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QUARTERLY REPORT

October through December 1983

IRRI/USAID Contracts: 1) Applied Agricultural Research Project 497-0302, 2) Extension of Small Scale Agricultural Equipment IRRI: 492-CA-1707, and LUWU 497-0244, and 3) Related IRRI Activities

Executive Summary

1. The Farming Systems Consultant enjoyed a rather active quarter during which he participated in the Asian Farming Systems Working Group in China; made several field trips of note in Indonesia; completed, working together with his Agronomy colleagues, the research components of the AID Upland Agriculture and Conservation Project, and a Crop/Livestock Project Proposal for presentation to IDRC; and identified the urgent need for improved coordination among the many donors who have become increasingly interested in farming systems development with particular reference to rainfed upland areas.
2. The Director CRIFC has been identified as the official counterpart to the Farming Systems Consultant, and the Consultant's Stay Permit is being extended until 30 June 1984 to coincide with his appointment termination date under the IRRI/RMI sub-contract for the Applied Agricultural Research Project. Before that date a decision needs to be made as to the desirability of continuing his appointment for one or more years.

3. The concluding seminars and workshop on the Consequences of Small Rice Farm Mechanization Project, and the quickened interest of the new Director of Bina Produksi in the DITPROD project and its accomplishments over the years, has served to focus increasing interest in small scale farm mechanization. Meetings have been held on several occasions, at Bina Produksi, to evaluate what has been accomplished and to determine the future of the mechanization project. There is, on the part of Bina Produksi, a definite intent to continue as in the past with a practical farm-level approach. Coincident with this quickened interest comes information from USAID that the current regional project will be concluded as originally scheduled in September 1985. USAID/Indonesia, as the leading exponent of developing a national capability to manufacture small scale agricultural equipment, is being encouraged to continue this program under a new project.
4. Excellent progress has been made in establishing a collaborative IRRRI/University graduate training program in Indonesia, thanks to the efforts of Drs. M.K. Vega and M.D. Pathak and the interest of the university authorities. The Institut Pertanian Bogor (IPB) has signed a Memorandum of Understanding and the first participant under the program has been identified and is undergoing study, funded by the Applied Agricultural Research Project.

5. The Liaison Scientist accompanied Dr. S.K. De Datta to Peninsular Malaysia, over 17-23 October to visit the Director General of MARDI, and to review the weed problems confronting the MARDI Bumbong Lima research Station staff in their services to farmers. This was a very productive visit, much appreciated by MARDI staff. It has since been learned that the Director General of MARDI has made an official request to IRRI for a Memorandum of Understanding which will create a more formal working relationship between MARDI and IRRI.
6. The Liaison Scientist and the Farming Systems Consultant attended the annual Litbang Field Day exercises on 22 November. The staff of CRIFC are to be complimented on their conduct of a very interesting and highly successful field day which was well attended.
7. The Liaison Scientist takes this opportunity to commend the appointment of Dr. I.N. Oka to the IRRI Board of Trustees, and to acknowledge the strong and able support of Mr. Sadikin S.W. during his years of service on the Board.

QUARTERLY REPORT

October through December 1983

IRRI/USAID Contracts: 1) Applied Agricultural Research Project 497-0302, 2) Extension of Small Scale Agricultural Equipment IRRI: 492-CA-1707, and LUWU 497-0244, and 3) Related IRRI Activities

Activities which took place over October through December 1983 are as follows:

Farming Systems

The consultant maintained a highly active and productive schedule over the quarter, as is reflected in the three rather comprehensive and timely Monthly Reports and Appendices for October to December 1983 (see Appendices I, II, III A and B).

The consultant participated, together with Dr. Suryatna Effendi, in the Asian Farming Systems Working Group, Hangzhou and Beijing, China over 19-30 October. On his return to Indonesia, travel funds were made available from several sources and the consultant was able to spend 18 days in the field visiting watersheds in Central and East Java (Appendix I), inspecting Farming Systems and Fertilizer Efficiency research sites in Lampung and South Sumatra (Appendix III A) and participating in a workshop on "Farming Systems for Upland Rainfed Areas in the Tropical Rain Forests of East Kalimantan" at the invitation of the West German Government-funded Transmigration Area Development project (Appendix III B).

Readers interested in the Trip Reports appended to the Monthly Reports will identify a quickening interest and logical assemblage of donors and international organizations (USAID, World Bank, FAO, West Germany, IFDC, IDRC, et al) interested in upland rainfed agriculture. This interest is helping to bring together research

staff in AARD from the different centers and disciplines for collaboratively developing project proposals for integrated research and development with the agricultural extension services. As the consultant makes clear: "We need to improve coordination and information flow among Farming Systems projects in Indonesia. This is true for activities within AARD and with other institutions and agencies, for example, all provincial development projects funded by USAID have a Farming Systems Development (if not research) component. Other rural development projects funded by World Bank, FAO, and West German projects all have a Farming Systems Development component". And so, after so many years all the pieces appear to be coming together and now is the time for improved coordination, and increased development afield.

Towards this end, the research component of the USAID Project paper for the Upland Agriculture and Conservation Project was completed by end November and submitted to USAID. As the consultant observes this was a unique opportunity to bring together research staff in AARD to develop a logical and sound approach to research that will directly meet the needs of critical land areas and the people who live there. Final discussion and editing of the Crop/Livestock Project Proposal by the ~~same~~ AARD group, was completed in November for submission to IDRC (which has indicated a definite interest in the project). The consultant and other members of AARD were invited to participate in the previously mentioned TAD-sponsored workshop on farming systems for East Kalimantan. And, a follow-up field trip to Batu Laja and Way Abung (Lampung and South Sumatra), where cropping systems research was conducted from 1976 to 1983, provided clear evidence that the farmers are following the basic cropping patterns and management guidelines, are terracing the land to stabilize the soil, and are diversifying crop production.

The visit to Lampung and South Sumatra Provinces, undertaken at the behest of IDRC -- which funded cropping systems research in Banlarjaya, Central Lampung over 1975 to 1978, was especially interesting to the Liaison Scientist who had last visited the areas in 1976. At that time the "highway" could only be traversed at 20-40 km/hr; villages were sparse, poorly constructed and far between, and the landscape was like orchard-bush savannah when not a rolling sea of alang-alang. Whereas on this current visit, 7 years later, there is an astonishing change: there is a bustle of activity; the highway has in fact become an integral part of the Sumatra Highway and can be driven safely at speed; a new ferry terminal is completed and scheduled ferries make connections between Sumatra and Java in 1 3/4 hrs, versus overnight, and truck and bus traffic is continuous; where once was nought but scrub bush and alang-alang are pepper groves, maize, rice fields and square kilometers planted to cassava -- and commercial cassava processing plants; what were once transmigration villages constructed of rough sawn plank now take on the aspect and appurtenances of towns; mosques and churches have been built, and schools and superior housing with glass windows, tile roofs -- and TV antennae -- are much in evidence. School children are neatly dressed in school uniforms; motorcycles as well as push bikes are seen everywhere -- and there is the general aspect of affluence and well being. And all this has taken place in 7 years. The cropping systems projects, started in 1973 and continued through 1982, have been an integral part of all that has taken place, and it is rewarding to have been a part of that.

The consultant expresses some concern over the renewal of his "stay permit" which is due to expire the end of January 1984. Renewal is currently in process to extend his permit to coincide with the expiry of the IRRI sub-contract with RMI for the Applied Agricultural Research Project at the end of June 1984. IRRI should begin now to decide whether or not to negotiate a further sub-contract. In anticipation of the desirability of so doing, the consultant has drafted a new,

more definitive scope of activities (Terms of Reference) for 1984 for review and concurrence by the Director, CRIFC (Appendix IV).

Agricultural Engineering

Due to family illness it was necessary for the consultant to absent himself from the project over 10 October to 28 November. Notwithstanding this misfortune the project is so well organized, and has so much momentum that all work proceeded at a near normal pace. Such circumstance speaks highly of the consultant and the staff of DITPROD.

The proceedings of the workshops and seminar on the Consequences of Small Rice Farm Mechanization, held in Indonesia during July and August 1983 are in process and should all be ready for presentation in January 1984.

At the request of the USAID/Indonesia Office of Employment and Enterprise Development, DITPROD organized a meeting on 12 October for the members of a joint Agricultural Consultative Cooperation Commission which included U.S. and Indonesian representatives and entrepreneurs. A briefing and slide presentation, and an equipment exhibition was held at the DITPROD workshop/office.

Two British VSOs commenced work under the project in early November to assist in proto-type design (Jakarta) and in fabrication (West Sumatra).

At the behest of ILO, DITPROD in collaboration with the Agro-Economic Survey group of AARD prepared a proposal to conduct a study on "Commercialization and Diffusion of Small Farm Equipment Technology in West Sumatra". The proposal was accepted by ILO and a contractual agreement to fund the study was signed on 5 December 1983. While in West Sumatra to select survey sites for the study, on 22 December, opportunity was taken to participate in an exhibition and demonstration of small scale farm equipment manufactured in West Sumatra under project assistance, on 24 December. Some 150 progressive farmers

and government officials attended, with the Governor of West Sumatra inaugurating and recognizing the assistance of DITPROD, IRRI and USAID.

A meeting was called by the Director, Bina Produksi on 12 December to discuss "Evaluation and Continuation of Project IRRI/DITPROD", during which it was made clear that the Director has seized the initiative as to project direction and continuation. It was quite clear that he is not waiting on higher decision, that he favors the practical farm level approach the project has taken, and that he wants more of the same on pilot areas selected by priority.

The consultant's activities are presented in greater detail in Appendix V.

An amendment to the Luwu Project, Contract No. 497-0244, to add \$5,100 to the project and extend its duration to 31 December 1983, was signed on 7 October (see Appendix VI).

Indonesia IRWMR Project

At the request of the Liaison Scientist (LS) who was then unfamiliar with the project but concerned over missed planting dates and the lack of specific equipment to properly conduct the trials, Dr. L.R. Oldeman was prevailed upon to visit Indonesia over 3-6 October and resolve the LS's concerns. This Dr. Oldeman succeeded in doing with great aplomb and with a minimum expenditure of time. The project proceeds on a revised schedule and meteorological reports have been brought up to date. It only remains to be recorded that despite IRRI, Los Banos and Indonesian efforts, UNDP/Indonesia has yet to locate the Gunn Bellani radiation integrator as of end December 1983.

Dr. Oldeman's Trip Report is appended (see Appendix VII).

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Collaborative IRRI/University Graduate Program

Following on a meeting with the Assistant Dean of the Graduate School, IPB during the visit of Dr. M.R. Vega in late August 1983, Dr. M.D. Pathak visited Indonesia over 9-15 October and, in a seeming whirl-wind of meetings in West and Central Java, succinctly explained the IRRI proposal for the collaborative IRRI/Indonesia University Graduate Training Program, and departed having successfully negotiated the proposal with the Rector of IPB. Positive response to the proposal from Gadjahmada and Pajajaran Universities are expected, once they have opportunity to properly appreciate the proposal.

This adjunct to IRRI's normal institutional and field research program in Indonesia opens a whole new spectrum of activities, and Dr. Pathak's visit is most appreciated. His trip report aptly records his activities (see Appendix VIII).

Training

<u>Type of Training</u>	<u>Number of trainees</u>	<u>Dates</u>		<u>Location</u>
		<u>Dispatched</u>	<u>Returned</u>	
Integrated Pest Management	2		Nov. 25	IRRI
Agric. Economics	4	Oct.16	Dec. 10	IRRI

Visitors

Dr. R.L. Oldeman	IRRI	October 3-5
Dr. & Mrs. Kevitt Brown	BARIF/RMI	October 4
Dr. M.D. Pathak	IRRI	October 9-16
Mr. J. Ryan and Mr. E. Holte	Norsk Hydro (Oslo)	November 4
Dr. E.E. McKinnon	RMI/Jakarta	November 9 and 18
Dr. P. Stangel	IFDC/USA	November 188
Dr. J. Thompson and Mr. G. Manuelpillai	NCSU/U.H. Soils Mgt.(W.Sumatra)	December 6
Dr. G.W. Selleck	Dir.Gen. AVRDC	December 15
Dr. R.L. Villareal	UPLB	December 15-21
Dr. P. Stangel	IFDC/USA	December 19

Rice Seed Orders Received over October-December 1983.

<u>Date Received</u>	<u>Amount/Use</u>	<u>Consignee</u>	<u>From</u>
Nov. 10	2 kgs 83 IRWBPHN No. 24	Dr. B.H. Siwi	Dr.D.P. Garrity
Nov. 10	5 kgs: 83 IRWIT-II No. 18 83 IRWIT-II No. 25 83 IRWIT-II No. 26	Dr. Tohar D.	Dr. D.P.Garrity
Nov. 22	7 kgs	1. Dr. Jose Ona (45 varieties) 2. Dr. Donald R.Schmidt (6 blast resistant lines) 3. Dr. H. Anwarhan (39 varieties)	Dr. T.T. Chang
Dec. 5	8.7 kgs Deepwater rice	Dr. H. Anwarhan	Dr. D. HilleRis- Lambers
Dec. 8	1.6 kg (1 set IRTP) screening nurseries for Acid Lowland and for Peat Soils	Dr. M Ismunadji	Dr. D.P. Garrity
Dec. 12	0.8 kg (set of IRTP)	Dr.Dwight A. Jurey	Dr. D.P. Garrity

COOPERATIVE CRIFC - IRRI PROGRAM
THE INTERNATIONAL RICE RESEARCH INSTITUTE

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BOGOR, INDONESIA

November 2, 1983

To : Mr. Walter C. Tappan *W. Tappan*
IRRI Liaison Scientist

From : Jerry L. McIntosh *Jerry L. McIntosh*
Farming Systems Liaison Scientist

Subject : Monthly Report, October 1983

I. Principal Activities and Accomplishments.

A. Upland Agriculture and Conservation Project.

I have been requested by USAID and AARD to assist in the preparation of the agricultural research component of this comprehensive Upper River Watershed Project. A team of consultants has been organized by USAID to develop a proposal that covers research, extension, credit and institutional aspects of the project which will be implemented on the Jratunseluna and Brantas watersheds in Central and East Java. I have visited each watershed (8 days) with the overall team (10 scientists) and the 2-3 man team from AARD. Within AARD a working group of scientists from the respective Centers has been working with me to develop a research proposal. Three meetings were held by the working group at the Center for Soils Research. All component studies are to be completed by November 1, 1983.

B. Asian Farming Systems Working Group, Hangzhou and Beijing, China.

Dr. Suryatna Effendi and I participated in the meetings. Three days prior to the meetings were spent at IRRI, Los Banos to arrange visas for China and for consultation and preparation of research papers. One day was spent in Manila discussing the editing of the publication, Indonesian Farming Systems Research and Development.

Papers finalized were:

- a. Progress Report on Farming Systems Research
 - b. Green Manuring and Biological Nitrogen Fixation
 - c. Water Management for Upland Crops after Lowland Rice
- C. Final discussions and editing of Crops/Livestock Project Proposal to be submitted to IDRC.

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II. Miscellaneous Activities

Consultations

1. Dr. Heide - Soil Research Institute, Netherlands, stationed at IITA.
2. Mr. Joe Ona - PDP Consultant to NTT.
3. Usual

III. Constraints and Problem

No problems.

IV. Plans

- A. Finish UACP project proposal by November 12.
- B. Follow up on Crop/Livestock proposal to IDRC
- C. Help develop plans and follow closely research underway in Cropping/Farming Systems.

COOPERATIVE CRIFC - IRR! PROGRAM
THE INTERNATIONAL RICE RESEARCH INSTITUTE

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November 28, 1983

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BOGOR, INDONESIA

To : Mr. Walter C. Tappan
IRRI Liaison Scientist

From : Jerry L. McIntosh *Jerry L. McIntosh*
Farming Systems Liaison Scientist

Subject : Monthly Report, November 1983

I. Principal Activities and Accomplishments

A. The first draft of the project paper for the research component of the Upland Agriculture and Conservation Project was finished and submitted after two weeks of intensive discussion and writing. This has been a unique opportunity to bring together research staff in AARD from different centers and disciplines and collaboratively develop a project proposal for integrated systems research. Even though the project paper will require further revision and editing, the process that was carried out has enhanced research cooperation and understanding among scientists who have not previously worked together. They have developed a logical and sound research approach and are excited about the opportunity to carry out research that will directly meet the needs of these critical land areas and the people who live there.

B. Editing and revision

1. Budget figures for Crops/Livestock Project.
2. Papers to be published from Asian Farming Systems Working Group Meetings.
3. Illustrations and captions for Indonesian Farming Systems Research and Development publication.
4. Project paper for Evaluation of Urea Super Granules.
5. Paper for proceedings of Indonesian Farming Systems Working Group Meeting.

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C. Inspect Farming Systems and Fertilizer Efficiency Research sites in Lampung and South Sumatra along with Messrs. Tappan, Palmer, Siregar, Soetjipto, Inu and IDRC guests.

D. Usual research discussions and consultations with colleagues.

II. Miscellaneous Activities

A. Attend Annual Field Day and discussion sessions for research in CRIFC.

B. Visitors and Consultations

- Dr. Hughes and colleagues - Hunting Associates and Public Works
- Dr. Paul Stangel - IFDC
- IDRC Regional program officers: Dr. H. Doggett, England
Mr. A. McNaughton, Ottawa
Dr. J. Kategile, Nairobi
Dr. N. Mateo, Bogota
Dr. G. Banta, Singapore

C. Review papers.

- Plant Breeding - Working Group Meeting as stable plant resistance.
- Background papers - Perennial Crops
Crop water use
Energy use

III. Constraints and Problems

A. Problems from insufficient funds for travel have been alleviated somewhat by frequent requests for help from USAID, IRRI, etc., that permit me to visit the areas and meet the people I wish to see.

