of results obtained under these condition. Many are vaguely ashamed that their research does not meet the ideal standards they had learnt in graduate school, and they have not felt free to discuss their work. These factors further narrowed the set of activities and people with which the TAs could work.

Extreme care in drafting terms of reference for individual technicians is required. It is crucial when the technician has to work in a remote area and has a professional stature and a task (such as advanced research) that preclude close supervision.

5. TA supervision

Closer supervision by the Winrock chief of party was not a possibility, given his own multiple responsibilities. In addition to being chief of party and research coordinator for a contract that involved 483 person months of technical assistance in a four year period, he has responsibilities to a counterpart at CRIFC, to the Secretary of AARD, and as training specialist. At the least he should have been given a deputy. The project paper for the extension called for two people in the jobs the COP fills plus the Indonesian management specialist now there. Why the extra job was eliminated we were not able to determine. But the team feels strongly that given his substantive tasks, the chief of party should have been given a deputy who could deal with personnel and leadership problems.

D. Training and Personnel

1. Overview

Training is a crucial input to the project. The young inexperienced members of the rapidly expanded staff of AARD are being provided both academic and additional on-the-job training. There is also technical up-dating of older and more experienced scientists. Management training is financed for the central staff so AARD can improve its ability to track ongoing and completed research, particularly in the target commodity groups. In the past such research was often been pushed out of AARD staff's attention by the rice program. AARD is now firmly beginning to plan, coordinate and evaluate research throughout the country in the target commodity groups.

The short term training is to help staff concentrate attention and research resources and activities on the target commodities. The target commodities are being given special attention within the framework of the MIS (Management Information System). The MIS installation is going well, although still heavily concentrating upon personnel data. It is moving AARD steadily closer to the end of project status.

New attention is also encouraged in the training for previously neglected non-commodity areas of research, such as farming systems and attention to physical sustainability or ecological factors. Short term and academic training also is aimed at helping staff articulate future research programs and policies responsiveness to Indonesia's changing needs.

Finally, short term and some academic training is intended to upgrade the staff ability to manage systems for facilities and support services. Much of the training is in the form of some 20 workshops in administration and management that are financed.

Fifteen of the twenty academic participant slots for academic training are in the agricultural sciences, including research methodologies, agricultural economics and information management. This training is intended to bring the participants to the master's degree level in US and third country schools.

Phase I of the project provided short term overseas training for 200 persons, at total of 599 person-months. This was almost four times the short term training planned during phase II. Under the Winrock International contract, 150 person-months of short term overseas training are financed. This short term training provides an important mechanism for researchers at outlying stations, for changing perceptions and singling out particularly good work.

Formal academic training is to be financed for twenty people, a few in management and rest in various technical fields. The technical training is all to be in Masters programs. All this training is for AARD-secretariat and research institute staff members chosen mainly from MORIF, SARIF, MARIF, BORIF, and the center for Soil Research. The program paper express the hope that the IBRD will pick up some of the best science participants and bring their training to the doctoral level, the international norm in scientific research. Why only master's work was provided for by A.I.D. is not clear.

Table 1: Training opportunities
during phase II of the project
(July 1987 until June 1991)

Types of training	administration and management		Technical fields	Total	Budget (\$1,000)
	Program personnel	Station development			
Workshops (in-country)	10	10		20	870.5
Short term (overseas)	40 pm	30 pm	80 pm	150 pm	256.5
Long term (MS overseas)	5	-	15	20	1,173.0
T o t a l					2,300.0

pm = person-months

2. Training and staffing needs

a. Food crop research institutes staffing

Project training is aimed at all the food crop research institutes and CRIFC Headquarters, but the target staff is intended to be already permanent or planning to be permanent. Two thirds of the current AARD food crop institutes staff are permanent, but the outlying stations where the need for training is greatest also have the lowest proportion of tenured people.

Table 2: Total number of staff members
at each food crop research institute
and CRIFC Headquarters

Research Institute	Permanent		Temporary		Total Number
	Number	Percent	Number	Percent	
BARIF	151	(59.7%)	102	(40.3%)	253 (9)
BORIF	532	(73.9%)	188	(26.1%)	720 (25)
MARIF	290	(68.7%)	132	(31.3%)	422 (15)
MORIF	220	(51.3%)	209	(48.7%)	429 (15)
SARIF	197	(52.1%)	181	(47.9%)	378 (13)
SURIF	344	(69.6%)	150	(30.4%)	494 (17)
CRIFC	161	(83.9%)	31	(16.1%)	192 (7)
Total	1,895	(65.6%)	993	(34.4%)	2,888

The headquarters at CRIFC (which understandably has a preponderance of senior staff) aside, BORIF has the largest number of staff members and the largest percentage of tenured staff. In absolute numbers its staff are almost three times larger than BARIF. The percentage of CRIFC institution staff members with temporary status (honorar) is 34.4%. The temporary staff numbers and characteristics fluctuate from year to year. The bulk of the temporary people are technicians with Senior High school diplomas or less education. The capability of a research institute to carry out its research roles is largely determined by the number and proportion of its professional staff. Ranks are one measure of the number of degrees (S1, S2 and S3 ranks are given nearly automatically according to their degrees) and also of the people available for professional tasks, as non-degree staff members are almost all support and administrative staff. To give an idea of how many professional staff are available, the educational qualifications of staff members at each food crop research institute are shown below.

Table 3: Degree Qualification of staff members
at each food crop research institute
and CRIFC Headquarters

Degree	BARIF	BORIF	MARIF	MORIF	SARIF	SURIF	CRIFC	TOTAL
S3	1	30	6	8	5	13	3	66
S2	15	43	14	31	39	26	6	174
S1	44	84	44	65	49	47	14	347
Sub - total	60	157	64	104	93	86	23	587
	23.7%	21.8%	15.2%	24.2%	24.6%	17.4%	12.0%	20.3%
SM	3	24	8	24	13	15	7	94
SLA	105	273	144	161	186	155	80	1.099
SLP	1	40	37	26	20	40	18	176
SD	80	226	149	105	51	114	48	773
Below SD	4	0	14	9	15	84	16	141
Sub - total	193	563	358	325	285	408	169	2.301
	76.3%	78.2%	84.8%	75.8%	75.4%	82.6%	88.0%	79.7%
Total	253	720	422	429	378	494	192	2.888

Outside headquarters, CRIFC and BORIF the number of advanced degree holder staff members at each food crop research institute is quite low. The lower educational qualifications of researchers at these research institutes away from the "elite" center at Bogor is obvious. People with advanced degree training (MS and Ph.D. degrees) are needed at those institutes, whose missions cover special ecological environments and missions. BARIF and MARIF particularly need advanced degree training for their staff members compared to other food crop research institutes.

The situation is worsened as the few advanced degree holders away from BORIF are quickly given administrative responsibilities (e.g. as directors of research institutes). Some of the most qualified researchers thus have the least time to do research.