B. My tenure in Indonesia.

IV. Plans

A. Field visits to Farming Systems Research Sites.

B. Help develop strategy for Farming Systems Research in Upland Rainfed Areas (drought prone).

C. Follow-up on project proposals being developed.

JLM:fh

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December 29, 1983

To : Mr. Walter C. Tappan
IRRI Liaison Scientist

From : Jerry L. McIntosh *Jerry L. McIntosh*
Farming Systems Liaison Scientist

Subject : Monthly Report - December 1983

I. Principal Achievements and Activities

A. Follow-up of field trip to Batu Raja and Way Abung.

Itinerary and observations are summarized in Appendix A. In general the IDRC officers were most impressed by the evidence of adoption of Farming Systems Technology developed in Indonesia. This may be summarized by the evidence that farmers:

1. Follow the basic cropping patterns and management guidelines.
2. Terrace the land to stabilize the soil.
3. Diversify production enterprises.
 - Interculture - Fruit species and vegetables.
 - Mixed farming - Production of small and large ruminants.

There are some suggestions:

1. We need to get the Crop/Livestock project approved and implemented as soon as possible. The methodology developed will be useful to other projects - particularly the Upper River Watershed projects.
2. Increase the numbers of Farming Systems Scientists in the Field.
3. Tackle weed problems.

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B. Follow-up on Upland Agriculture and Conservation Project.

Budget figures need more complete breakdown and documentation. My responsibility in the project development process is finished at this point.

C. Participation in "Farming Systems for Upland Rainfed Areas in the Tropical Rain Forests of East Kalimantan".

This workshop and the activities carried out are described in Appendix B. This was a very interesting and useful workshop. There are some points that should be reemphasized:

1. We need to improve coordination and information flow among Farming Systems projects in Indonesia. This is true for activities within AARD and with other institutions and agencies. For example, all provincial development projects funded by USAID have a Farming Systems Development (if not research) component. Other Rural Development Projects funded by World Bank (Yogya), FAO (Pematang Panggang), and West German TAD and ADP projects (E. Kalimantan and W. Sumatra) all have a Farming Systems Development Component.
2. Basic data for labor, costs, time to maturity or harvest, expected yields and ecological niche needs to be tabulated for Indonesian conditions. In many instances judicious use of these data, along with some on-site observations and monitoring, would minimize or perhaps preclude the need for:
 - Test Farms
 - Model Farms
 - Action Research
3. Long term trials, however, are needed to relate soil and climatic descriptions to crop performances. For example, the soil in Rimbayu, East Kalimantan gives test values of 8-10 m.e. of KCl extractable Al. Yet peanuts and soybean look better on these soils than on soils with less than 2 m.e. from other places.

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II. Other Activities

- A. Routine consultations and discussions with colleagues about on-going research.
- B. Consultations
 - 1. Department of Industry and UNDP - lime industry
 - 2. Mr. George Manuelpillai - Final reports from Benchmark Soils Project.
 - 3. Mr. Joe Ona - PDP, NTT
 - 4. Dr. Ruben Villareal - AARD/IRRI Collaborative Palawija Crops Breeding for Cropping Systems. Plans were made for monitoring tour to be held in May in Indonesia.
- C. GEU Meeting.
- D. Discussion on Citanduy Research.

III. Problems and Constraints

- A. Hopefully my stay permit will be extended beyond 31 January 1984.
- B. Duplication of activities.

IV. Plans

- A. Proceed with Crop/Livestock research as soon as project approved.
- B. Visit Cropping Systems sites in Sumatra
 - Fertilizer Efficiency
 - Lime studies
 - Variety trials
- C. Further steps in development of Upland Agriculture and Conservation Project.

JLM:fh

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COOPERATIVE CRIFC - IRRI PROGRAM
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BOGOR, INDONESIA

December 8, 1983

Trip Report

November 29 - December 1, 1983

J.L. McIntosh

Purpose : To take the opportunity to accompany IDRC Regional Program officers and AARD staff to visit Farming Systems Research sites in Baturanta, South Sumatra and inspect Fertilizer Efficiency Studies in Nakau, and Cropping Systems Research in Way Abung, Lampung.

Participants: IDRC Regional Program officers:

Dr. Gordon Banta, Singapore
Dr. Hugh Dogget, England
Dr. Gordon Potts, Egypt
Dr. Jackson Kategile, Kenya
Dr. N. Mateo, Columbia

IFDC:

Dr. Brian Palmer

AARD:

Dr. A.P. Siregar, CRIAS
Ir. Soetjipto Ph., BORIF
Mr. Inu G. Ismail, BORIF
Mr. Soebowo, BORIF

CRIFC/IRRI:

Mr. Walter C. Tappa.
Dr. Jerry L. McIntosh

Background

IDRC Agricultural Program officers routinely hold meetings to review existing and future program activities. The most recent meeting was held in Manila. Subsequent to that meeting the participants wished to divide into groups and visit Farming Systems Research Sites in Thailand and Indonesia. The primary interest in Indonesia was to get a first hand understanding of the conditions and methodology for Farming Systems Research in this country. The kinds of research and the ensuing

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production programs that are common in Indonesia may not be feasible in other countries for biological, cultural and political reasons. It is necessary many times to have direct contacts among scientific and administrative personnel to understand why some approaches may or may not work. Fortunately, the active support for agricultural research and development at the highest levels of government and the diligent nature of Indonesian farmers, promotes the rapid development of research and production programs.

Drs. Banta and Siwi agreed that the group should visit Batumarta Transmigration area and see the impact of past research and the area proposed for an IDRC/AARD Crop/Livestock Research Program. Even though the IDRC guests had only one day for the field, the other members of the group wished to visit other research sites in the area - Nakau and Way Abung.

Batumarta

The Batumarta Transmigration project is located between Baturaja and Martapura (hence Batumarta), South Sumatra and covers about 65,000 hectares in Phase I and hectares in Phase II. Phase I was opened for settlement in 1976. Cropping Systems Research was started beginning with the crop season in 1977. Each family was to be given five hectares of land to be used as follows:

<u>Land use</u>	<u>Area (ha)</u>
Home lot	0.25
Food crops	1.50
Pasture	0.25
Rubber	1.00
Food crops (reserve)	1.00
Rubber (reserve)	1.00

However, up to the present time three hectares of land have been allocated. This includes one hectare of rubber (nucleus estate) and the rest for home lot, food crops and pasture.

The cropping systems research was supported by Transmigration from 1976-1982. Stable and economical cropping patterns have been identified and relevant component technologies to support the systems have been developed. The existing problems that need special research involve:

- Soil conservation
- Varietal improvement
 - Rice varieties more resistant to blast
 - Legumes with more tolerance to acid soil
- Yield stability (which includes varietal improvement)

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- Economic stability (principally through diversification)
 - Upgrade animal component
 - Upgrade perennial crops component
- Land opening and management
 - Will be covered in the newly opened area under Agricultural Research to support Transmigration Project (P3MT).

These points were covered by Mr. Inu in his briefing of the group at the headquarters in Baturaja. Since the farming systems research in the new area is just beginning and is located far from the existing headquarters, it was decided to look at the fields of farmers who had been cooperators under the old project that was completed in the 1982-83 crop year. The contiguous area managed by the farmer cooperators represented a striking contrast with the surrounding area. The most obvious contrasts were:

- Use of introduced cropping pattern
- Crop arrangement
- Improved soil fertility (green healthy plants)
- Terracing
- Grass production for animal feed
- Interculture using coconut, clove, coffee, fruit trees

Nakau

In 1979 a research proposal was developed at IFDC headquarters in Muske Shoals by IFDC, AARD and IRRI staff for research on fertilizer use efficiency for lowland rice and upland rainfed crop production. Because of CRIFC/IRRI experience in cropping systems research the need for study and evaluation of fertilizer use efficiency in cropping systems (rather than for one crop for one season) was emphasized in the proposal. It was hoped that a transect of sites on red-yellow podzolic soils across Indonesia could be established in collaboration with the Indonesian Cropping Systems Working Group. The Soil Research Institute would provide the soil classification and analytical expertise while the cropping systems researchers would manage the on site cropping systems plots for testing.

Because of funding problems and dry weather the 1982-83 trials were only partially successful. The 1983-84 trials have been planted at Nakau by the Center for Soils Research. The plots in Batumarta had just been planted and the seeds had not germinated yet. The plots have been established and the seedlings are about five centimeters high in Way Abung. Hopefully next year trials can be established in South Kalimantan and in Southeast Sulawesi to complete the transect.

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These trials are expected to be a very valuable contribution to cropping systems research and development. We expect to develop techniques that will permit a single application of fertilizer that will be effective for the year around cropping pattern rather than applying fertilizer for each crop (a total of five) over the crop season. Consequently, the trials are designed to study:

- effects of different nitrogen release rates on crops in year around cropping patterns (Urea vs SCU)
- partial acidulation of rock phosphate and crop yields
- lime x phosphate studies (yields and economics)

Way Abung

The IDRC visitors returned to Jakarta while the rest of the group went on to Way Abung to look at the research and farmers' conditions in the Transmigration area. Cropping systems research has been conducted in Way Abung II (about 65,000 hectares). The support from Transmigration since 1976 for this research was terminated at the end of the 1982-83 crop year. The existing research is supported from the routine budget and consists of some cropping systems (lime phosphate trials - long term), fertilizer efficiency, upland crops breeding and minor elements studies. There are a total of 18 trials underway. The work load is very heavy for Mr. Imol who has assumed the responsibility for these trials after the other Cropping Systems staff were transferred to other places.

There were some observations that should be mentioned. First of all, the plots in general looked good and were well managed. Secondly, problems with broad leaf weeds have reached a critical point and more weed research is needed to develop practical and economical control measures particularly at the seedling stage for rice. The weeds are Boreria latifolia and Boreria laevicoulis (Kentangan). Thirdly, the response to phosphate fertilizer in the long term plots with lime x phosphorus treatments remains striking for both rice and corn. The upland rice appears to respond very little to lime. On the other hand corn grows very poorly at low phosphate rates on the no lime plots. From these plots, which are in the third consecutive year, we should be able to get a much better understanding of lime needs.

General

The trip was very useful for many reasons. Some general conclusion can be drawn. Lampung and the southern part of South Sumatra are developing very fast. The main roads through these two provinces are in excellent condition. (On the other hand the roads in the Transmigration areas are in bad shape).

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The new irrigation project in north Lampung appears to be mostly completed. Consequently, there is a vitality in these areas that did not exist ten years ago. Furthermore, the Extension Service for Food Crops is active and viable. The development of production programs for cropping patterns is starting. This will be another major improvement for crop production.

JLM:fh

Trip Report
December 11-17, 1983

Purpose : To attend and participate in Workshop on "Farming Systems for Upland Areas in the Tropical Rain Forests of East Kalimantan".

Location : Kota Bangun, East Kalimantan - TAD Guest House and Rimbayu Transmigration Project Area

Objectives of Workshop:

1. Discussions about existing knowledge and current research activities for farming systems in upland areas in South East Asia - especially East Kalimantan.
2. Develop farming systems to be tested in representative upland sites in East Kalimantan.
3. Develop strategies for further improvement of coordination and cooperation in farming systems research among relevant concerned organizations.

Program : Appendix III B i

Participants : Appendix III B ii

Discussion

The AARD research team on farming systems in Semboja, East Kalimantan that is being supported through PJMT (Agricultural Support for Transmigration Project) has developed a close working relationship with the TAD (Transmigration Area Development) Project funded by the West German Government. I was asked by representatives of these projects to attend the workshop. I was accompanied to East Kalimantan by Dr. Hidayat and Ir. Victor Manurung of the AARD. We left Jakarta on the first flight on Sunday December 11 for Balikpapan. We were met by a TAD driver and taken to Samarinda. At 1900 we boarded a TAD workboat

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for the 12 hour ride upstream to Kota Bangun. The workshop was held in the TAD Guest House in Kota Bangun. The Rimbayu Transmigration Project area is nearby as well as other project activities of the local government and TAD on such things as fresh water fish culture, river bank irrigation and training.

The first day introductory formalities were completed and background presentations were made concerning the TAD and local government programs, soil and climate of the area and experiences in farming systems research in AARD for all of Indonesia.

The second day a visit was made to Rimbayu to interview key farmers, get a first hand impression of the soil and present farm activities and develop concepts for future research and demonstration trials.

The third day the TAD Technicians reported on much of their work and provided background information for planning purposes.

During the fourth and fifth days we divided into five groups and discussed, planned, evaluated (ex ante) and re evaluated farming systems models. Each group was permitted to develop strategies based on their collective judgments with one exception. Each group was given the responsibility of including a specific agricultural enterprise such as fish ponds, small animals, large ruminants, perennial crops and lowland rice. Consequently, each of these different kinds of agricultural activities would be considered and evaluated, even though in the final analysis one system might be considered most appropriate for the area. This process was carried out and each group reported its results. On the final day a concensus was reached and one farming system was designed to be developed as a model for the farmers who have only upland area. The background materials used in the designing and the evaluating processes are included as Figures and Tables. Appendix III B iii is a report provided by Mr. Michael Redshaw of the TAD on the use and management of cover crops in upland farming systems.

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Upland Farm Description

Settlers arrived in Rimbayu from January to June, 1983. Most of the farmers received only upland. However, some of the lower lying land areas lend themselves to lowland rice culture and the farmers have proceeded to develop rained lowland areas. Each farmer has received two hectares of land. The land available to each family is divided into three lots — 0.25 hectare for the homelot, 1.0 hectare nearby (+ 1 km) and the remaining 0.75 hectare farther away. The latter has not yet been given to the farmers. The soils tend to fall into the red yellow podzolic group (Tropudults) and are acid and infertile (Tables 1 and 2). But the rainfall is adequate for year around crop production (Figure 1).

The Rimbayu transmigration project is really divided into three smaller settlements due to the hilly topography of the area. Each farm family has or will be supplied with the following in addition to the first year's food subsidy (Table 3).

In our conversation with Pak Manto, who is a key farmer having only upland area, we learned that he and his wife and three children (son 15, daughter 11 and son 9) had arrived in Rimbayu in January 1983. They came from the vicinity of Solo and had previously cultivated lowland rice. The family members all appeared to be in good health and Pak Manto gave the impression of being very intelligent and industrious. The family home garden was completely filled with crops — mostly legumes being grown for seed. He had planted the perennial crops allocated by the project. The one hectare lot (Lahan I) was about three-fourth cultivated and planted to food crops. The 0.75 lot (Lahan II) has not yet been given to the farmers. The crops growing looked good — especially those in the home garden. Pak Manto had put all of his rock phosphate allotment on this land. Even though the soil is quite acid and high in exchangeable Al (4 - 10 m.e.) the legumes growing looked very good. We were served peanuts which were large and well filled. It is imperative that we develop a transect of research sites on red yellow podzolic soils across Indonesia

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and begin to relate crop production and soil chemical and physical analyses. Without this kind of research we will always have trouble understanding soils and their suitability for crop production.

Pak Manto has planted crops for three seasons since his arrival in Rimbayu. The first crops were planted in April (legumes) and did very well. The upland rice planted about the same time failed because of dry weather. Apparently local, long season varieties of upland rice were used. The second crops were planted in July (soybean and peanut). The yields were good. The third crops are growing now and all look reasonably good in the home garden.

Pak Manto is aware of the soil conservation and marketing problems. He is also acutely aware of the dangers of drought. Consequently, he is eager to diversify his farm operation. He would like to have livestock. It is significant that the border of his front yard is beautifully covered with flowers. Also, the eldest child stays in Kota Bangun to go to school.

Upland Farming Systems

The rationale for the use of the farmers' land for different agricultural enterprises included the following:

- Subsistence for food from food crops
 - calories needed
 - cropping patterns suitable
 - land area needed
 - labor needed
- Minimize risks
 - minimize inputs
 - stabilize production
 - sustain production
 - diversify production

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To meet these requirements it was decided that food crops would be mostly determined by food needs and available labor. From past experiences and rainfall data it was decided that 0.5 hectare of a year around cropping pattern C + ULR (7 Cv) - C + leg - C + leg would meet most of the family food requirements. Family labor would still be available for other activities. It was concluded that perennial crops should be grown to stabilize and sustain production and minimize labor. Coconut appeared to be the most feasible perennial crop. Chickens (10 adults) for eggs for the family and some for sale would add to the family diet. Small ruminants such as goats (5 adults) would be suitable additions to the farming systems. In each case the numbers would be limited according to available labor and feed. The home garden would benefit from the manure produced and the animals could be fed to a large extent from forage shrubs and grasses from this area.

For soil conservation it was decided that the one hectare of Lahan I would be an interculture of food crops and coconuts. The coconuts would be planted in an appropriate contour fashion at a normal population in the rows. The rows would be spaced 20 meters apart to give about one half population. Food crops would be planted in a 10 meter strip between the coconut rows. The 10 meter strip under the coconuts would be planted to pueraria. The pueraria would be trimmed once a year to provide mulch and green manure to the food crops. Bench terraces would gradually develop over time. Lahan II would be planted to a full stand of coconuts and pueraria.

The home garden would be planted, more or less, according to the design provided by Dinas Pertanian and shown in Figure 2. The fish pond would be replaced by a goat stable. Most of the food subsistence would be provided by the food crops grown in Lahan I, but a permanent reserve as well as variety would be provided by the home garden. The home garden would provide much of the oil (four coconuts), vegetables, greens and cassava for family needs. It would also provide the shade and other aesthetic qualities needed for the family. There would still be ample room for the chicken and animal shelters and pens and forage production from grasses and the living fence (glyricidia and leucaena).

Table 3 shows the commodity support available through the Transmigration Project for crop production. The basic fertilizers (urea, TSP and KCl) are available for three years. Tables 4, 5, 6 and 7 provide data for labor requirements, market and food values for different food commodities and basic human nutritional needs, respectively.