In addition to the over riding need for more highly trained staff with advanced degrees (master or doctor), there is a need for people in under represented disciplines. The disciplinary mix heavily influences the kind and quality of activities in a research institute. The distribution of degree holders by their disciplines as follow:

Table 4: The distribution of Degree's Held Staff members at each food crop research institutes according to their disciplines

Discipline	BARIF	BORIF	MARIF	MORIF	SARIF	SURIF	Total
Administration	6	4	8	8	4		30
Agriculture				10			10
Agrometeorology			2		1	1	4
Agronomy	18	33	24	12	16	7	110
Soil Science	8		5	15	6	4	38
Soil Chemistry				1			1
Soil Physics							0
Microbiology, soil							0
Microbiology			5				5
Biochemistry							0
Biology	1		1	3	3	1	9
Breeding, Plant	4	29	7	2	16	14	72
Genetics, Plant							0
Entomology	8	25	4	13	7	7	64
Pathology, Plant	3	14	2	9	6	5	39
Physiology, Plant		24	2	1	12	2	41
Weed Science					2		2
Farm Management				1		7	8
Ag. Economic	10	16	6	15	8		55
Economics				3			3
Anthropology					1		1
Sociology							0
Engineering				6	3	8	17
Engineering, Chem.						1	1
Seed Technology			1		1	2	4
Food Science					2	3	5
Food Technology			5		2	6	13
Food Chemistry							0
Chemistry							0
Technician		12		4	3		19
Statistic&Biometry	1			1		1	3
Communications/Inf.Scu.							0
Library science							1
T o t a l	60	157	72	104	93	69	555

This quickly shows in which disciplines the whole of CRIFC and each food crop research institute is weakest. For example, BARIF, and SARIF with their mandates for certain soil conditions need soil chemists. MORIF has expressed a need for a soil Physics technician. (There is currently none in the food crops structure).

Special attention should be given to the disciplinary mix in choosing the final candidates, and a short term TA advisor drawn upon if necessary for the selection.

Advanced degree training must be given priority in those areas. The needs should also guide recruitment and reallocation of people between research institutes in CRIFC.

Although we earlier saw BORIF has the most staff with advanced degrees, (followed by MORIF, SARIF, MARIF, SURIF, and BARIF), we now see there are discrepancies in the distribution of research disciplines across all research units.

3. Age and replacement needs

Both recruitment and training must also be guided by the age distribution of an institutions staff. The age distribution of staff members at each food crop research institute is presented in below:

Table 5: Age distribution of staff members
at each food crop research institute and
CRIFC Headquarters

Age (years)	BARIF	BORIF	MARIF	MORIF	SARIF	SURIF	CRIFC	Total
< 20	3	2	1	1	0	0	0	7
20-24	23	24	21	24	24	15	17	148
25-29	42	132	41	103	93	73	37	521
30-34	32	136	60	112	108	126	42	616
35-39	19	139	65	79	71	127	19	519
40-44	27	99	49	40	30	62	24	331
45-49	14	83	22	23	16	41	22	221
50-54	4	44	24	17	13	20	25	147
> 54	4	17	22	8	2	11	0	64
not reported	85	44	117	22	21	19	6	314
Total	253	720	422	429	378	494	192	2,888

Table 6: Age distribution (percentage)
staff members at each food crop research institute and
CRIFC Headquarters

Age (years)	BARIF	BORIF	MARIF	MORIF	SARIF	SURIF	CRIFC	Total
< 20	1.8	0.3	0.3	0.2	0.0	0.0	0.0	0.3
20-24	13.7	3.6	6.9	5.9	6.7	3.2	9.1	5.7
25-29	25.0	19.5	13.4	25.3	26.1	15.4	19.9	20.2
30-34	19.0	20.1	19.7	27.5	30.3	26.5	22.6	23.9
35-39	11.3	20.6	21.3	19.4	19.9	26.7	10.2	20.2
40-44	16.1	14.6	16.1	9.8	8.4	13.1	12.9	12.9
45-49	8.3	12.3	7.2	5.7	4.5	8.6	11.8	8.6
50-54	2.4	6.5	7.9	4.2	3.6	4.2	13.4	5.7
> 55	2.4	2.5	7.2	2.0	0.6	2.3	0.0	2.5
	-	-	-	-	-	-	-	-
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

4. Realization of the training component

Under the RMI contract, from 1982 until March 1987 short term overseas training had been implemented for 177 persons (474.6 person-months) from the target of 200 persons (599 person-months). The training covered a wide range of fields of study (37 fields were recorded). All research institutes under AARD as well as AARD Secretar at sent some trainees. The CRIFC institutes received only a fraction of this total training financing: 165 person-months distribution as shown below. SARIF and MARIF in particular did not use AARD-I financed short term overseas training as much as other food crop research institutes.

Table 7: Short term overseas training under AARP for
staff members at each food crop research institute
and CRIFC Headquarter
(in Person Months)

BARIF	BORIF	MARIF	MORIF	SARIF	SURIF	CRIFC	AARD	Total
25	19	12	31	3	41	34	5	170

In phase II, (during the period July 1987 until August 1989: the period under the Winrock International contract), four persons have so far been sent to be trained in overseas master degree programs. One of these is in a physical science, the others are in management.

Short term overseas training in phase II during 1987 until March 1989 under Winrock International contract has been financed for 11 staff members with a total of 14.55 person-months. Unfortunately, in the CRIFC institutes only a few weeks of training was received (one person or 0.16 person-month from BORIF and one person or 0.16 person-month from CRIFC Headquarters) and the rest of the short term training out of those 14.55 person-months was for other, non-food crop, research institutes within AARD. This may have been strategic to change attitudes and otherwise smooth the transition to the EOPS.

5. Still to be Done

Before the project's PACD in September 1992, the following training of AARD's staff members needs to be completed:

- o Long term overseas training (MS degree) for 14 persons in technical fields of study;
- o Long term overseas training for two persons in the fields of administration or management;
- o Short term and overseas training with a total of 134.45 person-months;
- o 20 workshops within the country.

This is a great deal yet to be done, and will require accelerated effort.

English language training has begun for some thirty people, and the 16 long term participants are to be selected from this group. A long term overseas training participant is required to have a certain level of proficiency in the English language in addition to a good academic background. It needs time (6-9 months is not unusual) to improve the English language proficiency of a candidate through an intensive English course. Therefore, even though English language training has begun, we are not optimistic that all the long term training for 16 persons can be completed successfully before September 1992. Since the bulk of the degree programs to be done are in science with its longer training times selection and English language training must be accelerated if the PACD date is to be met. Consideration may have to be given to extending the PACD date (for training only) to assure the potential benefits of the project can be realized.

CHAPTER 3

AARD: THE DEVELOPMENT ENVIRONMENT

From its outset the AARP did not stand alone. This USAID project is one of a very diverse set of assistance activities by a wide variety of IGGI (Intergovernmental Group for Indonesia: an informal organization of OECD donor countries and international financial institutions who give aid to Indonesia and for whose meetings the World Bank serves as convener and secretariat.) donors to Indonesian agricultural development and to agricultural research. There are also a number of USAID projects that have and are making contributions to this project's objectives. Thus review of the project has to be in a context that goes beyond the project.

Indonesian Agriculture, and Indonesian Agricultural research have undergone spectacular development and progress since the country gained independence in 1950, and especially during the last twenty five years.

Prior to independence, agricultural research had been carried out largely by expatriate scientists (Dutch principally, and Japanese for a short period during their occupation of the country in 1942-45). It concentrated heavily upon crops for export, chiefly estate and industrial crops. It gave only limited attention to the basic food crops. At the time of independence, Indonesia had only a few trained and experienced agricultural scientists who were not foreigners. The numbers of Indonesians with training equivalent to the Ph.D. degree could almost be counted on the fingers of one's hands. There was no reservoir of people with the necessary background to assume leadership of a modern scientific research program. trained to take on this task.

Indonesian leaders recognized a first task was to deepen the ranks of Indonesians trained in agricultural sciences. They sought external counsel to assist the nation in overcoming this handicap. The government initiated steps to build up Indonesia's university structure to train not only its future natural scientists, but also economists and other social scientists. In the agricultural field, the Institute Pertanian Bogor and Gadjah Mada University stand out. Gradually other agricultural faculties were developed in other provinces, a process still underway. The University of Indonesia (Jakarta) and Gadjah Mada also stand out in the field of economics.

A large and diverse number of external agencies, both governmental and private, joined in supporting Indonesia's efforts to build up its strength to overcome its agricultural development problems. Very large gains have been made in sugar production and substantial though less spectacular gains in some of the secondary food crops and in several of the industrial and estate crops.

The Agency for Agricultural Research and Development (AARD) was created by Presidential Decree in 1974, and further strengthened by additional Presidential Decrees in 1979 and 1983. Its major achievements are set forth in its various publications and are summarized in "This is AARD 1985" and "5 Years of Agricultural Research 1981-1986: Its contribution to Agricultural Development in Indonesia".

Its present organizational structure was largely set in 1985. It is likely to remain unchanged for the time being, except for the possible addition of the Center for Agriculture Research Planning (CARP). Indonesia has used sizeable numbers and amount of loans and grants from its wide variety of donors to plan and establish an impressive physical plant for agricultural research use.

The buildings and grounds encompass well-equipped laboratories, central and associated libraries, experimental stations, research farms, ponds, pastures, corrals, barns, storage and equipment sheds, auditoriums, seminar rooms, staff and guest housing, garages, pumps, water towers, drainage facilities, roads, supplementary and primary electrical generators, and generally almost all the capital equipment that is needed to establish operating research facilities able to disseminate the results of research as well.

An effort on the part of all the donors and the government of Indonesia to avoid duplication has succeeded, even though not all the facilities provided are administered by, or "owned" by AARD.

The facilities under AARD are distributed at strategic locations throughout the country. Its 1981-86 report on Agricultural Research progress, reported the following installations:

Table 8: Research Centers

1	Secretariat (Pasar Minggu, Jakarta)
2	[Research] Centers
5	Research coordinating centers
27	Research Institutes
51	Research Stations
196	Experimental farms and ponds

located at approximately 200 sites. The experimental farms range in size from one to over 3000 hectares.

This infrastructure is in place and is virtually complete. Only a few significant gaps remain to be filled. The World Bank loan recently negotiated (project ARM-II) is expected to finance filling many of these gaps. They include assorted buildings for the agricultural economics, biotechnology, horticulture, and fisheries, plus a headquarters building at Pasar Minggu in Jakarta.

Except for the headquarters building for the secretariat, the gaps to be filled are evidence of the way priorities in Indonesia's agricultural research have changed.

More serious, because a permanent solution is not agreed upon, is the continuing requirement for replacement, maintenance, and updating of specialized equipment and such small, relatively inexpensive and humdrum necessities for research as publications. The budget and foreign exchange stringencies facing Indonesia since the 1982 have progressively worsened this problem.

The table below illustrates the problem well.

Table 9: AARD BUDGET IN RUPIAHS

YEAR	DEVELOPMENT GOI	BUDGET BILLIONS DONORS	ROUTINE BUDGET current prices	BILLIONS 1980 prices
1982	2824000	0	1598382	1340924
1983	3751000	0	1616032	1132468
1984	3847155	0	1779980	1123724
1985	2901651	1175794	2321344	1137342
1986	4943289	1262289	2321344	1359896
1987	1745000	1695395	3074184	1521120
1988	813700	1685089	2934535	1394740
1989	447192	8895827	3293000	1565114

The decline in the purchasing power of the routine budget is constant. Those items the routine budget must pay for (repairs, salaries, subscriptions, routine replacements of ordinary things) are all things AARD has sharply restrict to stay within its budget. Salaries are not readily cut, so it is repairs and journal subscriptions, paper and paint, that are pared back. For a scientific research organization, however, journals, paper and expendable items are often crucial inputs.

Research itself is paid for in the development budget; the story here is also clear. From 1985 onward the donors have picked up steadily growing if erratic share of the research costs from the development budget. For the next few years even the World Bank will do operational (meaning research) funding for AARD. But despite this respite, the problems remains: unless Indonesia can find a source of revenue from which AARD's costs can be met the agency's sustainability is in serious doubt.

How can we do it with other things? see STAB/1987 up by 10% in Indonesia p22. and EPSO file AARD 87/88-89/89 routine budget breakdown

A standard prescription is cost recovery; this will work well enough for profitable estate crops upon whose growers a tax is already placed. In the case of the secondary food crops too enthusiastic a chase of cost recovery would only be likely to drive small holders away. Given the overall objectives of A.I.D. this would be counter productive at least. In time of course the growth in secondary food crops and associated value added from their processing will allow cost recovery. But that is not yet possible.

CHAPTER 4

PROJECT RECOMMENDATIONS

The team has the following recommendations for AARD and USAID actions. We believe these will help the project achieve the desired EOPS efficiently. We have also indicated where primary responsibility might be placed.

A. Sustainability

Fiscal sustainability is a major problem of Indonesian agricultural research. Aid donor funds have temporarily offset the budget cuts of the nineteen-eighties and supply most of the funding for the research done at CRIFC. Although an IBRD project plans to provide operational funding for several years past 1992, this is a makeshift solution. AARD has to increase the funding it receives from Indonesia's revenues to maintain and enlarge both the quality and the quantity of its research.

The agricultural research community must make a concerted effort to impress upon government decision makers and influentials why agricultural research is important. In addition to diversification that reduces the vulnerability of irrigated rice these include:

- o The need to increase productivity and income for food crop farmers beyond those who grow irrigated rice;
- o Physical sustainability of agricultural production (which means introducing proportionally fewer chemicals into the environment) requires research so that new techniques and varieties are found and tested;
- o Discovery of cropping patterns and plant varieties least hospitable to pests and diseases while being adaptable to Indonesia.

The current and potential future contributions of agricultural research and AARD for Indonesia's development need repeating. Funding will come when the need is widely understood among Indonesia's influentials.

Successful models for such an education campaign exist, in both Indonesia and the development community: a well known example is family planning. Scientific professionals must overcome their reluctance to participate in informational activities aimed at fund raising. Decision makers who hold the purse strings must be informed so they can understand the costs of neglecting the need for quality research work.