Labor Balance

Labor availability is a major constraint to more intensive and extensive use of land. It has been the common experience in cropping systems research that farmers have difficulty using more than one half hectare of land the first year land is opened for year around cropping patterns and about 0.7 hectare in subsequent years. The total labor requirement is not necessarily the problem for use of more land area. Mobilizing the labor force for specific crop management activities within a particular time frame represents the major constraint. The labor requirements and the labor supply for Pak Manto's farm are summarized in Table 8. There appears to be sufficient labor to carry out the necessary farm operations. Diversification of the farm operations permits better labor distribution and more efficient use.

Benefit-Cost

Tables 9-12 show the estimated yields and values of crop production and the amounts and costs of inputs. The food crop production from the home garden area is not included and will be considered as a reserve food source. This kind of breakdown helps us determine weak points in the farming systems and where modifications can be made. The breakdown of input costs for each crop and the home garden is shown in Table 13.

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Calorie and Protein

It was assumed that the major source of calories and protein to meet the family food requirements would come from the food crops produced in Lahan I. Table 14 summarizes the family needs and compares this to the production from Lahan I. These data show that the rice production itself will provide about eighty percent of the family needs. The shortage is assumed to be available from the home garden and the livestock production. Consequently, the other food crops production - legumes and corn, may be sold or used partially for animal feed.

Estimated Cash Flow - 1989

A summary of all cash inputs and value of production is shown in Table 15. It is assumed that the perennial crops will be in production by 1989 and that a stabilized production and marketing system will exist. Since it is also assumed that the rice and corn produced will be used to meet family food needs the importance of the legume, coconut and animal enterprises for cash income becomes apparent. Furthermore, the perennial and animal crops tend to provide income stability. Cash flows for the years 1984-1989 are shown in Table 16. From this table we can see the dilemma the farmer faces in making major capital investments - such as clearing land, planting coconuts and buying animals. Even if credit is available through government programs, the farmer assumes great risk unless every effort is made to reduce costs. One example of a way to reduce costs for establishing coconuts is for the farmers to produce their own seedlings (as in our illustration). The price of hybrid coconut is only Rp.500 while a seedling is estimated to cost Rp.3,000 in East Kalimantan. Consequently, development of effective training and extension programs are essential to the success of the Transmigration project.

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Conclusion

1. Before Model Farms and Test Farms are developed much more ex ante analysis is needed. Through this process many unviable systems may be eliminated before money and time are wasted in evaluation. But ex ante analysis requires background information and data. The National Farming Systems Working Group needs to compile these data and reach a consensus among relevant scientists for the acceptability of the data. Data needed for different agricultural enterprises includes food, vegetable and perennial crops, fish, poultry and animal production figures.
 - a. Labor requirements for different farm operations
 - b. Management practices to be followed for different crops.
 - Spacing
 - Seeding rates
 - Fertilizer practices
 - Pest and disease management
 - Crop cultivars
 - c. Cost of production (revised as needed)
 - Cash inputs
 - Labor
 - d. Expected yields
 - Individual crops
 - In combinations
 - e. Expected sale prices (revised as needed)
2. Better national and international exchange of information is needed to facilitate research development and minimize duplication.
 - a. Newsletters
 - b. Workshops

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3. Research site descriptions and transfer of technology.
 - a. Soil description - should establish a transect of benchmark sites across major soils groups and relate crop production to soil classification and tests.
 - b. Minimum climatic data set.
 - c. Refine basic agro-economic profile surveys.

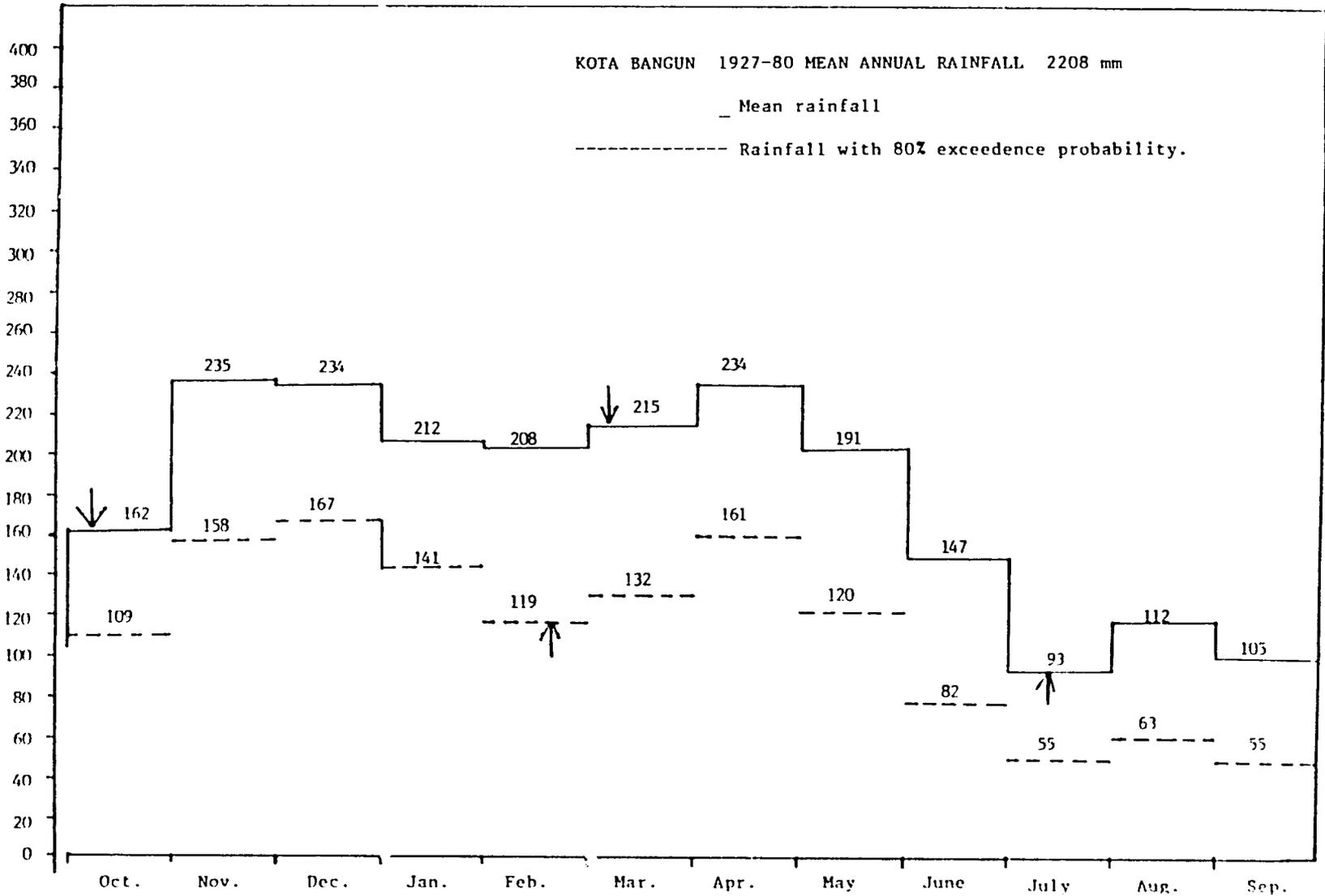
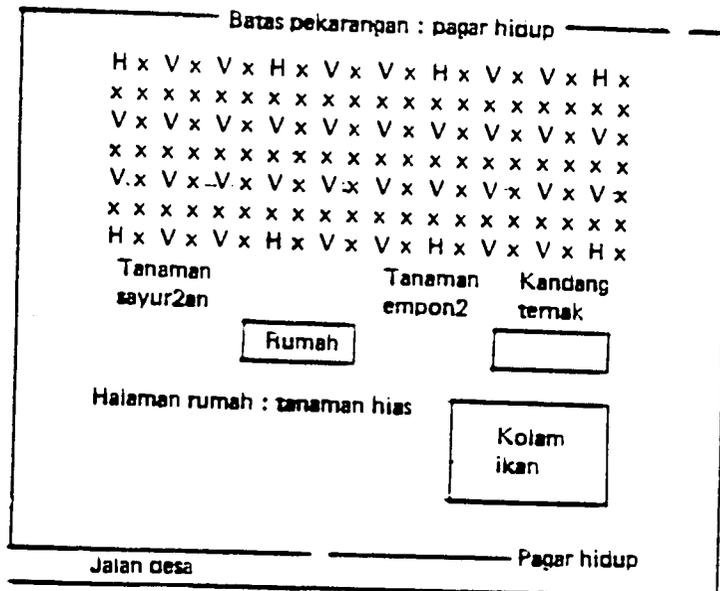


Figure 1. Rainfall distribution and 80% probabilities for each month.

Pola Usahatani Pekarangan (0,25 Ha).

Usahatani yang dapat dilaksanakan pada tanah pekarangan adalah usahatani terpadu yang terdiri dari tanaman pangan (tanaman semusim dan tanaman tahunan/buah-buahan), tanaman perkebunan, usaha peternakan dan perikanan. Pola usahatani pada tanah pekarangan seperti pada daerah berikut.



- Contoh : H = Tanaman tahunan (Buah2an, Tanaman perkebunan dan sebagainya) jarak tanam tergantung kepada jenis komoditi.
 x = Tanaman ubi kayu, jarak tanaman 2 x 2 m.
 V = Tanaman jagung, jarak tanaman 2 x 1 m.

Figure 2. Generalized arrangement of pekarangan for 0.25 hectare for upland Transmigration areas.

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Table 2. Profile description for soil in Rimbayu

Horiz.	Description
A1	0 - 15 cm; yellowish brown (10 YR 5/6); silty loam; moderately fine to medium subangular blocky structure; slightly hard (dry); little organic material (1.9%); very many very fine, many fine, common medium pores; many very fine, common fine, few medium roots; clear smooth boundary;
B21	15 - 52 cm; strong brown (7.5 YR 5/8); loam; moderately to strong medium subangular blocky structure; firm (moist); little organic material (0.5%); many very fine, common fine, few medium pores; few very fine, few medium roots; gradual smooth boundary;
B22t	52 - 75 cm; yellowish red (5 YR 5/8); clay loam; strong medium to coarse blocky structure; very firm (moist); common very fine, common fine pores; few very fine, few medium roots; gradual smooth boundary;
B23t	75 - 112 cm; yellowish red (5 YR 5/8) with many prominent brown (7.5 YR 5/4) medium mottles; clay loam; moderately medium angular blocky structure; firm (moist); common very fine, common fine pores; few very fine, few medium roots; abrupt smooth boundary;
B24t	112 - 150 cm; mixture of strong brown (7.5 YR 5/8) with dark yellowish brown (10 YR 3/4) and yellowish red (5 YR 5/8); clay with many iron concretions, flat, partly rounded edges, 5 - 15 mm.

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Table 3. Materials supplied for crop production during first year to each transmigrant family. Rimbayu.

<u>Seed</u>	<u>Amount</u>
Rice	30 kg
Corn	8 kg
Soybean	7.5 kg
Peanut	6 kg
Cassava	400 sticks
 <u>Seedlings</u>	
Banana	8 bibit
Citrus	1 bibit
Jackfruit	2 bibit
 <u>Fertilizer</u>	
Rock phosphate	600 kg
Urea	100 kg
TSP	50 kg
KCl	50 kg
 <u>Pesticides</u>	
Diazinon	1 liter
Lebaycide	1 liter
Klerat	1 kg
Cytrolene	0.25 kg
Terik	45
 Hand sprayer	 1 for 5 families

Table 4. Standards used for labor inputs (consensus).

	<u>1st (main) crop</u> (Sept. - Jan.)	<u>2nd crop</u> (Feb. - June)
	(Upland rice + maize + cassava)	(maize + legume crops)
Land preparation	70 MD/ha	20 MD/ha
Planting	20 MD/ha	20 MD/ha
Weeding (2x)	20 MD/ha	15 MD/ha
Spraying	10 MD/ha	10 MD/ha
Fertilizing	10 MD/ha	10 MD/ha
Harvesting	60 MD/ha	30 MD/ha
	<hr/> 190 MD/ha <hr/>	<hr/> 105 MD/ha <hr/>

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Table 5. Marketable products and prices for perennial crops suitable for Kimbayu.

Crop	Marketable product	Current Local price per unit (Rp.)	Comments
Coconuts	- whole seednut	250/nut	- possible for Lahan II (no local price)
	- dry copra	/kg	
Rubber	dry sheet rubber	400/kg	- long-term market prospects good - ? planting material
Oilpalm	crude oil*	/kg	- requires simple processing equipment - ? for local soap production - not usually used as cooking oil
Pepper	dry white pepper	1,000/kg	- marketing easy
Cloves	dried cloves	8,000/kg	- very intensive cultivation

* 10% of fresh fruit bunch (ffb) yield

NB.: coffee - no large-scale planting allowed, only few trees for own consumption.

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Table 5a. Plants per hectare, year of production and yields for some perennial crops.

Crop	No. plants per Ha.	Year of 1st production after planting	Yield (kg/ha)					Total 1-5 years
			1st	2nd	3rd	4th	5th	
1. Hybrid Coconuts (dry copra)	145	4th	250	1,000	1,500	2,000	2,500	7,250
2. Rubber	400	6th	200	500	750	750	1,000	3,200
3. Cocoa	1,000	3rd	150	500	600	700	800	2,850
4. Coffee	1,000	3rd	200	300	500	700	800	2,500
5. Oilpalm	130	4th	4,000	10,000	17,000	20,000	20,000	71,000
6. Cloves	130	6th						
7. Pepper	1,500	2nd	400	600	700	900	1,000	3,600

Table 6. Food value of rice, palawija and vegetable crops

Crop	Part of crop	Food Calories/100 gm	Protein/100 gm
Rice	seeds	360	6.8
Soybean	seeds	331	34.9
Mungbean	seeds	345	22.2
Cowpea	seeds	342	22.9
Peanut	seeds	452	25.3
Corn	seeds	355	9.2
Corn	green ear	129	4.1
Cassava	leaf	73	6.8
Cassava	whole roots (67.8% H ₂ O)	120	0.7
Cassava	edible portion (62.5% H ₂ O)	146	1.2
Sweet potato	whole roots	123	1.8
Winged bean	leaf	47	5.0
	Pods	35	2.9
	seeds	405	32.8
String bean	leaf	34	4.1
	Pods	44	2.7
	seeds	357	17.3
Tomato	fruit	23	2.0
Cucumber	fruit	12	0.7
White cabbage	fruit	24	1.4
Pumpkin	fruit	29	1.1
Water spinach	leaf	29	3.0

Source: Daftar Komposisi Bahan Makanan
 oleh: Direktorat Gizi Departemen Kesehatan R.I.
 Bhratara Karya Aksara 1979, Jakarta.

Table 7. Daily contribution of food energy/person (food calories) and protein/person by food from subsistence package compared with the recommended dietary allowances 1), 2)

	Rice			Fish ^{a), b)}			Oil ^{c), e)}			Sugar ^{d), f)}			Recommended dietary allowance			
	Amount g/day	Energy cal	Protein g	Amount g/day	Energy cal	Protein g	Amount g/day	Energy cal	Protein g	Amount g/day	Energy cal	Protein g	Energy total cal/day	Protein total g/day	Energy cal/day	Protein g/day
Household head	583	2100	39.6	33.3	45.0	9.8	53.3	463.7	0.5	20.0	73.0	0	2580.0	50.0	2600.0	55.0
Wife	333	1200	22.6	33.3	45.0	9.8	53.3	463.7	0.5	20.0	73.0	0	1780.0	33.0	2000.0	47.0
1st child ^{g)}	250	900	17	33.3	45.0	9.8	53.3	463.7	0.5	20.0	73.0	0	1480.0	27.3	1500.0	42.0
2nd child ^{h)}	250	900	17	33.3	45.0	9.8	53.3	463.7	0.5	20.0	73.0	0	1480.0	27.3	1600.0	30.0
3rd child ⁱ⁾	250	900	17	33.3	45.0	9.8	53.3	463.7	0.5	20.0	73.0	0	1480.0	27.3	1200.0	25.0

Remarks:

- a) Based on nutrition value of ikan asin.
- b) Assumption fish is shared equally.
- c) Assumption oil is shared equally.
- d) Assumption sugar is shared equally.
- e) Value of coconut oil (minyak kelapa)
- f) Value of white sugar (gula pasir)
- g) Assumption 1 child in age group 7-9 years.
- h) Assumption 1 child in age group 4-6 years.
- i) Assumption 1 child in age group 1-3 years.

Source: 1) Daftar Komposisi Bahan Makanan Direktorat Gizi Departemen Kesehatan R.I. Pustaka Aksara - Jakarta.

2) Djumadi Abu Main and Sunzang: The Recommended Dietary Allowances for Use in Indonesia. Journal of the Indonesian Nutrition Association, Vol.2, No.1-2, 1969, p. 115-123.

Table 8. Balance of labor demand and supply on Pak Manto's farm, 1989.

LABOR DEMAND		LABOR SUPPLY	
Required for	Man-days/year	Source	Man-days/year
A. PLANT PRODUCTION			
- Rice + corn (1/2 ha)	95	- Head of family (100%)	300
- Corn + leg (1/2 ha)	52.5	- Wife (40%)	200
- Corn + leg (1/2 ha)	52.5	- Son (20 yrs) (50%)	150
- Cassava		- Son (16 yrs) (50%)	150
- Cover crop (1/2 ha)	40	- Daughter	
- Coconut (1.25 ha)	200		
- House garden			
-			
-			
- Cover crops			
TOTAL PLANT PRODUCTION	540		800
B. ANIMAL PRODUCTION			
- Goats	50		
- Chicken	25		
TOTAL ANIMAL	75		
OTHER ACTIVITIES			
TOTAL DEMAND	615		

hp

Table 9.

Crop: Rice/corn

Farm model: Manto D.

Planting Season: September/October, 1989.

INPUT / OUTPUT	Kg/0.5 ha	Rp/kg	Rp/0.5 ha	Calories		Protein	
				Cal/100g	kcal/ha	g/100g	kg/ha
<u>OUTPUTS - Seeds</u>							
- Rice	1000 gabah	145	145,000	360	2376	6.8	44.9
- Corn	100	75	7,500	355	355	9.2	9.2
- Green corn roots leaves stems	2500 ears	25	62,500	129	322.5	4.1	10.25
TOTAL OUTPUTS			215,000		3053.5		64.35
<u>INPUTS - Seeds</u>							
- Rice	20	300	6,000				
- Corn	5	500	2,500				
<u>Fertilizer</u>							
- Urea	50	90	4,500				
- TSP	50	90	4,500				
- Potassium							
- Lime	300	85	25,500				
.....							
- Animal manure							
- Green manure	5000						
<u>Pesticides</u>							
- Furadan	17 kg	500	8,500				
- Lebacid	2.5	1500	3,750				
<u>Other costs</u>							
- Transport etc.			8,750				
CASH INPUTS			64,000				
CROSS RETURNS - CASH INPUTS			151,000				
LABOR INPUT (in man-days per ha)							
Soil preparation	Planting	Weeding	Fertilizing	Plant Prot.	Harvesting	Total	
35	10	10	5	5	30	95	

Table 10

Crop: Peanut/Corn

Farm model: Manto D.

planting Season: March/June, 1989.

INPUT / OUTPUT	Kg/0.5 ha	Rp/kg	Rp/0.5 ha	Calories		Protein	
				Cal/100g	Kcal/ha	g/100g	kg/ha
<u>OUTPUTS - Seeds</u>							
- Peanut	300	400	120,000	452	1260	25.3	45.9
- Corn	100	75	7,500	355	355	9.2	9.2
- Green corn roots leaves stems	2500 ears	25	62,500	129	322.5	4.1	10.25
TOTAL OUTPUTS			190,000		1937		98.75
<u>INPUTS - Seeds</u>							
- Peanut	25	1000	25,000				
- Corn	5	500	2,500				
<u>Fertilizer</u>							
- Urea	25	90	2,250				
- TSP	50	90	4,500				
- Potassium							
- Lime							
.....							
- Animal manure							
- Green manure							
<u>Pesticides</u>							
- Furadan	17 kg	500	8,500				
- Lebacid	1.5	1500	2,250				
<u>Other costs</u>							
- Transport etc.			7,500				
CASH INPUTS			52,500				
CROSS RETURNS - CASH INPUTS			137,500				
<u>LABOR INPUT (in man-days per ha)</u>							
Soil preparation	Planting	Weeding	Fertilizing	Plant Prot.	Harvesting	Total	
10	10	7.5	5	5	15	52.5	

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Table 11

Crop: Legume/Corn

Farm model: Manto D.

Planting Season: June/July, 1989.

INPUT / OUTPUT	Kg/0.5 ha	Rp/kg	Rp/0.5 ha	Calories		Protein	
				Cal/100g	Kcal/ha	g/100g	kg/ha
<u>OUTPUTS - Seeds</u>							
- Legume	400	300	120,000	340	1360	28	112
- Corn	100	75	7,500	355	355	9.2	9.2
- Green corn roots leaves stems	2500 ears	25	62,500	129	322.5	4.1	10.2
TOTAL OUTPUTS			190,000		2037.5		214.25
<u>INPUTS - Seeds</u>							
- Legume	20	500	10,000				
- Corn	5	500	2,500				
<u>Fertilizer</u>							
- Urea	25	90	2,250				
- TSP	50	90	4,500				
- Potassium							
- Lime							
.....							
- Animal manure							
- Green manure							
<u>Pesticides</u>							
- Furadan	17 kg	500	8,500				
- Diazinon	1.5	1500	2,250				
<u>Other costs</u>							
- Transport etc.			7,500				
CASH INPUTS			37,500				
CROSS RETURNS- CASH INPUTS			152,500				
LABOR INPUT (in man-days per ha)							
Soil Preparation	Planting	Weeding	Fertilizing	Plant Prot.	Harvesting	Total	
10	10	7.5	5	5	15	52.5	

Table 12

Crop: Coconut (1,25 ha)

Farm model: Manto D.

Planting Season: April/September 1985, harvest year 1989.

INPUT / OUTPUT	Kg/1.25 ha	Rp/kg	Rp/1.25 ha	Calories		Protein	
				Cal/100g	Kcal/ha	g/100g	kg/ha
OUTPUTS -							
- Dry copra	1250	400	500,000				
- fruits/cob							
- roots							
- leaves							
- stems							
TOTAL OUTPUTS			500,000				
INPUTS - Nut							
- Seedling	180	500*	9,000**				
- Production	180	500	9,000**				
* Price for the nut only !							
** Costs for seedling production are calculated 10%/yr pay back on credit.							
Fertilizer							
- Urea	125	90	11,250				
- TSP	125	90	11,250				
- Potassium	125	90	11,250				
- Lime							
- Kieserit	62.5	300	18,750				
- Animal manure							
- Green manure							
Pesticides							
- Bayrucil	2 liter	7500	15,000				
Other costs							
- Transport			25,000				
- Processing			10,000				
CASH INPUTS			120,500				
CROSS RETURNS- CASH INPUTS			379,500				
LABOR INPUT (in man-days per ha)							
Soil preparation	Planting	Weeding	Fertilizing	Plant Prot.	Harvesting	Total	
0,5 ha cleared	-	36	8	4	48	96	
0,75 ha to clear							

+ 64 MD for processing = 160/ha

TOTAL = 200 Man-days/1.25 ha.

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Table 13. Breakdown of cash inputs for each crop and the home garden per year.

COSTS	Rice	Corn	Peanut	Legumes (50% soybean) (50% peanut)	Coconuts	Cover crops	House garden	House stores	TOTAL
Seeds	6,000	7,500	25,000	10,000	18,000	10,000	5,000		81,500
Urea	4,500	-	2,250	2,250	11,250	-	-		20,250
TSP	4,500	-	4,500	4,500	11,250	-	-		24,750
Lime	25,500	-	-	-	-	-	-		25,500
Pesticides	9,000	-	6,750	6,750	15,000	-	10,000	2,500	50,000
Potassium	-	-	-	-	11,250	-	-	-	11,250
Kieserit	-	-	-	-	18,750	-	-	-	18,750
Transport: Processing, etc.	8,750	-	7,500	7,500	35,000	-	-	-	58,750
TOTAL PLANTS	32,750	7,500	46,000	34,000	120,500	10,000	15,000	2,500	290,750

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Table 15. Estimated cash flow (expense-income) for the year 1989.

E X P E N D I T U R E	Rp/year	I N C O M E	Rp/year
<u>A. PLANT PRODUCTION</u>		<u>A. SALES OF PLANT PRODUCE</u>	
- Seeds	81,500	- Rice	
- Fertilizer	100,500	- Corn	
- Pesticides	50,000	- Cassava	
- Rent machines/draught animal		- Fruits	
- Rent labor force		- Vegetables	
- Other expenses	58,750	- Peanuts	120,000
		- Legumes (others)	120,000
		- Coconuts	500,000
TOTAL EXPENDITURE PLANT PRODUCTION	290,750	TOTAL INCOME PLANT PRODUCTION	740,000
<u>B. ANIMAL PRODUCTION</u>		<u>B. SALES OF ANIMAL PRODUCTS</u>	
- Purchase animals		- Goats 180,000 - 60,000	120,000
- Food	10,000	- Eggs and chicken (consume)	20,750
- Veterinary service	20,000	-	
- Other expenses, salt, minerals	20,000	-	
- Stable	10,000	-	
<u>C. OTHER EXPENSES</u>		<u>C. OTHER INCOME</u>	
- Cost of loans		- Credit (cash)	
- Food purchase for families		- Programmes	
- Others		-	
OTHER EXPENSES			
T O T A L E X P E N S E S	350,750	T O T A L I N C O M E	880,750

Table 16. Summary of income and cash inputs for farm operations for 1984-1989.

	Income	Expenditure			
		Seeds Fertilizers Pesticides	Seeds Coconuts	Vet./Feed Medicine	Credit
1984	247,500	115,000	(90,000)	40,000 10,000	(90,000)
1985	367,500	115,000		40,000 10,000	
1986	367,500	230,000		40,000 10,000	
1987	367,500	230,000		50,000 10,000	
1988	492,500	230,000		50,000 10,000	
1989	880,750	290,750		50,000 10,000	

TAD Workshop

FARMING SYSTEMS

December 1983

Title of Workshop:

FARMING SYSTEMS FOR UPLAND AREAS
IN THE TROPICAL RAIN FORESTS OF EAST KALIMANTAN

Date : 12th to 16th December 1983

Location : KOTA BANGUN (East Kalimantan), TAD Guest House

Working Language : English

OBJECTIVES OF THE WORKSHOP

- Brainstorming about the existing knowledge and current research activities for farming systems in upland areas in South East Asia, especially East Kalimantan.
- Develop different farming systems to be tested in representative upland sites in East Kalimantan.
- Proposals for further improvement of coordination and cooperation in farming system research between all organizations concerned.

PARTICIPANTS

- Representatives of the provincial government
- Representatives of Kanwil Transmigrasi and Kanwil Pertanian
- Representatives of the respective DINAS in the agricultural sector
- Representatives of the Indonesian Agency for Agricultural Research and Development (AARD)
- Representatives of the Mulawarman university, Samarinda
- TAD experts
- Guests from South East Asia working in Farming System Research

PROGRAMME OF TAD "FARMING SYSTEMS" WORKSHOP, December 12th - 16th, 1983.12 DECEMBER 1983 (Monday)

<u>Time</u>	<u>Activities/Contents</u>	<u>Forum/responsible</u>
09.00 - 09.30	- Opening of the workshop - Presentation of the participants	Plenum BAPPEDA/TAD
09.30 - 10.00	<u>Introduction</u> - Objectives of the workshop - Methods and techniques - Programme - Organization	<u>Plenum</u> TAD
10.30 - 11.00	COFFEE BREAK	
11.00 - 12.00	An outline of the General Agriculture Development in East Kalimantan	Plenum BAPPEDA
12.00 - 14.00	LUNCH BREAK	
14.00 - 15.30	Actual and planned activities in farming systems research for uplands in East Kalimantan and first experiences in this sector	<u>Plenum</u> short reports from the involved organizations
15.30 - 16.00	COFFEE BREAK	
16.00 - 17.30	Experiences with farming systems in comparable positions outside Kaltim	<u>Plenum</u> AARD

13 DECEMBER 1983 (Tuesday)

07.30 - 13.00	- Visit to Rimbayu - General introduction in the situation of the transmigrasi settlement Rimbayu - Visit of two selected farms, and interview of the farm families	Field Trip Transmigrasi/TAD Group-work
13.00 - 15.00	LUNCH BREAK	
15.00 - 16.00	- Definition of the targets of the farmer families and the most constraints to them	Group-work
16.00 - 16.30	COFFEE BREAK	
16.30 - 17.30	- Presentation of the results of the groups - To quarry of realistic and attainable targets for both farms	Plenum

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1- DECEMBER 1983 (Wednesday)

<u>Time</u>	<u>Activities/Contents</u>	<u>Forum/responsible</u>
08.00 - 09.30	The field of opportunities and restrictions to achieve the formulated targets from the point of the experts	Plenum Brainstorming short lectures
	- New systems in using cover-crops - Duration of growing and realistic yields for different food crops - The most important problems of plant protection - Results of tested Cropping Systems	TAB experts
09.30 - 10.00	COFFEE BREAK	
10.00 - 11.30	- Feasibilities for tree crops in MMA - Chances and problems for animal husbandry in MMA uplands - Experience with pond fisheries in Teluk Dalam - Marketing situation in the MMA uplands	
11.30 -12.30	Definition of feasible farming systems for the 2 model farms	Discussion
12.30 - 14.30	LUNCH BREAK (Formation of new groups)	
14.30 - 17.30	Elaboration of a land using plan for the different farming systems in view of: - self sufficiency in nutrition - covering of the demand of animal fodder - saving of soil fertility - opportunities for cash income COFFEE BREAK individual	Group-work

15 DECEMBER 1983 (Thursday)

08.00 - 08.30	Working plan for the morning	Plenum
08.30 - 12.30	Continuing of farm planning - Labor balance - Economic calculations for the planned farm model (input - output analysis) COFFEE BREAK individual	Group-work
12.30 - 14.30	LUNCH BREAK	
14.30 - 16.00	Presentation of the planning results of each group	Plenum (no discussions, only questions for understanding)

15 DECEMBER (cont'd)

16.30 - 17.30 Presentation of the planning results

19.30 P A R T Y

16 DECEMBER 1983 (Friday)

08.00 - 11.00	Discussion of the planning results in view of: - reaching the targets - feasibility of the plan - suitability for implementation (to be tested)	Plenum
14.00	LUNCH BREAK	
14.00 - 15.15	- Discussion and definition of the most important research lacks for farming systems - Recommendations for the improvement*) of the further cooperation and coord- ination in farming systems research	Plenum
15.15 - 15.30	COFFEE BREAK	
15.30 - 16.00	Closing of the workshop	Plenum

*) In the beginning of the workshop should
be selected a committee with the order
to prepare a proposal for respective
recommendations

TRANSFER FROM SAMARINDA TO KOTA BANGUN

- The travel from Samarinda to Kota Bangun will be arranged by TAD. The long boats will leave on 11th December (Sunday), at 07.00 p.m. from the TAD jetty.
If you do not know this place, please come to TAD Guest House, Jl. Pahlawan, Samarinda, at 06.30 p.m.
- Return from Kota Bangun to Samarinda is planned on Friday night, arrival in Samarinda on Saturday morning at 06.00 o'clock.

List of Participants
 TAD WORKSHOP "FARMING SYSTEMS FOR UPLAND AREAS
 IN THE TROPICAL RAIN FOREST OF EAST KALIMANTAN"

KOTA BANGUN, 12 - 16 December 1983

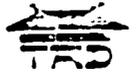
N A M E	POSITION/INSTITUTION	ADDRESS
1. Dr. Hidayat Nata-atmadja	Agro Economist	Jl. Merdeka 99, Bogor
2. Ir. Fadjar Sidik	Planter/PTF VI Muara Marah Plantation	T.A.D. Bappeda Building Jl. Kusuma Bangsa 140 Samarinda, East Kalimantan
3. Ir. Suhaimi Sulaeman	Plant breeder BARIF - Banjarmasin	BALITTAN (BARIF) P.O. Box No. 1 Banjarmasin, South Kalimantan
4. Ir. Victor T. Manurung	Litbang Pertanian	Pusat Penelitian Agro Ekonomi Jl. Ir. H. Juanda 20 Bogor
5. Ir. Muryadi	Direktorat Jenderal Pertanian Tanaman Pangan (Multiple Cropping Systems Specialist)	Jl. Damarsari 16 Pasarminggu, Jakarta
6. Ir. Burton Pandjaitan	Dinas Pertanian TK.I Kalimantan Timur	Jl. Basuki Rachmat Samarinda, East Kalimantan
7. Ir. Wismono Hs	Dinas Pertanian TK I Kalimantan Timur	Jl. Kusuma Bangsa Samarinda, East Kalimantan
8. Ir. Sumardji	Dinas Pertanian TK. I Kalimantan Timur	Jl. Basuki Rachmat Samarinda, East Kalimantan
9. Ir. Buwono	Dinas Peternakan Dati I Kalimantan Timur	Jl. Bhayangkara Samarinda, East Kalimantan
10. Ir. Husaini	Dinas Peternakan Prop. Dati I, Kalimantan Timur	Jl. Bhayangkara Samarinda, East Kalimantan
11. Djuremi	Staff Penyuluhan Dinas Peternakan Prop. Dati I, Kalimantan Timur	Jl. Bhayangkara Samarinda, East Kalimantan
12. Ir. Soebianto	BAPPEDA TK. I Bidang Penelitian (Research Division)	Jl. Kusuma bangsa Samarinda, East Kalimantan

<u>N A M E</u>	<u>POSITION/INSTITUTION</u>	<u>ADDRESS</u>
13. Ir. Abd. Galib	BAPPEDA TK. II Kutai	BAPPEDA TK. II Kab. Kutai Tenggarong, East Kalimantan
14. Dr. Jerry L. McIntosh	Farming Systems Liaison Scientist, CRIFC/IRRI CRIFC/IRRI Program	CRIFC-IRRI Program P.O. Box 107 bogor
15. Ir. J. Kustantini	Dinas Perkebunan TK. I Kalimantan Timur	Jl. Ade Irma Suryani Samarinda, East Kalimantan
16. Ir. Ratna Shanti	Fakultas Pertanian Universitas Mulawarman	Universitas Mulawarman Jl. Gn. Kelua Samarinda, East Kalimantan
17. Ir. Muhammad Ali	Fakultas Pertanian Universitas Mulawarman	Universitas Mulawarman Jl. Gn. Kelua Samarinda, East Kalimantan
18. Dr. B. May	T.A.D. Team leader	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
19. Dr. Michael Redshaw	Agronomist T.A.D. Muara Marah	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
20. Dr. E. Kuester	T.A.D. Agric. Economist	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
21. Dr. R. Blank	T.A.D. Seed Improvement Advisor	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
22. Dr. Christof Lorenz	T.A.D. Cropping Systems Advisor	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
23. Dr. E. Sauer	T.A.D. Agricultural Extension and Plant Protection Advisor	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
24. Dr. Wolfgang Wiesner	T.A.D. Group Leader Rural Development Group	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan

<u>N A M E</u>	<u>POSITION/INSTITUTION</u>	<u>ADDRESS</u>
25. Dr. David J.S. Boyce	T.A.D. Rural & Counterpart Training Advisor	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
26. Dr. Richard Bower	T.A.D. Group Leader Land Evaluation & Planning Group	T.A.D. bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
27. Dr. M. Nitsch	T.A.D. Pedologist	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
28. Dr. R. Hoffman	T.A.D. Pedologist	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
29. Ir. Christine Meyer	T.A.D. Hospitant	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. Box 140 Samarinda, East Kalimantan
30. Mr. Atmadi Saleh	T.A.D. Hospitant	T.A.D. Bappeda Building Jl. Kusuma Bangsa P.O. box 140 Samarinda, East Kalimantan
31. Ir. Moersid	Dinas Perikanan TK.I Kalimantan Timur	Jl. Kusuma Bangsa Samarinda, East Kalimantan

M. J. Hudson

14.9.1985



PROPOSAL FOR MANAGEMENT SYSTEM FOR SUSTAINED FOOD CROPPING
ON RAINFED UPLAND SOILS

Suggestions are given here for a system of managing the rain-fed upland soils, characteristic of large parts of East Kalimantan (and especially for many of the future transmigration settlements), based on experience at the TAD Pilot Plantation Project, Marau Marau.