To help build the fiscal sustainability of AARD, CRIFC and their work:

1. AARD should consider the addition of several information professionals to its staff. These might be at the Secretariat, CARP or the DG's personal staff but would have the principal task of advising the Director General and his senior staff on how to present AARD's story and accomplishments.
Action: AARD.

2. All research reports should include a popular abstract that restates the results of the work and the problems to which the research is relevant in terms that make the information accessible to the informed lay public.
Action: CRIFC and Institutes.

3. One or more short term consultants should be provided from TA funds who can advise relevant personnel at AARD headquarters, CRIFC, and the research institutes on keeping influentials informed of AARD's work and its importance.
Action: AARD; WINROCK; USAID.

4. USAID offices concerned with agricultural research must also give more attention to explaining why what they do for agricultural research is important. The role and contribution of agricultural research must be repeatedly emphasized to the development community.
Action: USAID.

- a. The contribution of agricultural research to CDSS goals like environmental sustainability must be made clear. For example, how and why the development through research of integrated pest management techniques will allow chemical interventions to be held to a minimum needs telling.
Action: USAID.

B. Research Coordination

1. The commodity coordinators in CRIFC need additional prestige. The task of commodity coordinator should be the principle source of institutional prestige (as opposed to disciplinary prestige) of the coordinator. The title will not carry the needed prestige and power within CRIFC so long as it is left an added duty. They have to be relieved of some of their added tasks.
Action: CRIFC; AARD.

- a. The job of commodity coordinator involves coordination of work throughout AARD and outside the agency; the importance of this must be recognized. Ways to recognize the responsibilities in the personal rank of the coordinators and their pay should be studied.
Action: AARD; Ministry of Agricultural; BAPPENAS.

2. The commodity coordinators should make regular monthly tours of the CRIFC stations, to keep themselves informed of the research work and activities going on with respect to their commodities not only in the stations but in the agricultural and academic environment. (USAID funding for such travel is provided in the project.)
Action: CRIFC.

3. Future commodity policy and coordination papers should appear under the name of the responsible coordinator. Although the work is clearly important and will continue to be done by incorporating the contributions of the coordinators' superiors and colleagues, (including project advisors) this should be recognized in ways that does not detract from the papers identification as the coordinator's. The paper should be a major prop and tool of the coordinator's work, prestige, and authority.
Action: CRIFC.

4. Commodity conferences must broaden their focus to include consideration of commodity research beyond that financed by the project. Commodity conferences that have been convened have dealt primarily with the allocation of AARP-II research funds among researchers at the stations and universities.
Action: AARD.

5. Commodity conferences should also include general discussion of the agronomics and economics of the commodity in question.
Action: AARD; CRIFC.

6. Coordinators must make extra efforts to increase the recognition given good work in their respective commodity group. Positive rewards must be given for such research to offset the pervasive pull of rice on available energy, money and attention. The importance of Palawiga crops in Indonesian research and agricultural thinking is not established everywhere in AARD or even CRIFC. A form of affirmative action for research in the project's "target commodities" is needed.

The following should be considered :

- a. Published research on the secondary crops should be given special recognition when personnel are being considered for promotion. This consideration should be made known.
Action: AARD, Ministry of Agriculture.
- b. Among the researchers who make special contributions, contributions concerning the target commodities should be singled out for presentation at international conferences and short term training visits at International Research Centers.
Action: CRIFC; WINROCK.

C. Commodity Committees

1. Commodity coordination committees must be broadened to include members from the private sector concerned with the commodity, and from government agencies outside agriculture concerned with the commodity in question.

Action: Commodity Coordinators.

2. Invitations should be issued to named businessmen in the agribusiness community concerned with the commodity. These members might be, or represent, processors or distributors. Other agencies that might be considered for representation include BULOG, Transport, and Industry.

Action: AARD.

a. To identify the most rewarding invitees, AARD might use local consultants hired as Winrock short term TAs by sub contract.

Action: AARD; WINROCK.

3. The commodity committees individual research stations have formed to organize their work should expand their role to include:

a. acting as antennae of the commodity coordinating committee at CRIFC,

b. informally coordinating commodity research in the region of the research station.

To facilitate this consideration should be given to expanding the committees membership by creating supplemental sub-committees.

Action: CRIFC; Research Institutes.

D. Research Dissemination

1. The practice of Saturday seminars must be made a regular feature throughout CRIFC, at all CRIFC research stations. These seminars, where staff members discuss their ongoing research, its problems and their results, are an important mechanism for peer review and the encouraging timely work. It gives researchers practice and increases the ease with they present their research.

Action: Research Institutes.

a. Given the flagship status of BORIF, junior researchers who have written particularly good papers should be invited to present that paper a BORIF saturday seminar as a form of recognition.

Action: CRIFC; BORIF; Research institutes.

2. Provision should be made for having both long and short term TAs at more than one station.

Action: CRIFC; WINROCK.

- a. TAs should be prepared to give a seminar on selected topics at several stations in addition to their other work.
Action: WINROCK.

3. Regular seminars at the stations should be gradually broadened to include members of the local academic and agricultural community. The initial tutorial style should be kept as long as necessary, however.
Action: Research Institutes.

E. Adoption of Proper Experimental Methods

1. Senior Indonesian researchers and TAs should regularly travel to the research stations to work in a collaborative way with the junior researchers. This will improve the quality of their research and teach them proper experimental methods and how to present the results, and be an encouraging sign of recognition. Senior researchers are found at all research institutes, but especially at BORIF and SURIF.
Action: CRIFC; Research Institutes.

F. Wide participation in Research program

1. The availability of research funding must be given wider publicity. The universities are only slowly learning of the program. AARD is making the program known among the agricultural universities, and this effort should be intensified.

- a. When announcements are sent to the appropriate university rectors and deans, informal information copies should subsequently be sent to department chairman, senior faculty or known researchers at the institution.

Action: Commodity Coordinators; AARD.

- b. The list of universities to which the program should be publicized should include the private universities. Some have agricultural departments. Others may not, but relevant research proposals can also come from departments such as biology, chemistry, physics, economics and sociology. Particular attention in the announcements should be given to the possibility of collaborative research with AARD staff.

Action: Commodity Coordinators; AARD.

G. Technical Assistance

1. Future short term TAs should include several persons who are especially prepared to complete the checking and installation of laboratory equipment that has arrived in recent months at all of the stations. Most of this equipment was first ordered sometime ago (even under phase I of the project) but has only recently arrived. Set up assistance is needed.

Action: WINROCK; Research Stations.

2. In the nomination and selection of short term and long term TAs, greater weight should be given to previous Indonesian experience and language capability.

Action: WINROCK and AARD.

3. One or more long term and some short term TA personnel should be added to the in country team especially to give "hands on" tutorial instruction in good experimental method to junior people at the outlying stations. In selecting these TAs, a major consideration should be their ability to communicate. They can be junior people without distinguished bibliographies and probably very recent doctorates. Their principal task should clearly be the teaching of good experimental method, not doing research. (Because some planned long term TAs have left the country, funds are available for this.)