This system has tentatively been called 'strip cropping'. It quite simply involves the growing of food crops in plots (or strips) that have previously been under a dense leguminous cover crop. This method aims to provide a solution to the main factors that limit sustained arable farming by conventional means:

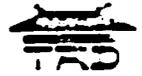
- (i) low inherent soil fertility;
- (ii) low water retention, therefore yields limited by water stress;
- (iii) soils easily eroded by heavy rain;
- (iv) rapid establishment of alang-alang (*Imperata cylindrica*) if the land is neglected.

Details of 'Strip Cropping' System

1. Establishment of heavy cover crop. For East Kalimantan conditions, 100% *Pueraria javanica*, or a mixture with *Calopogonium muconoides* is recommended.
2. Once sufficient organic material (mulch) has built up (experience to date suggests that 2 years would be long enough), strips, 5-10 metres wide, are sprayed out or hand-cut, the dead material being left in situ.

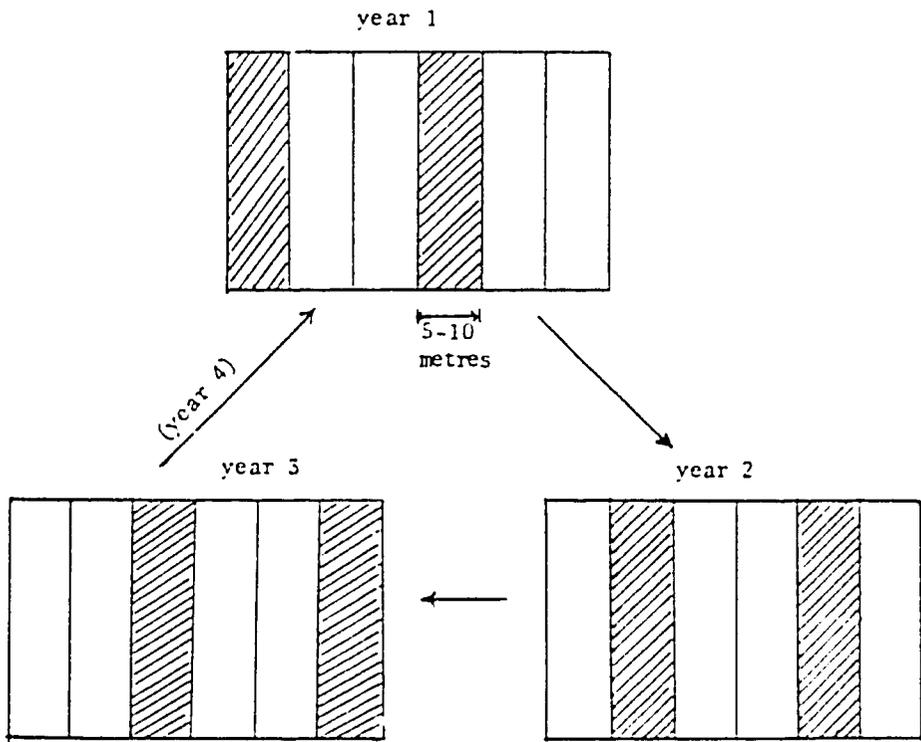
No cultivation is carried out.

In our experience, one spray of 0.3% Paraquat (paraquat) is very effective, provided sufficient water is applied. Planting can be done about 3 days after spraying. Cheaper "hormone" herbicides (2,4-D or MCPA) could possibly be used, but there may be a risk of carry-over to the new crop, especially legumes.



3. Planting of food crops (upland rice, maize, groundnuts, soybean) is done by use of a planting stick in the usual way.
4. No fertilizing is recommended. The mulch will contain adequate N and P to sustain food crops for one season.
5. Weeding should not be necessary, except to cut back regrowth of the cover crop and to stop it encroaching into the food plots.
6. After harvesting (1-3 crops), the cover crop is allowed to grow back into the cropped areas and re-establish itself. Planting of rooted cuttings is desirable to speed up this process.

It is envisaged that food crops can be grown one year in three in the following rotation :





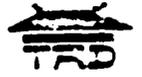
The advantages of this system are manyfold:

- zero or minimal cultivation;
- soil is covered continuously, thereby minimising surface erosion and preventing excessive soil temperatures;
- fertiliser requirements are reduced, especially urea;
- no, or very little, weed control required; and alang-alang cannot establish;
- greater water retention, therefore reducing the risk of water stress limiting yields;
- soil fertility and structure are maintained;
- cover crop is a renewable resource and so does not require replanting each year.

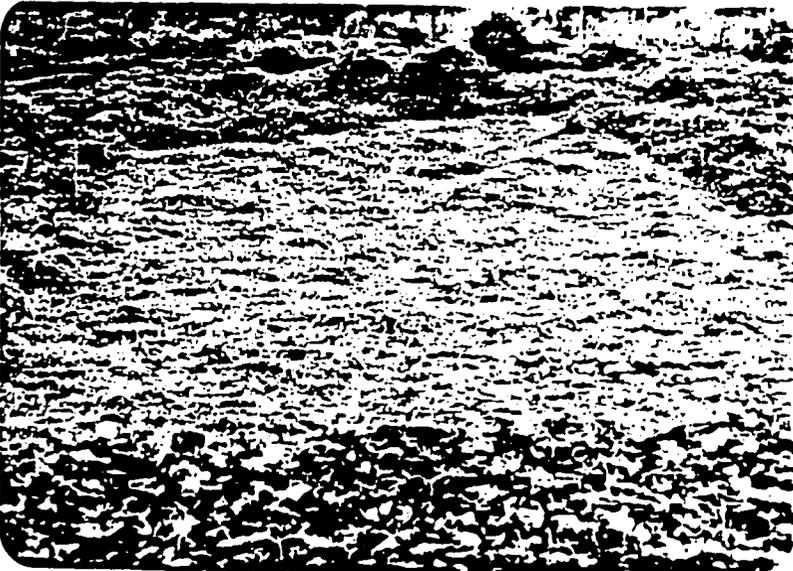
The experience gained from trials with this system at the TAD Pilot Plantation Project, in Muara Marah, have been very encouraging. We believe that this technique could be usefully employed in many areas of East Kalimantan, especially existing and proposed transmigrant settlements. Indeed, demonstration plots could be set up in new settlements where cover crops have already been established by the land-clearing contractor.

Further work is necessary to evaluate this method and to examine certain aspects, for example:

- the effect of liming;
- benefits of additional N and P;
- investigate whether other elements (K, Mg?) are limiting;
- test other herbicides for killing the cover crop prior to planting;
- devise a suitable combined 'dibbler'/seed applicator that would much reduce planting time;
- investigate specific associated pest and disease problems;
- work out labour requirements per unit area for this method and compare this with conventional systems;
- long-term soil fertility studies.



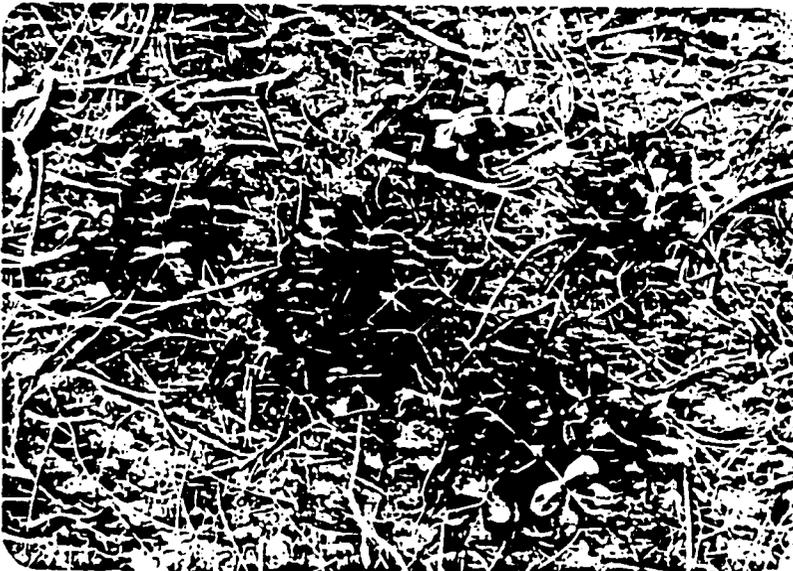
Pueraria javanica 3 days after spraying with 0.3% Paracol



Maize seedlings, 11 days after planting.



Maize (above) and groundnuts (below) growing
in thick, cover crop mulch.



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Maize at 41 days after planting,
and 63 days after spraying out
the cover crop.

No weeding has been done and no
fertiliser applied.

Note vigorous, healthy maize;
no weeds or regrowth of cover
crop.

Terms of Reference
Farming Systems Liaison Scientist

Jerry L. McIntosh

The Farming Systems Liaison Scientist for the AARD/IRRI Collaborative Program interacts directly with his Indonesian colleagues and serves as a liaison for technical coordination among researchers and administrators, for specifically selected farming systems projects that presently exist or are being planned. Working with and building on existing projects provides the experience and interest needed and momentum necessary to develop an effective National Farming Systems Program. The existing farming systems research being conducted by AARD scientists has been effective and should be carried to completion and expanded into new areas as opportunity and personnel become available.

But now is an appropriate time to develop a comprehensive and systematic Master Plan for Farming Systems Research within AARD. The primary objectives of such an effort would be to establish priorities and spheres of specialization for integrated farming systems research among the various Centers and Institutes of AARD. In this way AARD can strengthen its leadership role for research and minimize duplication of efforts. I would be very happy to assist in this important task.

Farming Systems Scientists must publish results of their research in a timely and useful manner. Annual Reports are necessary but do not effectively convey the significance of the research nor count as scientific papers for promotion purposes. I will be very happy to assist in solving this practical problem.

- 2 -

There are some research issues that will receive special attention.

- A. Smooth transfer of research technology can be enhanced through a better understanding of the effects of soils and climate on crop performance. These parameters may be evaluated and related to crop performance in selected farming systems research sites, particularly for soils in upland areas. It is expected that a transect of sites on red yellow podzolic soils can be identified and monitored (soil and climatic data) in collaboration with the Fertilizer Efficiency Studies, INSFFER and Farming Systems Research projects. My background as a Soil Chemist and as a Cropping Systems Agronomist makes me acutely aware of the need and opportunity for this kind of research.
- B. The cropping systems research has developed appropriate cropping patterns and management strategies to provide food self-sufficiency in selected target research areas. Direction of research for further development of the farm enterprise would be dependent upon the options opened to the farmer and his individual expertise. Consequently, the cropping systems research has broadened its scope of activity to include the study of these options for agriculture in the farm community at the farm level and has evolved into a Farming Systems Research and Development project. The Crop/Livestock Farming Systems Research project that is being collaboratively developed between AARD and IDRC will provide the opportunity for developing methodology and basic data necessary for broader based interdisciplinary research. The first draft of a proposal has been prepared and IDRC has favorably but unofficially reviewed the proposal. It is expected that this research project will be a pioneer effort for developing and executing interdisciplinary research and I hope to be directly involved.

- 3 -

- C. The Farming Systems Liaison Scientist has worked extensively with the development of the Upland Agriculture and Conservation Project being developed by the GOI and USAID/World Bank. This project offers the opportunity to develop stable production systems for these critical land areas but also addresses the soil and water conservation problems that have been so apparent in all of our cropping systems research. I hope to be involved in an advisory position with this major and pioneering research effort.

Upland Rainfed Agricultural Research for the drought prone areas of Indonesia has been assigned to the Maros Research Institute for Food Crops (MORIF). MORIF will develop a research program to meet this assignment and has requested my assistance. Because of my interest and past experiences with upland agriculture, I would be happy to accept this assignment.

- D. The methodologies and technologies being developed by AARD are urgently needed by researchers and farmers working in new transmigration and upper river watershed areas. There remains a major research issue in developing more stable varieties and agronomic practices for palawija and upland rice. Support and guidance to develop this stability is being supplied by the various research centers and balai. A more comprehensive AARD/IRRI Collaborative research project is being planned. I hope to be involved directly in this project particularly for the soil and agronomic aspects of the research.

Revised: January 6, 1984



IRRI-DITPROD INDUSTRIAL EXTENSION PROJECT

P.O. BOX 18/KBYPM. PASAR MINGGU, JAKARTA SELATAN INDONESIA TELEPHONE : 7 8 2 5 5 7

December 21, 1983

To : Mr. Walter C. Tappan
IRRI Liaison Scientist

From : V.R. Reddy 
Agricultural Engineering Consultant

Subject : Quarterly Report
October through December 1983

T r i p s

October 5th - October 7th : To monitor the progress of our project in South-Kalimantan.

December 22th - December 25th : To visit West Sumatera with Sdr. Zaidir, Bapak Faisal, Bapak Siregar to locate survey sites for ILO study and attend demonstration.

Although I had to be away in Singapore and USA for about six weeks due to the ill-health of my wife, the work programme (a copy of the same is enclosed) we have made for this quarter was, however, carried on at Tanjung Barat workshop here and in the field was continued in the provinces.

- 2 -

At the request of USAID Jakarta we organized a meeting on October 12, 1983 to enable the members of the "Joint Agricultural Consultative Cooperation Commission" from USA and local Indonesian business representatives and entrepreneurs to meet at the Tanjung Barat workshop. Although I was unable to be present, the meeting was reported as a useful exercise. A copy of the letter received from Mr. Terry Meyer, USAID, is attached.

Two English volunteers, Mr. Peter Watson and Mr. Mark Hayton from VSO, have started work as of November 7th in the Tanjung Barat workshop after having received language training for 2 months at Yogyakarta. Mr. Peter Watson will assist in proto-type design and modification work and field testing of equipment in Jakarta. Mr. Mark Hayton will depart for West Sumatra in early January 1984 to assist our counterpart agency DIPERTA staff in fabricating equipment at the Bukittinggi workshop, and train the local cooperative manufacturers, operators, and farmers in using the equipment. Judging from their present involvement in the shop-floor work and their earnestness in assisting the local staff, they should prove very valuable in enhancing the project.

- 3 -

In South Kalimantan the production and sales of axial flow pumps continues to be encouraging. As reported earlier, we have assisted in the fabrication of a paddy thresher and a hand-tractor locally produced by another small fabricator. However, we feel more important is to develop the demand from the farmers for other products by extensive demonstration of equipment. In view of the limitation of the provincial budget for taking on a major demonstration drive in the province, we have suggested the loan of 5 sets of equipment (which DIPERTA now possesses) to progressive farmer leaders for their use and for custom hiring to their neighbouring farmers, as is done in West Sumatra. We hope this will be implemented after the return of Mr. Denny A., (in charge of mechanization section of DIPERTA) who will return from Japan in December at the completion of a six month's training course.

In collaboration with the Agro-Economic Survey group of AARD we prepared a proposal on "Commercialization and Diffusion of Small Farm Equipment in West Sumatra" (a copy of the same enclosed) at the request of ILO. We have since received their approval. In order to select the survey sites and collect secondary data, we visited Dr. Faisal Kasryno (Director of Centre for Agro-Economic Research), Mr. Siregar and Mr. Zaidir in West Sumatra on December 22nd. During this visit we were also

*Copy of their telex and approval enclosed.

- 4 -

able to test the questionnaires (for the five groups of respondents as identified in the proposal) in one of the villages. This was a very useful exercise in modifying the questionnaires and identifying the villages and the enumerators for the survey to be conducted in January 1984.

During the visit to West Sumatra, we also participated in an exhibition and demonstration of small farm equipment manufactured in the province, through assistance of the project, at Bukittinggi on December 24th. More than 150 Kontak Tani (progressive farmers) from the entire province were specially invited along with various Government officials, and the Governor of the province inaugurated the function. The Governor strongly advocates support of this programme in full measure and expressed his appreciation to IRRI and USAID for their assistance in this development programme.

Later in the afternoon the demonstration of large and small hand-tractors (both in wet land and upland conditions) and paddy threshers was conducted in the farmers' fields. It was a very impressive demonstration and the farmers especially showed considerable interest in the small hand-tractor.

- 5 -

As reported earlier, we are now emphasizing the introduction of hand-tractors in this province. The two week training programme in West Sumatra, scheduled on December 16th, 1983, has been postponed to January 9th, 1984. The details of the training programme are enclosed. As may be noted this is a major training programme for which all preparations are being made with the full support and participation of local manufacturers, Provincial Government, M.I.D.C. and IRRI-DITPROD staff.

Mr. Sihombing, Director of DITPROD, organized a meeting in his office on December 12th to discuss the progress of the IRRI-DITPROD project. A memorandum of this meeting is enclosed. It may be noted that this was a useful meeting to improve communications between project staff and the sub-directorate of DITPROD.



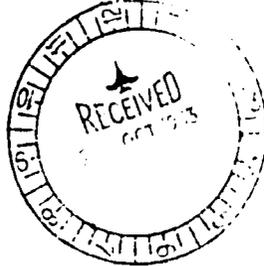
UNITED STATES OF AMERICA
AGENCY FOR INTERNATIONAL DEVELOPMENT

AMERICAN EMBASSY
JAKARTA, INDONESIA

Letter No. _____

Jakarta, OCT 17 1983

VR Reddy
Consultant Engineer
IRRI Ditrop
Jl. Rawa Bambu 13B
Jakarta Selatan



Dear Mr. Reddy,

Many thanks for your efforts in arranging a meeting between JACC representatives and agriculture implements manufacturers last week. It was an excellent meeting, and the people from Washington were most appreciative of the work you had done to organize the gathering.

I was very sorry to hear of your wife's illness. I hope that she will make an early recovery and that you and I will have a chance to get together in the not too distant future.

Best regards,

Terry Myers
Chief
Office of Employment and
Enterprise Development

mmn:
47510z kby baru
46931v jkt ln
zczc jktln/kbb034 uil209 via itt yk030155600
iata cy uipw 043
new york ny 43/42 28 0458

ILO file
VR
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po box 18.kbypm pasa minggu
jakarta selatan

k14120 vr redy plus faisal kasnyo from ahmed thanks excellent
proposal stop contract being processed inline suggestion yrlet
12 october xstop kindly commence work according stated timeschedule
thanks regards (interlab geneve 28.10.83)

edl 18.kbypm k14120 18 (interlab 28.10.83)
by in at2110wib 281083



INTERNATIONAL LABOUR OFFICE
BUREAU INTERNATIONAL DU TRAVAIL
OFICINA INTERNACIONAL DEL TRABAJO

EXTERNAL COLLABORATION CONTRACT

The International Labour Office (hereafter referred to as the ILO) and

Name in full : **Dr. Ir. Faical Kauryno**

Address : **Director
Centre for Agro Economic Research
Jl. Ahmad Yani,
Bogor,
(Indonesia).**

(hereafter referred to as the external collaborator)

hereby agree as follows :

1. The external collaborator will perform for the ILO the work described in paragraph 14 of this contract, in accordance with the specifications and within the time limits set out in paragraph 13.
2. Upon completion of the work as provided for above to the satisfaction of the Director-General, the ILO will pay the external collaborator ~~within~~ an all-inclusive amount of:

US\$10,000 (ten thousand US dollars).

The external collaborator shall not in any circumstances be entitled to any payments other than those expressly provided for above. This fee will include any out-of-pocket expenses such as travel costs, stenographic expenses, etc.

3. Payment shall be effected in the following manner :

- | | |
|--|-----------|
| a) On signature of contract, an advance for out-of-pocket expenses | US\$4,500 |
| b) On receipt of a satisfactory short progress report on 31 January 1984 and its acceptance by the ILO | US\$2,000 |
| c) On receipt of a first draft on 30 April 1984 and its acceptance | US\$1,500 |
| d) On receipt of the final draft on 30 June 1984 and its acceptance by the ILO | US\$2,000 |

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SPECIAL CLAUSES

13. Time limits :

The work described below is to be completed not later than 30 June 1984, on which date this contract shall expire.

14. Nature of the work :

Dr. Ir. Faisal Kasryno has been requested to carry out, in collaboration with Mr. V.R. Reddy (IRRI-DITPROD Industrial Extension Project) a research study on "Commercialisation and Diffusion of Small Farm Equipment Technology in W. Sumatera". The work to be carried out under this contract is summarised in the research project outline attached. The length of the study will be between 80 to 100 pages.

The collaborator agrees to submit the study to the ILO in two versions, a preliminary draft and a final draft. In each case, three copies of the draft will be supplied. It is agreed that following the submission of the first draft, the Technology and Employment Branch shall make some suggestions for changes, improvements, etc., as are appropriate and, to the extent possible, the collaborator will take these into account in the preparation of the final draft.

The collaborator further agrees to submit a progress report (15-20 pages) on the work summarising the research activities and results accomplished up to 31 January 1984.

As regards the presentation of final draft reports, it is agreed that the collaborator shall take into account the attached ILO document on style of presentation entitled "Hints for Authors".

The ILO reserves the right to cease payments on the contract, regardless of the costs incurred by the collaborator, should progress on the work be judged unsatisfactory.

Bogor, 5 December 1983

Faisal
Dr. Ir. Faisal Kasryno
Director

Center for Agro Economic Research
Jl. Puncak Yani 70
P.O. BOX 200, Bogor, Indonesia.

(External Collaborator)

Geneva, 1.11.85

J.I. Martin
J.I. Martin,
Chief,

Employment and Development Department.

(ILO Representative)

COMMERCIALIZATION AND DIFFUSION
OF SMALL FARM EQUIPMENT TECHNOLOGY IN WEST SUMATRA

Background information and justification for the study:

International Rice Research Institute in addition to developing biological technologies for growing High Yielding Varieties of rice, has also developed small farm equipment technology which is simple enough to be fabricated locally in the developing rice-growing countries of the world.

Indonesia is one of the four countries where IRRI industrial extension project (funded by USAID) is being carried out in collaboration with the Ministry of Agriculture since May 1978 by providing the services of an Agricultural Engineering Consultant.

West Sumatra was the first pilot province chosen to carry out the field extension work since the year 1979/1980. Within these 3 years, more than 14 small fabricators have taken up the manufacture of paddy threshers. More than*450 paddy threshers thus locally produced in these districts are being custom-hired to several other farmers. This seems to be happening at an increasing rate in some pockets of the province while several other areas are relatively untouched.

In addition to this, another phenomena that can be noticed in this province is a manually operated winnower (costing around \$75) which is locally developed and fabricated and is quite prevalent in certain areas

*as on August 1983

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of the province. This proposed survey would like to focus the diffusion process that is taking place in this province with regard to these above mentioned two pieces of farm equipment:

1. Winnowers through the local initiative.
2. Paddy threshers through the intervention of IRRI-DITPROD project.

Objectives

1. To track the history/background information on the development and propagation of hand-operated winnowers and engine driven paddy threshers.
2. To study the differences of some important variables between the users and non-users of the new technology with regard to their social status and Socio-Economic characteristics.
3. To find out the costs of production and the profitability of fabricators, custom-hirers, and the user farmers of the above equipment.
4. To determine the roles played by the various institutions and their linkages in the development and diffusion of this small farm equipment technology.
5. To find out if there is any socio-economic impact (in these pockets where relatively larger number of this equipment is being used) in terms of employment shifts, income-distribution etc. that can be measured through this study.
6. To identify the nature and magnitude of the constraints in the diffusion of these two implements and what are the farmers' priorities.

Methodology

In evaluating the effects of introducing new technology into the agricultural systems of developing economies, there are basically four alternative approaches. One of these is the predictive engineering approach. Data is obtained from a detailed study of new technology operations. Of necessity, such studies are very disegregated since they tend to focus on the individual operations, and attempt to synthesize the overall effects of these basic components. As a consequence they may well result in the various inter dependencies in the operating system.

The second approach is comparative cross-section study. The essence of this method is to study a sample of farms that have adopted the particular technology and compare them point by point with a sample of farms that still employ traditional methods ("with and without" method). While this seems to be a practical way to tackle the measurement problem, a number of considerations are critical to the validity of the method. If the differences are to be ascribed as the effect of new technology, then both groups of farms studied must be essentially homogeneous with respect to all other features. Thus samples tend to be purposely drawn so as to be homogeneous. This way is only valid if the introduction of the thresher/winnower has no effect on those variables in which homogeneity has been identified. It is argued that the very item that distinguishes the two groups, the presence or absence of the new technology, is itself indicative of a much wider range of fundamental but unmeasured differences such that any projection on the observed differences become hostage to fortune.



Another approach is the comparative time series method. It is directly measured by observing the situation prior to the arrival of the new technology and after the one has been adopted and adjusted to ("before and after" method). There are problems to be overcome with this method. First, the availability and accuracy of information relative to the "before" situation. Second, there is a problem of specifying when the relevant "before" and "after" situation occurred so that the appropriate information can be collected.

The fourth approach is the case study method, consisting of the detailed examination of usually a relatively few farms in the search for the nature and extent of the changes. The data may be collected either on a "before and after" basis or "with and without" basis. Normally the study farms are specifically picked to be "representative" which generally means that the various different types and sizes of farms recognized are represented in the group study. This method is legitimate as a means for gaining an early assessment of programs, for identifying hypotheses for more complete test subsequently, and especially for pilot testing in the preparation of a full evaluating study.

Aware of the weaknesses of each method, and considering that the new techniques (paddy thresher and winnower) are still relatively new in the area, the present study will employ the combination of "before and after" and "with and without" methods in evaluating the impact of the new techniques on income and employment aspects. It involves a comparison between before and after the use of the new technique for the users and a comparison between the users and non-users of the new techniques.

Sampling Procedure

The research sites in West Sumatra will be selected through a combination of random and purposive sampling procedures. First, three districts with the greatest number of threshers will be selected and then a sub-district in each district, with the greatest number of threshers will be drawn. Finally, a village with the greatest number of threshers will be selected from each selected sub-district.

In each sample village, farmers using (and not using separately thresher and winnower (30 samples each) will be drawn randomly.

The employment impact of these technologies will be investigated through two approaches. First, by comparing labor use between users and non-users (and before and after using the techniques). Second, by comparing employment opportunities from the laborers who are previously involved in threshing and winnowing operations. For this purpose, 20 laborers will be selected randomly from each group of labor who previously involved in threshing and winnowing activities, respectively.

To evaluate the profitability of fabricators, custom-hirers and repairers of these two implements, the total respondents for each category will be selected randomly. The following table represents the respondents for each sample category.

Table. Sample Size of Category

Category	Farm equipment	Total Sample
Workshops Fabricating	Thresher Winnower	10 20
Custom hirers of	Thresher Winnower	20 20
Workshops Not fabricating	Thresher Winnower	10 20
Farmer-Users or	Thresher Winnower	30 20
Farmer-Non Users	Thresher Winnower	30 30
Landless Labour		60
Total		280

Analytical Procedure

Several techniques of analysis will be employed in this study as indicated by particular objective and the nature of the data.

1. Historical analysis

This method will be applied to tract the history or background information on the development and adoption process of the new technology.

2. Two way table with t-test (student test)

To see the differences some important variables between users of new technology, simple two-way tables will be presented and test through t-test. These variables are Socio-Economic characteristics, yield, input use, income and employment opportunities before and after introduction of the new technology.

3. Discriminant analysis

This method will be applied to test whether or not the users of new techniques have certain characteristics which are different with those on the users. These characteristics are age, education, farming experience, assets owned, size of land holding, social status etc.

4. Factor and earner shares analyzed

This analysis will be employed to analyze the consequence of the new technology on income distribution between the manufacturer, custom hirer, farmer user and farm labor.

5. Project evaluation analysis

To evaluate the profitability of fabricator and custom hirer, some economic criteria will be employed, These criteria are such as BCR (Benefit Cost Ratio), NPV (Net Present Value) and IRR (Internal Rate of Return).

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6. Further to this we will be interviewing the concerned officials of:

1. Agricultural Department
2. Industries Department
3. Credit Institutions
4. Dealers

To assess their role in this diffusion process. In addition to this we will be collecting the relevant secondary data of the province and the facts regarding historical development of these two implements in this province.

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TIME SCHEDULE AND BUDGET

(For ILO Proposed Research Study in West Sumatra)

No.	Activities	# Date of completion.	No. of persons (category)	No. of days	Estimate Budget
1.	Preparation of draft proposal and questionnaires	'83 Oct. end	4 (A + 3B)	5	\$ 800
2.	Collecting data from secondary sources in West Sumatra	'83 Nov. end	3 (B + 2C)	3	\$ 200
3.	Conducting interviews	'84 mid Jan.	9 (A+3B+5C)	30	*\$ 7,000
4.	Analysis and final report	'84 March end	4 (A + 3B)	12	\$ 2,000
T O T A L					\$ 10,000

Category of research staff:Perdiem:

- A. Research Supervisor \$ 50/day + conveyance
 B. Senior Research Assistant \$ 30/day + conveyance
 C. Junior Research Assistant \$ 20/day + conveyance

*Inclusive of 9 air tickets Jakarta/Padang/Jakarta

#Provided the contract is received by October end from ILO.

For IIRI-DITPROD
 Jl. Rawabambu 15 B, Ps. Minggu

For Agro Economic Research
 Jl. Ahmad Yani, Bogor

IIRI - DITPROD

V.R. Reddy
 Agricultural Engineering
 Consultant



Date

Dr. Ir. Faisal Hossain
 Director of the Center
 for Agro Economic Research

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DEPARTMENT OF AGRICULTURE
DIRECTORATE GENERAL OF FOOD CROPS

guidelines

Training on Manufacture of Hand Tractor
Locally in West Sumatra

In cooperation between:

Directorate of Production Sub-directorate of Agric. Machinery Development

Agric. Extension Service West Sumatra

Industrial Development Institute for Metal and Machinery

International Rice Research Institute

1983

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GUIDELINES

Training on Manufacture of Hand Tractor
Locally in West SumatraI. Background

The regional wisdom in the Basic Pattern of Repelita IV West Sumatra stated that there is much opportunity to increase food crops production.

The main constraint is the scarcity of effective labor, wage is relatively high, young people are reluctant in agricultural work, and the people prefer to choose alternative business that can quickly give them money. In other words, development of economical structure of West Sumatra shows a shift of labor from agricultural sector to other sectors.

To overcome the above constraint, one effort of developing the use of agricultural machinery that can be made locally, in Repelita IV needs to be determined.

This program can probably be implemented because there are supporting factors such as condition, facilities, experience and good collaboration between the Government, Manufacturers and Farmers, this is proved in the development of Thresher which was and is currently in operation. And this program is parallel with the development program of small metal industry; and priority is given to small industry that has many workers.

Discussion on development of agricultural machinery conducted on 24 August 1983 in Padang concluded that agricultural machinery that should be given priority for development in West Sumatra are those that can be made locally consisting of: hand tractor, reaper, thresher and axial water pump.

Based on the experience in training the manufacturers, it appears that the production quality, capability and knowledge of the manufacturers still need to be improved.

Therefore, to assist the manufacturers in improving their knowledge and capability, it is necessary to have a special training particularly that concern manufacturing of hand tractors.

This training will be conducted in cooperation between Agric. Extension Service, DATI I West Sumatra, Balai Besar Pengembangan Industri Logam dan Mesin (BBLM), Bandung and Directorate Bina Produksi of Food Crops through ATA 220/IRRI Project.

II. Objectives

1. To teach the manufacturers so that they can understand and read the drawing of hand tractors.
2. To teach the manufacturers how to calculate the material and expenses of manufacturing hand tractors.
3. To train the manufacturers how to use the equipment in the field, so that in the future they can resolve technical problems in the field and can repair or adjust the equipment.
4. To train the manufacturers to make hand tractor, until it can be used.
5. To teach the manufacturers about metal and machinery.

III. Location and Time

1. Location

Training is conducted at the workshop of Agric. Extension Service at Bukit Tinggi.

2. Time

- Period of training January 9-21, 1984
- Training will be held in a period of 15 days.

IV. Organization

1. Person responsible : Head Agric. Extension Service, West Sumatra.
2. Executive Committee: a. Ir. Nurmawan (Ext. Service, W. Sumatra)
b. Ir. B. Aslam Janun (BBLM Bandung)
c. Ir. Zaidir Said (Ditprod)
3. Organizing Committee: Agric. Extension Service, West Sumatra.

V. Participants

1. Participants consist of those manufacturers who had been trained by ATA 220/IRRI project.
2. Total participants: 12
3. Conditions of participants:
 - Mechanics of manufacturers who will handle the manufacture of hand tractors. Should at least be graduated from a Technical School.
 - Or manager/leader of the manufacturer concerned.