Action: WINROCK; AARD; USAID.

4. The remaining longer term TAs and any new ones should be programmed at multiple locations in Indonesia. Reprogram travel funding if necessary.

Action: WINROCK; CRIFC; Research Stations; USAID.

5. Regular and formal reviews of the mix of TA skills needed should be made with the station directors. Plans should then be modified as necessary.

Action: WINROCK; CRIFC; Research Stations; USAID.

H. Training

Short term training

1. To improve the integration of the Indonesian universities in the program, some of the short term TAs should be used to teach courses at agricultural faculties. Simultaneously they would give some of the remaining planned in country short term training.

Action: AARD; WINROCK; Ministry of Education

2. Some short term training should be given by instructors recruited from among Indonesian scientists under Winrock subcontracts.

Action: Winrock; AARD;USAID.

- a. These instructors should be given a thorough orientation in the importance of secondary crops to Indonesian agriculture and agricultural research.
Action: AARD; WINROCK.

3. Priority in short term training should be given to techniques of experimentation, analysis and interpretation of experimental data, presentation of research results for publication (including communications for extension purposes), and instrumentation.

Action: CRIFC; WINROCK; Research Institutes.

Long term training

4. Time is short and consideration should be given to providing some long term training in-country.

Action: USAID; AARD; BAPPENAS.

- a. In particular the possibility of moving thesis work to Indonesia, with some supervision being given by TAs should be investigated.
Action: Winrock; USAID; AARD.

5. Some english language training could be incorporated into the long term training given overseas. Two suggestions should be considered:

- a. Participants can be required to stay in a university dormitory and mix thoroughly with native speakers at least for the first semester of their study on probation. If a candidate does poorly, his or her study program would then be changed to a non-degree program.
- b. An additional U.S. semester could be added to their training program which would be spent at institutions specializing in preparing foreign graduate students for study in the U.S. One such program, successful for many years, is sponsored by the American Economics Association, at The Economics Institute in Colorado.
Action: USAID; Winrock; AARD.BAPPENAS.

CHAPTER 5

POST PROJECT AND TRANS PROJECT RECOMMENDATIONS

The evaluation team has the following recommendations for USAID/Indonesia about post project activities and future projects.

A. Agricultural Research Training

1. Training in scientific fields should be through the doctoral level whenever possible. This would be in line with the evolution of American training in scientific disciplines. Steps should be taken to arrange that doctoral research (dissertation research) is done in Indonesia whenever possible, to reduce leakage of candidates and increase the relevance of candidate's academic work to Indonesia.

Action: USAID; BAPPENAS; Ministry of Agriculture; Ministry of Education.

2. Academic training should ideally be integrated with technical assistance, so that TAs in Indonesia are able to assist in the supervision of the doctoral research of the participants.

Action: USAID; BAPPENAS; Ministry of Agriculture; Ministry of Education.

Recommendation 2 above has two corollaries :

3. Selection and call forward (departure for training) of participants must occur early in the project to allow time for dissertation research while full TA teams are on the ground.

Action: USAID and BAPPENAS.

4. A significant portion of the TA team for many projects should come in the middle and second half of the project after the groundwork has been laid for their most effective use.

USAID; BAPPENAS; Ministry of Agriculture.

B. Nurturing Professional Ties

1. For reasons of training and peer review, the links of Indonesia's agricultural research institutions and professionals with the world wide scientific network in the field must be nurtured. This means:

- a. USAID should consider the selective funding for AARD stations outside Bogor of selected journal subscriptions and attendance at international meetings and seminars.

- b. USAID should carefully monitor A.I.D. Central funding (eg. S&T funding) of multi country agricultural research activities to assure inclusion of Indonesia whenever that is relevant.
- c. USAID should consider a small activity (perhaps as an addition or amendment to an ongoing project) that would finance international dissemination of Indonesian research results.
- d. USAID should investigate the possibility of a small synergistic project to finance cooperation in research projects between American scientists and Indonesian scientists at AARD or a university. AID would fund reciprocal travel and some support for the work in Indonesia; but work in the U.S. could be expected to be funded elsewhere.

C. Project Planning

The following team recommendations, although derived from our examination of AARP-II are made for all USAID projects.

1. The inclusion of critical path analysis which illustrates the phasing and interaction of all project activities over the whole life of the project should be mandatory in project planning. The analysis must specify the planners' best estimates of time required for each and all activities. The time estimates should be made for each input and then all activities in turn, until the expected output is achieved. Currently many papers suggest that project planners give short shrift to the time requirements of actual project activities and implementation, although carefully estimating the time required through authorization and the signing of project contracts.

Action: USAID.

2. Technical assistance personnel whose most important work and counterparts are outside of the top levels of the Indonesian government or Jakarta must be given at least three months of language training and cultural orientation.

3. When long term TA personnel are to work directly in Indonesian government offices, they should be brought to Indonesia for an orientation visit, interviews by and of their counterparts, and a through discussion of their individual terms of reference before final selection.

(The additional cost of this : perhaps \$ 8500 x 2 per long term TA position will be only about 4.5 percent of the cost of a 3 year technical assistance contract before overhead costs. When overhead is included in the calculation the additional cost will be less than 3 percent, while the chances of success with the technical assistance are likely to be doubled).

D. Commodity Procurement

1. Project authorizations for Indonesia should incorporate a provision that commodity shipments to Indonesia can be made on ships of the cooperating country at least for that leg of the journey from Singapore or another nearby trans-shipment point. (This recommendation arises from the team's observation that many more U.S. flag vessels carrying general cargoes are available for trans-Pacific to Singapore shipments than onward to Indonesia).

ANNEX 1

Mid-Term Evaluation--Scope Of Work

MID-TERM EVALUATION--SCOPE OF WORK

Project : Applied Agricultural Research Project 497-0302.

Purpose :

The general purpose of this mid-term evaluation is to provide the Ministry of Agriculture (MOA) and USAID with an assessment of Project performance to date of selected Project components and guidance for future project direction. The evaluation seeks answers to the following specific questions:

A. Are changes in the Project's objective called for to bring it into alignment with dimensions of the Mission's program as reflected in CDSS guidance, the recommendations made in the recent "Core Agricultural Review" or as determined by the GOI's planning documents? Are current objectives and outputs consistent with USAID and GOI longer term involvement in this sector? What should be done to help prepare for any post project activities in the last years of this activity?

B. What changes in the mix of Project inputs, eg. T.A. skills, training programs and commodities may be necessary to support remaining Project activities and to be responsive to needs both in Jakarta and in the provinces?

C. What evidence is there to date of improved GOI skills as a result of this Project in the formulation, execution and evaluation of agricultural research, the management of agricultural research stations, and the formulation of GOI policy. The evaluation team will recommend changes in appropriate Government of Indonesia agricultural policy which may be required for this Project to reach its objectives and to promote more effective agricultural research.

D. What measures can be taken to establish more effective Project management arrangements so as not to detract from the technical roles and duties of the contract T.A. teams?

E. Are closer links needed between the MOA, Agency for Agricultural Research and Development (AARD), private sector organizations and Indonesian universities involved with agricultural research? If needed, how may this be achieved to promote the role of the private sector and universities in agricultural research?

F. Are closer links needed between this Project and related efforts from other donors to promote respective activities and avoid duplication of effort? If so, how is this achieved?

The results of the evaluation will assist the MOA and USAID to determine what modifications, if any, will be needed to the current Project design, grant/loan agreements and technical assistance contracts and training plans to redirect activities and provide additional resources to assure attainment of Project objectives. In addition to examining selected Project inputs and outputs, the evaluation team will examine the Project logical framework and determine if it is adequate, if changes are required and if purpose level objectives are being achieved.

Statement of Activities

The mid-term evaluation team will conduct its work in Indonesia over a seven week. The evaluation will be conducted in Jakarta at the office of the Indonesia Ministry of Agriculture, Agency for Agricultural Research and Development (AARD) and at the four research institutes where long-term, project-funded consultants are presently located: Bogor Research Institute for Food Crops (BORIF) Bogor, West Java; Malang Research Institute for Food Crops (MARIF), Malang, East Java; Sukarami Research Institute for Food Crops (SARIF) Padang, West Sumatra; and Maros Research Institute for Food Crops, Ujungpandang, South Sulawesi. In addition the team will travel to the Banjarbaru Research Institute for Food Crops (BARIF), Banjarmasin, South Kalimantan.

The mid-term evaluation team will be led by a senior agricultural economist who will direct one US specialist in agricultural research, one Indonesian training specialist and one Indonesian agricultural policy specialist.

The basic task of the evaluation team will be to measure and assess progress to date toward attaining the End of Project Status (EOPS) benchmarks as outlined in the Project Paper and in Amendment No.1. Background materials for the evaluation will include: Project Paper and Amendment No. 1 to the Project Paper, grant and loan agreements, technical assistance contracts, training lists, quarterly and annual technical assistance reports, commodity studies and special studies reports prepared to date, the USAID/Indonesia CDSS, policy dialogue agenda and other program guidance documents and related project papers for the Agriculture and Research Sector Support Project (ARSSP), the

Secondary Food Crops Development Project, the USAID/ARD Core Agricultural Review and other documents to be identified and supplied by USAID staff.

The evaluation will focus on project activities initiated under Project Paper Amendment No. 1 dated August 1985. While all components of the Project should be addressed and evaluated with regard to progress being made against implementation plans identified in Amendment No. 1 and subsequent technical assistance work plans, the evaluation team will focus on Training, Technical Assistance, Commodity Research, and Special Studies components of the Project.

Specifically the evaluation will concentrate on :

A. Training:

1. How does the current mix of on-the-job, short course and degree training compare with that planned for in Project documentation ?
2. How are training activities being conducted by the consultant teams, how many have participated and how successful has this training been?
3. What do the short-course evaluations and comments from participants reveal about the usefulness of the courses and have evaluations/comments been used in course redesign and development?
4. What has been the involvement of local universities in the short course development process?
5. Have the participants for long term training been selected from appropriate institutions and received training in needed areas? Are newly returned participants from long term training provided with the opportunity to utilize acquired skills?

B. Commodity and Special Studies Research

1. What is the status of the Commodity Research and Special Studies activities?

2. What activities have been completed and how have they been used?
3. How effective are the arrangements for the advertisement and selection of research activities?
4. What has been the role and effectiveness of the selection committees which were created to oversee and select Commodities Research and Special Studies proposals?
5. What methods should be utilized to ensure greater utilization of these funds?

C. Technical Assistance

1. How effective have the completed and ongoing T.A. contracts been in achieving stated goals "to strengthen the agricultural research system's capacity to generate, test and disseminate advanced and economically appropriate technologies for food production by helping the systems cope with 'second generation' institutional development problem"?
2. Should the mix of T.A. (long and short term) be changed to increase effectiveness in reaching the states goals, and contractual terms of reference?
3. Can existing future T.A. be made more effective and responsive to needs of the GOI?
4. What changes, if any, are required in existing terms of reference which would enable T.A. teams to function more effectively?

Reporting Requirements

The mid-term evaluation team will be responsible for preparing a final report addressing the issues identified with subsequent recommendations to USAID and the GOI. This report will include recommendations for revisions in the Project design to bring Project objectives and inputs into alignment within the existing time frame for the project. This document will also provide recommendations, if any, for future USAID involvement in agricultural research. The final evaluation report will be

prepared in English by the evaluation team while in country and delivered to USAID in draft with enough time to incorporate mission comments in the final version.

ANNEX 2

Research Station Mandates

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FOOD CROP RESEARCH INSTITUTE MANDATES

Institute	Mandate
Bogor Research Institute (BORIF)	Pioneering research to provide general back up support to the other 5 research institutes on food crop research.
Malang Research Institute (MARIF)	Varietal and crop production research on secondary crops including corn, sorghum, soybeans, peanuts, mungbeans, cassava, wheat and sweet potatoes.
Sukarami Research Institute (SARIF)	Research on food crops for upland and high elevation areas under humid condition, using a farming systems approach.
Maros Research Institute (MORIF)	Research on food crops under drought prone conditions, using a farming systems approach.
Sukamandi Research Institute (SURIF)	Research on food crops under irrigated conditions, using a farming systems approach.
Banjarbaru Research Institute (BARIF)	Research on food crops under swamp conditions, using a farming systems approach.

ANNEX 3

PARTIAL LIST OF INTERVIEWEES

PARTIAL LIST OF INTERVIEWEES

NAME	LOCATION	TITLE
Abidin; Bahrn	MARIF	Engineer
Adisarwanto	MARIF	Agronomist
Ahmad; Ismet	UNLAM	Dean, Faculty of Agriculture
Alton, Charles	MORIF	WINROCK/Economist
Baharsjah; Justika	IPB	
Barata; Anas	MORIF	Agronomist
Basir; Mustari	MORIF	Plant breeder
Blumenchein	Jakarta	WINROCK/COP
Brown; David W.	AED/CITA	Senior Economist
Corpus; Dr. Ignacio	MORIF	WINROCK/Agronomist
Daves; Thomas E.	IBRD/Jakarta	Agricultural Economist
Drajat; Dr. Aan A.	SURIF	Wheat breeder
Sunendar; Dr. K		Plant Pathologist
Edwards; David	ADB/Jakarta	Country Economist
French; James H., Ed.D	MORIF	Winrock/Educator
Geurts; F.M.A.	MARIF	Netherlands Aid/COP
Yukawa; Goichiro	Japanese Embassy/ Jakarta	First Secretary (Agriculture)
Guhardja; Edi	Bogor	Dean, Institute of Agriculture
Guritno; Dr. Ir. Bambang	Brawijaya University	Dean, Faculty of Agriculture
Hallam; John A.	ASEAN/Food Handling Bureau	Consultant
Hamming; Michael	USAID, Jakarta	Agricultural Economist
Harahap; Z.	BORIF	Rice coordinator
Harrison; James		Economist
Hasanudin; Dr. Budi	MORIF	Director
Imam Uddin; F.	MORIF	Engineer