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VI. Instructor

- a. 2 from IRRI-DITPROD Jakarta
- b. 2 from BBLM Bandung
- c. 2 from Agric. Extension Service, West Sumatra
- d. 1 from Industrial Office, West Sumatra

VII. Expenses

Expenses will be provided by Pusat through Project ATA 220/IRRI and Agric. Extension Service West Sumatra in the following component:

1. Preparation:

a. Duplication of training material

- Drawings 15 x 1 set
 - Photocopy of training material
- Prepared by
Pusat

b. Documentation

- 1 roll slide film = Rp. 5,000
 - 1 roll ordinary film = Rp. 3,000
 - 1 roll movie film = Rp. 11,000
- Rp. 19,000

2. Transportation

a. Participant, round trip, 12 persons x Rp.4000 = Rp. 48,000

b. Instructor

- Pusat, 2 persons, round trip, 2 x Rp.169,500 = Rp. 339,000
- MIDC, 2 persons, + Bandung-Jkt. round trip
 - 2 x Rp.16,000 = Rp. 32,000
 - + Jkt-Pdg, round trip
 - 2 x Rp.169,500 = Rp. 339,000

c. Fuel:

Padang-Bukit Tinggi -- 300 km

- Bensin 60 liter x Rp. 320 = Rp. 19,200
- Oil, 5 liter x Rp.1800 = Rp. 9,000
- Solar for hand tractor, 10 liter x Rp.145 = Rp. 1,450

C/F Rp. 787,650

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	B/F	Rp. 787,650
3. Lumpsum:		
a. Instructor		
- Pusat, Gol. III, 1 person x 15 days x Rp. 21,000	=	Rp. 315,000
Gol. II, 1 person x 15 days x Rp. 17,000	=	Rp. 225,000
- MIDC, Gol III, 2 persons x 15 days x Rp. 21,000	=	Rp. 630,000
- Daerah Gol. III, 3 persons x 15 days x Rp.10,000	=	Rp. 450,000
4. Material for manufacturing hand tractor (misc)	=	Rp. 700,000
	<hr/>	
	TOTAL	Rp.3,966,650
	=====	=====

VIII. MATERI DAN JADWAL PELAJARAN09 - 01 - 1984 (SENIN)

07.00 - 07.15	Selamat datang/Pembukaan	Ir. Nurmawan
07.15 - 07.45	Program Penyuluhan Pengembangan Alat Mesin Pertanian sederhana	Syakrani/Koes Sulistiadji
07.45 - 08.30	Pemutaran film & slide pengembangan alat mesin pertanian di Indonesia	Koes Sulistiadji/Syakrani
08.30 - 09.00	Perkenalan peserta dan staf pengajar	Syakrani/Busyra
09.00 - 09.30	Istirahat, coffe break	
09.30 - 10.30	Program dan pengembangan industri di Sumbar.	Perindustrian
10.30 - 12.00	Tehnik membaca gambar kerja	Koes Sulistiadji
12.00 - 13.00	Istirahat, makan siang	
13.00 - 14.00	Tehnik membaca gambar kerja (lanjutan)	Koes Sulistiadji
14.00 - 16.30	Tehnik menghitung kebutuhan bahan pembuat an alat	Busyra/koes Sulistiadji
16.30 - 19.00	Istirahat	
19.00 - 21.00	Latihan dan diskusi tehnik menghitung kebutuhan bahan pembuatan alat.	Team Pusat & Daerah

10 - 01 - 1984 (SELASA)

07.00 - 09.30	Analisa ekonomi pembuatan traktor tangan	Koes Sulistiadji/Busyra
09.30 - 10.00	Istirahat, coffee break	
10.00 - 12.00	Kredit dan hubungannya dengan pengembangan alsintan lokal di Sumbar.	Bank Indonesia
12.00 - 13.00	Istirahat, makan siang	
13.00 - 16.30	Analisa ekonomi penggunaan traktor tangan	Syakrani
16.30 - 19.00	Istirahat	
19.00 - 20.00	Latihan dan diskusi analisa ekonomi pembuatan traktor tangan	Team Pusat & Daerah
20.00 - 21.00	Latihan dan diskusi analisa ekonomi penggunaan traktor tangan.	Team Pusat & Daerah

11 - 01 - 1984 (RABU)

07.00 - 08.00	Pengertian tentang standard industri	BBLM
08.00 - 10.00	Geometri perkakas potong dan kondisi pemotongan.	BBLM Perindustrian

*) Materi dan Jadwal Pelajaran ini dapat berubah, sesuai dengan saran dari Daerah dan BBLM.

10.00 - 10.30	Istirahat, coffee break	
10.30 - 12.00	Pengetahuan bahan (baja)	BBLM
12.00 - 13.00	Istirahat, makan siang	
13.00 - 15.00	Pengetahuan tentang las listrik dan busur manual	BBLM/Perindustrian
15.00 - 17.00	Pengertian alat bantu	BBLM
17.00 - 19.00	Istirahat	
19.00 - 20.00	Mesin dan Perkakas	Perindustrian/BBLM
20.00 - 21.00	Pengetahuan ulir metrik dan inci	BBLM

12 - 01 - 1984 (KAMIS)

07.00 - 08.00	Persiapan praktek lapang	Team
08.00 - 10.00	Praktek menggunakan traktor tangan di lapangan	Team
10.00 - 10.30	Istirahat, coffee break	
10.30 - 12.00	Praktek (lanjutan)	Team
12.00 - 13.00	Istirahat, makan siang	
13.00 - 17.00	Praktek & diskusi lapang (lanjutan)	Team
17.00 -	Istirahat	

13 - 01 - 1984 (JUM'AT)

07.00 - 08.00	Persiapan praktek	Team
08.00 - 10.00	Praktek menggunakan traktor tangan di lapangan.	Team
10.00 - 10.30	Istirahat, coffee break	
10.30 - 11.30	Praktek (Lanjutan)	
11.30 - 13.20	Istirahat, Shalat Jum'at & makan siang	
13.30 - 17.00	Praktek & diskusi lapang (lanjutan)	Team
17.00 -	Istirahat.	

14 - 01 - 1984 (SABTU)

07.00 - 10.00	Menentukan urutan kerja dan persiapan bahan	BBLM/Team
10.00 - 10.30	Istirahat, coffee break	
10.30 - 12.00	Praktek membuat contoh alat bantu	BBLM/Team
12.00 - 13.00	Istirahat, makan siang	
13.00 - 17.00	Praktek (Lanjutan)	BBLM/Team
17.00 -	Istirahat.	

15 - 01 - 1984 (MINGGU)

08.00 - 15.00	Field Trip pada beberapa pengrajin dan foto bersama	Peserta & Instruktur
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16 s/d 20 - 01 - 1984 (SENEN - JUM'AT)

07.00 - 08.00	Persiapan praktek membuat traktor tangan	Team
08.00 - 10.00	Praktek membuat traktor tangan	Team
10.00 - 10.30	Istirahat, coffee break	
10.30 - 12.00	Traktek (lanjutan)	Team
12.00 - 13.00	Istirahat, makan siang	
13.00 - 17.00	Praktek (lanjutan)	Team

21 - 01 - 1984 (SABTU)

07.00 - 08.00	Persiapan trial traktor tangan yang selesai dibuat	Team
08.00 - 10.00	Trial traktor tangan hasil praktek	Team
10.00 - 10.30	Istirahat, coffe break	
10.30 - 12.00	Trial (lanjutan)	Team
12.00 - 13.00	Istirahat, makan siang	
13.00 - 15.00	Evaluasi dan diskusi	Team
15.00 - 16.00	Penutupan latihan	Kasubdin Produksi
16.00 -	Sayonara/Merienda	

X. PERALATAN LATIHAN

1. Peralatan UPT Perbengkelan Diperta Bukittinggi,
2. Pola cetak atau alat bantu pembuatan traktor tangan dikirim dari Pusat.
3. Peralatan uji dan bahan material yang diperlukan untuk pembuatan traktor tangan.

Jakarta, Oktober 1983.

Monthly Report
ATA 220/IRRI Project Implementation Activity
over November-December 1983*

*Since 24 November electricity in Tanjung Barat Workshop (IRRI-DITPROD) was cut off by PLN. On 15 December 1983 we have the electricity back on; this was due to the delayed payment of bills.

I. Manufacture and Modification

1. Manufacture of Reaper 1.0 meter and Reaper 1.6 meter still continue.
2. Manufacture of Jig/Fixture Box Transmission Hand Tractor 6-9 HP cannot be carried out, because of the unavailability of material.
3. Modification of 4 (four) units Transplanters has been implemented.
4. Manufacture of Gear Box Hand Tractor 6-9 HP by using U aja Jig (New Plan) will soon be implemented.
5. Manufacture of Implement Hand Tractor 4 HP (plough and cage wheel) (New Plan) will soon be implemented.
6. Manufacture Pedal Thresher with Bicycle Sprocket (modification) (New Plan) will soon start.

II. Equipment ordered/purchased

1. Order 1 unit hand tractor 6-9 HP and one unit Dryer (grain dryer) from PT TUGAS Jakarta to be sent to Maros Research Institute for Food Crops, not yet ready.
2. Will be ordered one unit GEN-SET (generator) to help overcome delay of work when electricity is off.

III. Drawing

Still continue work in Translating Drawing of Thresher and Reaper 1 meter.

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IV. Conclusion

1. Testing Functional Vertical Water Pump, is temporarily stopped. Changed by Testing Water Pump Axial 8" to water the field (Test Field).
2. Making seedbeds to test Transplanter, in treatment stage.
3. Preparation to test Transplanter.
4. Preparation/measuring location to test Functional Hand Tractor 4 HP in West Java.

V. Delivery

Have delivered one unit Transplanter, latest model, requested by Mr. SOETOMO, approved by the Director, for Exhibition and Sample in PATI residency and in Extension Service of Central Java in Ungaran.

VI. Other Activities

1. Renewal of permit for Truck B.4273 AX is still in process.
2. Preparation for training for Manufacturers which will be held in West Sumatra in cooperation with Extension Service, Dept. of Industry, IRRI-DITPROD, manufacturers, sometime in mid January 1984.
3. Preparations have been made on Manpower Survey Activity, in cooperation with ILO (International Labour Office) and USAID (IRRI-DITPROD).
4. Preparations for an Official Trip by Mr. Koes Sulistiadji and Mr. Kasiman to West Sumatra.
5. Will soon be sent Travel allowance Package for Mr. Effendi Hamdani, Extension Service, South Sulawesi for the SECOND time (from USAID grant) for Guidance/Development of Manufacturers in South Sulawesi.

Jakarta, 15 December 1983

ATA 220/IRRI Project

signed

(Koes Sulistiadji).-

HASIL RAPAT 1981/1982

No.	Kegiatan	VOL.	Oktober				Nopember				Desember				Januari				Penanggung Jawab.
			I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	
<u>Pembuatan</u>																			
a.	Reaper 1 m	1																Koes+Kajinar	
b.	Reaper 1,6 m	2																Koes+Kasimar	
c.	R.I.P. 1 row & 2 row	4																Made+Endon	
d.	Pedal thresher Jepang + Dian Desa	1																Kasimar	
e.	Pedal winnower	1																Hardjo+Wardi	
f.	Winnower tangan	1																Hardjo+Wardi	
g.	Jig traktor tangan																		
	- 6 HP	1																Bayu+Kasimar	
	- 4 HP	1																Bayu+Kasimar	
h.	Pompa membran	1																Koes+Endon	
<u>Pengujian</u>																			
a.	Traktor tangan 3HP																	Bayu CS.	
b.	Pompa 8"																	Bayu CS.	
c.	Pompa 6"																	Bayu CS.	
d.	Transplanter																	Made CS.	
e.	Pompa air vertikal 6"																	Bayu CS.	
f.	Pedal thresher																	Hardjo CS.	
g.	Winnower																	Hardjo CS.	
h.	R.I.P.																	Made CS.	
i.	Reaper 1 + 1,6m																	Koes CS.	
j.	Pompa membran																	Koes CS.	
<u>Gambar Kerja</u>																			
a.	Reaper 1 + 1,6m																	Made+Hardjo	
b.	Thresher TH-6																	Made+Hardjo	
c.	R.I.P.																	Made+Hardjo	
<u>Pengiriman</u>																			
a.	Bina Swadaya																	Koes	
b.	BPTP Maros																	Koes	
c.	Diperta Kalsel																	Koes	
<u>Seminar.</u>																			
	Pompa air																	Nesia Dewi (IPB)	
<u>Latihan</u>																			
	Pengrajin Sumbar																	Koes+Kasimar	



MEMORANDUM OF THE MEETING HELD ON DECEMBER 12,
AT BINA PRODUKSI, PASAR MINGGU.

Following members were in attendance :

1. Ir. D.A. Sihombing
2. DR. Soedjatmiko
3. Mr. Walter C. Tappan
4. Mr. V.R. Reddy
5. Mr. S.M. Regmi
6. R.A. Hamid
7. Mulyono BSc
8. Soetomo
9. Dr. Budiman
10. Ir. Koes Sulistiadji
11. Ir. B. Gultom

Bapak Sihombing had requested Mr. V.R. Reddy to report the progress of IRRI-DITPROD project so far and the suggestions for the future plans of farm mechanisation in Indonesia.

Mr. Reddy has reported the summary of major activities undertaken and the results achieved so far by the project as reported in our internal evaluation report (as of April 1963), one more copy has been given to Bapak Sihombing.

Mr. Reddy has pointed out that due to the limited budget and less number of staff, this project could not be extended to the other provinces although the project has been receiving special requests from provinces like Aceh, N.T.B., Bali and North-Sulawesi. It was stressed that the need to prepare a list of priority areas in Indonesia and the equipment (to be introduced on priority) in those areas is essential in view of the limited resources available.

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Another point that was emphasised in this regard was that it is essential to concentrate in those selected priority areas until the take-off stage is reached. The project's experience in West Sumatera with regard to Paddy threshers was referred to as a case in point.

Another limitation (of IRRI-DITPROD's project) that was pointed out, at present the range of equipment being popularised is essentially suitable for lowland 'sawah'. However, Mr. Tappan mentioned that IRRI in Phillipines will be requested to undertake research and development work covering upland and other rice-based crops also.

Mr. Regmi, RNAM expert has added that in view of farm-mechanisation's important role in Indonesia the budget allocated to it is very inadequate and agreed with the view that with the existing resources available it is wise to concentrate in few priority areas until successfully growing results are achieved.

Bapak Budiman from Bina Program has suggested that it would be useful to conduct action research studies in the pilot project areas so that the lessons learnt are used in the extension of project activities. He has agreed to make available a copy of such a study made in irrigation department and also promised to visit the project's workshop soon to acquaint himself further.

Bapak Sihombing has suggested to prepare extension manuals showing the useful data about the profitability of various equipments to be popularised and the guidelines for carrying out extension work successfully by the provincial staff like PPL, PPM, ...etc.

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- 3 -

DR. Soedjatmiko, Ir. B. Gultom, Ir. Koes Sulistiadji, Bapak Soetomo have made their observations from their field experiences and contributed to the general discussion.

Finally, Bapak Sihombing has emphasised the need to prepare the above mentioned priority lists at an early date and suggested to hold such periodical meetings.

VRR/Th

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HASIL RAPAT EVALUASI & KELANJUTAN
IRRI - DEWPROD

Peserta Rapat : 1. Ir. D.A. Sihombing
2. IR. Soeljatidko
3. Mr. Walter C. Tuppen
4. Mr. V.R. Reddy
5. Mr. S.M. Roomi
6. R.A. Hamid
7. Mulyoto B.Sc
8. Soetomo
9. Dr. Rudiman
10. Ir. Koes Sulistiaji
11. Ir. B. Gultom

Tempat/Tgl. Ruang Bina Diktorat Bina Produksi,
Tangerang 12 Desember 1963.

Kesimpulan Rapat

1. Pada saat sekarang diperlukan penentuan prioritas dan jumlah alat dan mesin pertanian yang dibutuhkan oleh setiap provinsi terutama untuk tanaman padi dimana pengembangan alat dan mesin pertanian tersebut adalah salah satu tugas pokok IRRI.
2. Dalam hal ini untuk mesin-mesin; alat dan mesin pertanian diperlukan juga pada penggunaan, ekonomi penggunaan yang akan menjadi bahan untuk IRI di daerah dan pembuatan buku-buku berharap akan dapat dilaksanakan oleh IRRI.
3. Perlu untuk menandatangani identifikasi item-item yang dapat menunjang pelaksanaan rencana operasional penggunaan alat dan mesin pertanian dimana pada saat ini telah menjadi kebutuhan yang mendesak dalam proses produksi seperti : pompa air, dryer, perontok dll.

4. Dalam pertemuan usulan dari BIKRAM (Dr Suliman) untuk merencanakan bentuk pilot proyek yang bersifat research-action dalam penerapan/penggunaan alat dan mesin pertanian yang terpusat dalam 1 propinsi/kabupaten dimana melibatkan juga instansi yang ada hubungannya.
5. Untuk follow-up pemikiran pembuatan pilot proyek tersebut maka direncanakan mengadakan pertemuan antara IPST-DETERCO dan BIKRAM di Tanjung Barat tanggal 14 Desember 1983.
6. Diharapkan pada pertemuan dan diskusi dengan IPST di Mojya pada tanggal 20 Desember 1983 diharapkan dapat dihadiri oleh Direktur Bina Produksi, Dr Suliman (BIKRAM) dan Subdit PAP.