Kasno; Astanto Kortenhorst; Louis F.	MARIF Netherlands Embassy/Jakarta Bogor Jakarta/Education	Plant Breeder First Secretary (Development) Faculty of Agriculture Director of Ministry Research Engineer
Koswara; Oetit Koswara; Jajah Ph.D	MORIF	
Landa; Tabran M.		
Mamiek Slamet Manuwoto Sjafrida; Ph. D Manwan; Ibrahim Mardinus; Dr.	MORIF/Sidondo Bogor CRIFC Andalas University	Sub station head Vice Dean Agriculture, IPB Director Dean, Faculty of Agriculture
Marwoto Mustafa; Dr. Muslimin	MARIF Hasanudin University	Crop Protection Dean, Faculty of Agriculture
Nation; John	Australian Embassy Jakarta	Secretary (Development)
Pane; Hamdan Ridwan; Hilmi; K	SURIF AARD	Secretary, Project of AARP Agronomist
Rudjit; Budhi Santoso Rumawas; F Saenong; Sania	MARIF IPB BONTOBILI	Agronomist Seed production Technician
Sahulata; A. Sindhoesarajo;	IBRD/Jakarta Jakarta	Operations Officer Agronomist
Drs. Saroso Singgih; A. Somatmadja Sridodo Subandi	MORIF BORIF AARD BORIF	Information Chief AARP project officer
Sudaryono Suharmandia Sukardi; Mulia Sumarno Sunarjo; Pius J. Agriculture	MARIF SURIF MORIF/Wawatobi MARIF Hasanuddin	Soil Science Researcher Director Faculty of University

Suparyono Surjadi; Djidji	SURIF Jakarta/Agriculture Ministry	Plant Pathologist Sub Director: Budget Planning
Sutidjo; D. Syarifuddin; Achmad, Karana Tangkuman; Freddy	IPB BORIF	Plant Breeder Agronomist
Tastra; I. Ketut Trayambkheswar; P.N. Shinha Van Santen; Charles E.	MARIF IBRD/Jakarta Bogor	Agricultural Engineering Resident Staff in Indonesia ESCAP CGPRT CENTRE Programme Leader Agricultural Development Officer AARD/ISNAR
Weller; Dennis J.	A.I.D/W	
Wood; Dennis M.	AARD/ISNAR	
Yahya; M.B. Yan Rachman; H. Zabaedah; L. Zahab; Ibrahim Ali Abul Zainuddin; Simanallong	BORIF SURIF MORIF FAO/Jakarta SURIF	Laboratory Chief Soybean breeder Corn agronomist Program Officer Upland rice breeder
Zubachtirodin	MORIF	Researcher

ANNEX 4

Partial Bibliography of Items Consulted

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PARTIAL BIBLIOGRAPHY OF ITEMS CONSULTED

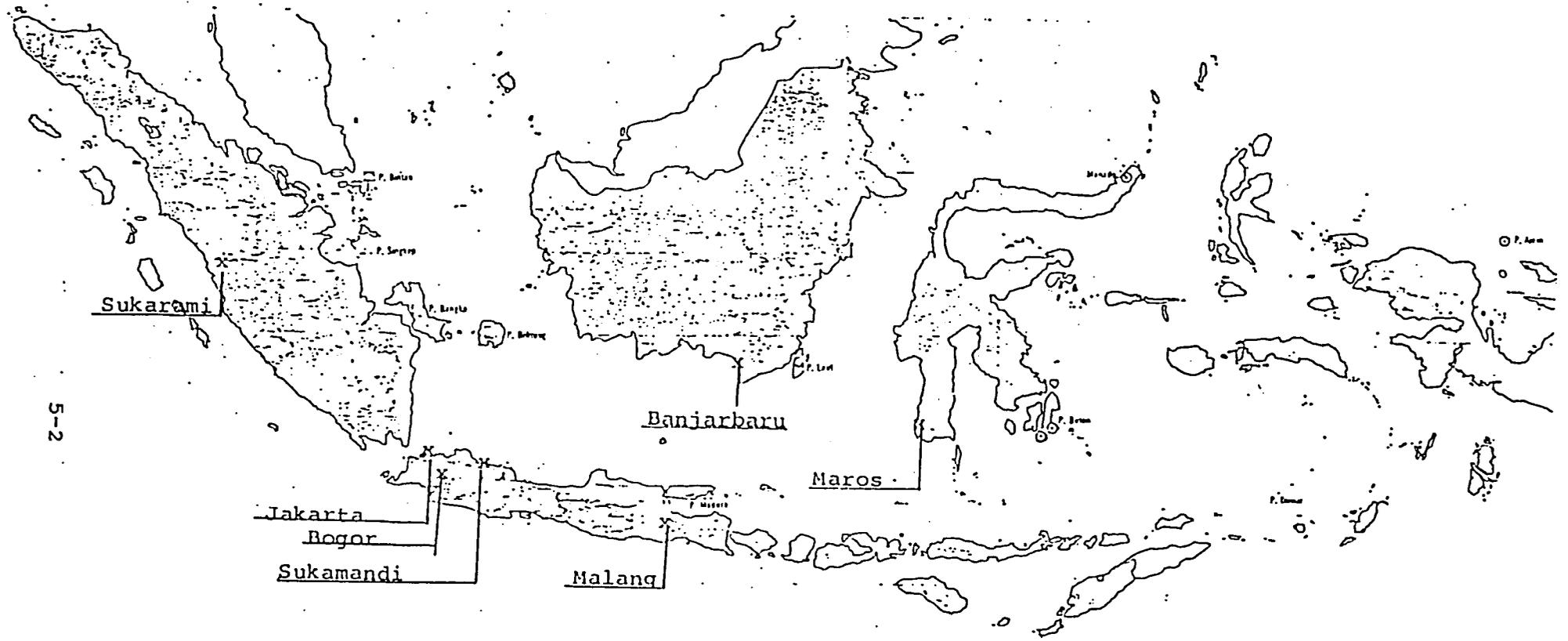
AUTHOR	TITLE
AARD AARD AARD	Agricultural Research in REPELITA V ISNAR Statement of Work Minutes of Meeting: Institute Directors
AARD AARD	Research Program of AARD An Evaluation Of The Palawija Crops
AIDAB, South East Asia Branch Alton; Charles American Embassy Jakarta	Indonesia: Country Paper AARP II-Terminal Report The 1980's Experience And the Outlook For 1990's
Asian Development Bank Azam, M.Z.; Soeksmono B.M.	ADB Annual Report 1988 Agricultural Research in the Asian and Pacific Region
BARIF	Master Research Plan Food Crops, 1989-1994
Barnett; Milton L.; et al	Review Agriculture And Rural Development Programs
Blumenschein; A.	Some notes of The Third AARP II Staff Meeting
BORIF	Master Research Plan Food Crops 1989-1994
Chandra, Satish; Costello; et al	Livestock Sector Review
Coulter; Manwan; Nestle; et al	An Evaluation of the Organization and Management of AARD
CRIF	Master Research Plan Food Crops 1989 - 1994
Fritz, Carl; Harwood; et al	RMI Inc. Completion Report
IBRD	Indonesia 1988 Report
IBRD	Indonesia: Agricultural Research Management (ARM) Project
IMF	International Financial Statistics
Insyauddin; M.F, et al	Farm Production in Selected High Elevation areas

SA

ANNEX 5

Research Center Locations

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5-2

Sukarani

Banjarbaru

Maros

Jakarta

Bogor

Sukamandi

Malang

P. Borneo

P. Sumatra

P. Jawa

P. Kalimantan

P. Sulawesi

P. Irian

ANNEX 6

Elements Of The Project Log-Frame

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ELEMENTS OF LOGICAL FRAMEWORK

NARRATIVE SUMMARY

Program Goal:

To strengthen the agricultural research system's capacity to generate, test and disseminate advanced and economically appropriate technologies for food production by helping the system cope with "second generation" institutional development problems.

Project Purpose:

To support:

1. S t r e n g t h e n i n g administration of research planning, coordination and evaluation.
2. Upgrading the management of facilities and support services.
3. Research on selected high priority commodities and activities and on a few promising commodities and farming systems.

OBJECTIVELY VERIFIABLE INDICATORS

Measures of Goal Achievement:

An improved research organization which encourages well conceived and executed research relevant to farmer's needs and develops and transfers appropriate technology for the benefit of Indonesia's economic development.

Conditions Expected at End of Project:

1. A strong system of research administration that effectively sets objectives and research priorities and is systematically implementing, monitoring and evaluating research programs.
2. Improved management of research facilities and support services to create and maintain optimum conditions for research program activities.
3. A responsive research agenda which focuses resources on selected secondary crops, commodities (maize, grain legumes and upland rice), and activities (seeds, bio-technology, soil management and economics), and tests the potential of several (e.g. hybrid rice, sorghum) promising commodities.

4. Strengthening linkages among AARD, the universities and the private sector to enhance research output.
5. Development of Indonesia's future agricultural research programs and policies.

Outputs:

1. Development of new varieties and technologies that will sustain high levels of rice production, and increase soybean, peanut and maize production. Research undertaken that tests the potential of hybrid rice, sorghum and other high potential food crop commodities.
2. Better knowledge of and contribution to agriculture from improved seeds, bio-technology soil management and economic analysis.
3. Better trained scientists working in project priority areas.
4. Better trained research administrators and facility managers.
5. Improved procedures in place for setting priorities, obligation of sufficient operational

4. Productive linkages in place to a number of regional universities and private sector companies.
5. An analysis of accomplishments and issues in agricultural research and a strategy developed for future program support.

Magnitude of Outputs:

1. Significant increase in production of rice (3%/year), soybeans (6%), maize (6%) and peanuts (4%).
2. Specific research activities focused on seed production and supply, bio-technology, soil management and economic analysis implemented and evaluated.
3. Fifteen scientists complete M.S. degree programs abroad. Twenty-five participants complete non-degree training abroad.
4. Five M.S. degrees completed in management fields. Seventy MH non-degree training program in research administration and facility management.
5. System-wide improvement in research administration, but with emphasis on institutes with the

budgets, and planning and implementing research.

mandates for project supported commodities and activities. Increasing rate of budget support to operational research costs in accordance with financial plan.

6. Improved management of selected research institutes through upgrading.
7. Enhanced linkages at the central and local level between AARD, the universities, extension and private sector in the planning and implementing of research programs.
8. Comprehensive impact evaluation of agricultural research and policy paper on future projection of the agricultural sector.

6. Sukarami and Maros developed as station management and support services training centers.
7. A number of collaborative research activities completed. Representatives from universities and private sector participating in coordination of national commodity schemes.
8. Two policy papers produced.

Inputs:

1. Research support for selected commodities and activities (transportation, per diem, supplies, equipment, labor wages).
2. Management support (same as above).
3. Technical assistance.
4. Training.

Quantity (Value):

Amended Project Activities	
Technical Assistance	\$7.825
Commodities	100
Vehicles	150
Training	2.300
Commodities res.	2.000
Special Studies	1.000
Contingency/Infl.	583
	\$13,958

MEANS OF VERIFICATION

1. Monitoring and evaluation.
2. Surveys and studies.

IMPORTANT ASSUMPTIONS

1. Continued strong leadership in AARD.
2. Maintenance of planned GOI budget support to agricultural research.

- | | |
|---|---|
| <ul style="list-style-type: none"> 3. Government statistics. | <ul style="list-style-type: none"> 3. Stable and expanding international and domestic economic environment. 4. No major foreign exchange or political crises. |
| <ul style="list-style-type: none"> 1. Monitoring including participating in meeting, visiting facilities, etc. | <ul style="list-style-type: none"> 1. Continued support by other donors refacilities academic training, equipment. |
| <ul style="list-style-type: none"> 2. Surveys and studies. | <ul style="list-style-type: none"> 2. Continued leadership in AARD. |
| <ul style="list-style-type: none"> 3. Evaluations. | <ul style="list-style-type: none"> 3. Continued sound economic policies providing sufficient production incentives in agriculture sector. |
| <ul style="list-style-type: none"> 1. Varieties and practices recommended, released and adopted. | <ul style="list-style-type: none"> 1. Average weather. |
| <ul style="list-style-type: none"> 2. Government statistics. | <ul style="list-style-type: none"> 2. Adequate input availability and distribution. |
| <ul style="list-style-type: none"> 3. Monitoring and evaluation. | <ul style="list-style-type: none"> 3. Adequate markets. |
| <ul style="list-style-type: none"> 4. Surveys and studies. | <ul style="list-style-type: none"> 4. Incentive price policies. |
| <ul style="list-style-type: none"> Monitoring and evaluation. | <ul style="list-style-type: none"> 5. Encouragement of private sector activities. |
| | <ul style="list-style-type: none"> 1. USAID able to support costs of research and research management. |
| | <ul style="list-style-type: none"> 2. GOI contributions on schedule. |
| | <ul style="list-style-type: none"> 3. No major changes in GOI rules for technical assistance, training procurement, etc. |

ANNEX 7

AARD: CRIFC Rupiah Budgets:
Indonesian Fiscal Years 1980-1990

CRIFC BUDGET BUYING POWER
(thousand of rupiah)

Indonesian Fiscal Year	CURRENT PRICES (actual budget)		1980 BUYING POWER (restated in 1980 prices)	
	Total	From Donors	Total	From Donors
1980	183351	0	183351	0
1981	3870219	0	3521582	0
1982	4709382	0	3950823	0
1983	5367032	0	3761059	0
1984	5627135	0	3552484	0
1985	5976807	1175994	3578926	1841411
1986	7264633	1262289	4255789	2099375
1987	6514579	286395	3223443	2360009
1988	10323315	6575080	4906518	4519778
1989	12636019	8895827	6005712	55793168
1990	6455944	2186000	2869308	2623530

Source: Litbang