Jakarta, 13 Desember 1983

STANDARD FORM 30, JULY 1960 GENERAL SERVICES ADMINISTRATION FED. REG. REG. (41 CFR) 1-16.101		AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		PAGE 1 OF 3
1. AMENDMENT/MODIFICATION NO. 1		2. EFFECTIVE DATE Block 19	3. SOLICITATION/PURCHASE REQUEST NO. 497-0244-3-50474	4. PROJECT NO. (If applicable) 497-0244
5. ISSUED BY Contracting Officer USAID/Jakarta, Indonesia		6. ADMINISTERED BY (If other than block 5) CODE		
7. CONTRACTOR NAME AND ADDRESS IRRI P.O. Box 933 Manila, Philippines		8. AMENDMENT OF SOLICITATION NO. <input type="checkbox"/>	8. AMENDMENT OF SOLICITATION NO. _____ DATED _____ (See block 9)	
		8. MODIFICATION OF AID CONTRACT/ORDER NO. 497-0244-C-00-1002-01	8. MODIFICATION OF AID CONTRACT/ORDER NO. _____ DATED 9/15/81 (See block 11)	
9. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS				
<input type="checkbox"/> The above numbered solicitation is amended as set forth in block 12. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> is not extended. Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation, or as intended, by one of the following methods: (a) By signing and returning _____ copies of this amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE ISSUING OFFICE PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If, by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided such telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
10. ACCOUNTING AND APPROPRIATION DATA (If required)				
72-11X4103 HFNX-80-37497-AL19		DRA#497-T-038-09	Loan#497-T-038	COM.#6L-244-24-004-0001
				\$5,100.00
			PIO/T#50574	
11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS				
(a) <input type="checkbox"/> This Change Order is issued pursuant to _____ The Changes set forth in block 12 are made to the above numbered contract/order.				
(b) <input type="checkbox"/> The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, approval authority, etc.) set forth in block 17.				
(c) <input checked="" type="checkbox"/> This Supplemental Agreement is entered into pursuant to authority of _____ the FAA of 1961, as amended, and E.O. 11223 It modifies the above numbered contract or set forth in block 12.				
12. DESCRIPTION OF AMENDMENT/MODIFICATION				
Increase: \$5,100				
The purpose of this A-1 is to extend the contract 3½ months to December 31, 1983 and add funding to cover it for the period. The contract is amended as follows: A. COVER PAGE: (1) Change the amount to \$68,450" (2) Change the Issuing Office to "Office of Contract Management" (3) Add the Accounting and Appropriation Data indicated in Blocks 3 and 10 above. (4) Change the Estimated Completion Date to "December 31, 1983".				
EXCEPT AS PROVIDED HEREIN, ALL TERMS AND CONDITIONS OF THE DOCUMENT REFERENCED IN BLOCK 8, AS HERETOFORE CHANGED, REMAIN UNCHANGED AND IN FULL FORCE AND EFFECT.				
<input type="checkbox"/> CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT <input checked="" type="checkbox"/> CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 8 COPIES TO ISSUING OFFICE				
14. NAME OF CONTRACTOR/OFFEROR BY Walter C. Tappan <small>(Signature of person authorized to sign)</small>		17. UNITED STATES OF AMERICA BY L. Kelly <small>(Signature of Contracting Officer)</small>		
13. NAME AND TITLE OF SIGNER (Type or print) Walter C. Tappan IRRI Liaison Scientist		16. DATE SIGNED OCT 07 1981	18. NAME OF CONTRACTING OFFICER (Type or print) L. Kelly	19. DATE SIGNED

AID 497-0244-C-00-1062-01

Page 02 of 03

- B. On page 1 under General Provisions add the following paragraph:
 "On the effective date of Amendment No. 2 hereto the General Provisions applicable to this contract consist of form AID 1420-41C entitled 'General Provisions Cost Reimbursement Type Contract,' dated 10-1-82, which includes provisions 1 through 48 and form AID 1420-41D entitled 'Additional General Provisions - Cost Reimbursement Type Contract,' dated 10-1-82, which includes provisions 1 through 20."
- C. Article IV - Period of Contract
 In paragraph A. change "September 15, 1983" to "December 31, 1983".
- D. Article V - Estimated Cost
 Change "\$63,350" to "\$68,450".
- E. Article VI - Budget
 Delete the "Budget" in its entirety and substitute the following:

"BUDGET

<u>ITEMS</u>	(U.S. Dollars) Total Estimated Contract Cost
I. <u>Salaries, Allowance, Travel and Per Diem</u>	
1. Site Supervisor	\$ 4,000
2. Asst. Site Supervisor (Counterpart)	2,500
3. Mechanic	2,000
4. Record Keepers (2)	3,200
5. Housing	2,200
6. Travel /Per Diem (including to & from Ujung Pandang)	2,500
II. <u>Equipment and Supplies</u>	
1. Ten (10) power tillers, plus accessories	35,500
2. Two sets of spare parts, with tool kits	3,600
3. Two motor cycles	3,000
4. Two bicycles	300
5. Fuel, oil, maintenance	4,600
6. Office Supplies	500

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<u>ITEMS</u>	(U.S. Dollars) Total Estimated Contract Cost
III. Training	
In Jakarta (including travel and per diem)	\$ 2,000
IV. <u>Project Administration</u> <u>Overhead Expense</u>	<u>2,550</u>
Grand Total	\$68,450" *****

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Field Trip Report to Indonesia
3-6 October 1983

L. R. Oldeman

Purpose: To resolve confusion related to the rice-weather experiment (IRRI/WMO) in Indonesia.

To meet Mr. F. Dent.

Background:

On September 14, 1982 Dr. Siwi was approached to participate in the rice weather project. Two sites were selected with two transplanting dates at each site:

Bogor: second week of May / second week of October

Sukamandi: third week of May / third week of November

On December 7 (Ref. AgCl. 76/82) we informed Dr. Siwi that the following agrometeorological equipment would be purchased and shipped to Indonesia:

- 1) One Gunn Bellani radiation integrator (through UNDP, Jakarta)
- 2) Two Rimco solarimeters (through IRRI, Bogor)

The Rimco solarimeters were shipped from IRRI, Los Baños to Indonesia on 28 February 1983 and were cleared through customs early May 1983. The Gunn Bellani integrator was shipped directly from the manufacturer (Baird and Tatlock, London) on 10 March via CX200 with airwaybill 474655. This instrument was never received by CRIFCI.

On May 10 and again on July 1 1983 seed materials were shipped from IRRI, Los Baños to IRRI, Bogor. Although the first set was

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LFO's field trip report to Indonesia 3-6 Oct '83 .../2

received when Tamisin visited Bogor in June, there was apparently a problem locating the seed materials since the boxes were not clearly marked.

On September 16, 1983 a letter was received from Ir. Ismunadji (CRIFCI), dated July 6, 1983 requesting to send soon the research proposal related to the rice weather experiment. (In fact this research proposal as well as the real time weather logbook were sent with the first set of seed materials). Mr. Tappan (IRRI Liaison officer in Indonesia) then suggested that Oldemar should visit Bogor to resolve confusion.

Related action:

Tuesday, October 4. Discussion with Mr. Tappan to brief him on the rice weather project, since he was not yet acquainted with this project. Background as indicated above explained. We then visited Ir. Ismunadji, head of the Physiology Department of CRIFCI. Unfortunately Dr. Siwi has left two days before for a trip to China. It appeared that confusion was created because Ismunadji had never received complete instructions regarding the rice weather project. He assumed that his department would be responsible for the rice weather studies, since the CRIFCI climate unit is with the Physiology Department. We photocopied previous correspondences relating to the project. The seeds should be sown as soon as possible to be on time for the wet season transplanting. Mr. Tappan will discuss with Dr. Siwi as soon as he returns who will be responsible for the project at CRIFCI.

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LRO's field trip report to Indonesia 2-5 Oct '83 .../3

Ismunadji then accompanied me to the Muara agromet station. A new fence will be erected as the old fence was more suitable for a "prison". Instructions for a suitable fence are given in our guidelines. Concrete foundations should be kept to a minimum and are only needed to support the posts of the fence. A quick check of the condition of the meteo equipment revealed that

- a: the wrong graphs were used to record sunshine for the Campbell Stokes.
- b: the needle of the Class A pan was not adjusted.
- c: the wick of the wet bulb thermometer was dirty and completely dried out.
- d: grass around Gunn Bellani about 5 cm above the rim of the metal cylinder.
- e: limited observations were recorded on the daily field sheets, which were stored in the weather hut.

Ismunadji promised to discuss these problems with Ir. Irsal Las who has responsibility for the agromet stations at CRIFCI. Without good and reliable day-to-day weather observations it is not possible to correlate weather to crop performance.

Wednesday, October 5. Another discussion was held with Mr. Tappan, Ir. Ismunadji and Ir. Irsal Las. Remaining problems were discussed. There is no more confusion regarding the rice weather project. Oldeman asked Irsal Las to prepare as soon as possible the real time weather data blue sheets for July, August and September and to send in future these sheets on a monthly basis (for Muara and for Sukamandi).

LRO's field trip report to Indonesia 2-5 Oct '83 .../4

All correspondence and data sheets should be sent to Los Banos through the IRRI office in Bogor. Copies of data sheets should be kept at CRIFCI. Mr. Tappan and I then proceeded to the UNDP office in Jakarta to find out where the Gunn Bellani was. The procurement officer never received the shipping documents from the manufacturer and could therefore not locate any information re this instrument in his books. He called the airline carrier to check on the airwaybill whereabouts. No immediate answer received. Mr. Tappan will follow up in two weeks time. Oldeman will meanwhile contact WMO to get copies of shipping documents.

Discussion with Mr. F. Dent at the
Soil Research Institute, Bogor

I took advantage of my trip to Bogor to meet with Frank Dent, team leader of the FAO/UNDP project: "Land resources evaluation with emphasis on outer islands". This project will terminate in December 1983 and Dent will be assigned to a new post in Mozambique. A workshop was held recently with users of series of computer modules his group has developed to determine suitability of land for 22 different food and estate crops based on soil, landscape and climatic parameters and crop requirements assuming different levels of management. He will send a manual that has been prepared for the uses of these modules. He indicated that his group would certainly be interested to participate in a regional group on environmental characterization of upland rice environments. We should contact him as soon as we have prepared a strategy paper for the task force on upland rice environment characterization.

LRO:j
10.10.83

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THE INTERNATIONAL RICE RESEARCH INSTITUTE

P.O. Box 933
 Manila Province
 Telephone 86-45-62
 86-45-14

Cable: Ricebond Manila
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 (RCA) 02456 (IRI) PH
 (EASTERN) 63786 RICE PH

REPORT OF TRIP TO INDONESIA
 Oct. 9-15, 1983

M. D. Pathak

- October 9 - Arrived Jakarta 9:00 p.m. Was met at the airport by Mr. Mulia, Administrative Assistant, and Mr. Sukardi, Driver. Stayed overnight at Sahid Jaya Hotel.
- October 10 - Left 7:30 a.m. for CRIA, Bogor. Along with Dr. Walter Tappan called on Mr. Sadikin. Dr. Manwan was also present. Mr. Sadikin is very positive about the prospective collaboration between IRRI and Universities in Indonesia for graduate program. One of his major concern is that AARD employees studying within Indonesia even on full-time basis are generally taking much longer period than what appears appropriate. Also, he is enthusiastic about having many of his staff getting Ph.D. degrees.

Mr. Sadikin said that the government is intensifying its program in outlying areas and difficult terrain which is requiring extensive travel for him and because of this he had to limit his participation at the next IRRI's Board Meeting to Egypt only. Many of these areas are newly cleared lands and he discussed at length about them and about the reorganization within the Ministry.

Returned to IRRI office and reviewed the status of prospective trainees and other appropriate information with Walt Tappan.

Had lunch at Tappans.

In the afternoon had meetings with AARD officials. Present were Dr. Manwan, Dr. Bidoyo, Mr. Anda, Dr. Bill Collier of RMI (formerly of ADC) and Dr. Ketzlaff of IADS (IADS helps manage World Bank fund for AARD). I distributed copies of the "IRRI's Training and Professional Advancement Programs," briefly reviewed its contents and described the proposed IRRI-IPB collabora-

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1983

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tive degree training program. In general, everyone appeared enthusiastic about the proposal. The following suggestions were made (by Dr. Bill Collier and/or Dr. Ketzlaff) to be kept in view in developing this program:

(i) The thesis proposal should be finalized before the student goes to IRRI as the graduate committees has to approve it before the thesis can be started. (This can be done through correspondence between the student, IRRI staff and IPB Professor).

(ii) Some of the AARD staff should be also recognized by IPB and IRRI as students adviser at IPB and thus, co-advisor with IRRI staff.

(iii) This system is likely to take somewhat longer time as the students cannot start thesis research till they reach IRRI. (Is it possible that on certain thesis topics some work can be started while the students are still at IPB?)

(iv) Source of funding. I explained that for simplicity sake the agreement is signed as bipartite arrangement as tripartite negotiations usually take longer time in finalization. It is expected that most students in this category will be on AARD sponsorship through IRRI. Dr. Manwan said that this arrangement can be included under the general umbrella of IPB-AARD agreement already signed and, therefore, a separate memo would not be necessary

In the evening I attended cocktails-buffet at Tappan in which he had kindly invited key AARD and IPB staff to meet with me.

October 11 - Meeting at IPB with Rector Andi Hakim Nasoetion, Dean Eddi Guhardja, Vice Dean Yayah Koswara and Komaruddin, Drs. Ketzlaff, Anda, and Tappan.

I briefed them about IRRI's training programs, particularly the various arrangements about the graduate studies. I also gave copies of the IRRI Training and Professional Advancement Programs. The Rector readily signed the Memorandum of Agreement, the draft of which was discussed earlier with him by Dr. M.F. Vega and Dr. W. C. Tappan. He appeared very enthusiastic about this arrangement. They have several students working for their Ph.D. program whom they would like to be considered for conducting their thesis research at IRRI. The Dean will bring their names and particulars for the wrap up session on Saturday, October 15.

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ke the thesis advisorship for Mr. Haisan, who has been accepted at IRR1 to work on economics of farm machinery, Rector Andi Hakim Nasoetion said Mr. Bart Duff would be acceptable as a regular member and Vice Chairman of his Graduate Committee. His being a senior staff at IRR1, several years of research experience and published papers will be considered equivalent to Ph.D. degree. A list of his publications will be needed. I will send these to IPE as well as Bart Duff's and other staff's biodata for their approval as affiliate faculty members.

IPB has similar arrangements with Department of Agriculture, Sabah. However, IPB advisor visits the M.S. students in Sabah once during their thesis research.

According to the present rules, the students are required to pay full tuition fee (about US\$1,000/year) even when they are conducting their thesis research elsewhere. However, Rector Nasoetion said that it can be reduced and that they will look into it.

October 12 - Dr. Tappan, Dr. Retziaff, Mr. Anda and I visited the University of Padjadjaran at Bandung. We were received by the Acting Dean of Faculty of Graduate Studies, Dr. Husen Djajasukanta; and Dr. Tuhpawana Priatna Sendjaja, Chairman of Graduate Program in Agriculture Economics. The Padjadjaran University was started in 1957 with Economics, Law, Science, Education and Medicine faculties. Now it has 11 faculties including agriculture. The graduate program was started 3 years ago. They have visiting scientists from Germany, and Belgium, and have cooperative project with the University of South Alabama.

There are 150 staff in the faculty of agriculture of which 25 have Ph.D. degree, and 750 students including 15 for M.S. degree.

Dr. Husen was informed about our visit. I described him the IRR1's training program with the help of the publication "IRRI Training and Professional Advancement Programs".

Dr. Husen said that they are interested in developing cooperative agreement with IRR1. He will discuss the memorandum of agreement further with his faculty and will attend the wrap up session in bogor on October 15.

October 13 - Arrived Yogyakarta at 8:00 a.m. along with Drs. Tappan, Retziaff and Anda. Dr. Joe Brown, Kockefeller Foundation Field Director met us at the airport (he was on his way to Jakarta) and informed us that he had assigned us a car and driver for the duration of our visit. Dr. Manwan had requested Dr. Crowder for this arrangement.

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We visited with Vice Rector Dr. Busno of the Gadjah Mada University and briefed him about the training programs at IRRRI (with the help of "IRRI's Training and Professional Advancement Programs" and discussed the proposed Gadjah Mada-IRRI cooperative program on graduate education. Dr. Busno was quite positive about this approach and said that he would discuss with the Dean of Graduate School and other concerned officials. Also, he said that he would request the Dean who was attending some meetings in Jakarta to participate in our wrap up session on October 15.

October 15 - The final wrap up session on the prospective cooperative graduate program between IRRRI and three Indonesian Universities (IPB, Pajadjaran Bandung and Gadjah Mada was held at IPB from 10:00 - 12:00 a.m., October 15). It was attended by Drs. Koswara, Tappan, Komaruddin, Eddi Gunardja (Dean Graduate School, IPB), Ketzisaffi, Manwan, Bidoyo and Anda. Representatives from Gadjah Mada and Pajadjaran were unable to attend.

Dean Gunardja was enthusiastic about this cooperative graduate program and had prepared a list of the following 5 candidates based on their outstanding performance in course work and institutional affiliations for conducting their thesis research at IRRRI.

<u>Name</u>	<u>Research Topics/ Title</u>	<u>Comment</u>	<u>Source of Funding</u>
1. Ir. M. Jafar Hafisah Ph.D. ADPA-SOUTIF Sulawesi	Economics of farm mechan- ization		AARD (?)
2. Ir. Suwarno, MS Puslitbangan	Salinity tole- rance of rice plant	Need biodata & transcript of record	AARD
3. Ir. Herastuti, S.R., MS UNSOED	Evaluation of rice bran protein		
4. Ir. Eko Ananto Sukamandi Puslitbangan BPTP	System analysis in farm mechan- ization	Computer programming	AARD
5. Ir. Sania S., MS Puslitbangan	Seed Science (Seed technology, quality, termina- tion, storage, maintenance of germplasm)		AARD

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The IPB will send their biodata with the suggested thesis title and endorsement from AARD for funding support to IRRI. This will be referred to the concerned IRRI scientists and the Graduate Selection committee for their formal acceptance by IRRI.

Dr. Manwan said that IRRI and the Government of Indonesia have long tradition of cooperation, and a very successful one. Also, that he had discussed it with Mr. Sadikin prior to his departure abroad, and the training programs should be included in the IRRI/GOI annual planning meeting. The selection of the AARD candidates can be made from among those who are already enrolled at these universities. There was some concern that the total time required for graduation under this program may be somewhat longer than if the students were to work at any one place alone. One way to minimize this would be to take some courses at UPLB while the students are conducting thesis research at IRRI. IPB allows a maximum of 1/6 of the total credit requirements for the degree to be taken at another recognized university. This will amount to a maximum of 6 units for MS (30 courses + 6 thesis) or 9 units for Ph.D. degree (36 courses + 12 thesis). Thus, it is possible that the students may take 1-3 courses at UPLB (preferably at the rate of 1 course per semester) concurrent to their thesis research. Also, it was agreed that the candidates recommended under this program to IRRI will take TOEFL test as an indication of their English proficiency. The thesis will be written in English.

As specified in the memorandum of agreement following the recommendation of AARD, IRRI (based on the recommendation of its scientists and graduate program selection committee) will nominate candidates to IPB. However, it was agreed that in case of the candidates who have already started their graduate programs at IPB, IPB will make the recommendations to IRRI. This recommendation will include a copy of the student's biodata, a copy of his transcript of records and proposed thesis title, along with an endorsement from AARD.

IRRI will evaluate their applications following the standard IRRI procedure and will inform IPB/AARD accordingly.

According to Dr. Bidoyo the current time and expenses allotted for training programs are as follows:

M.S.

Abroad	\$13,000/year for a total period of 2.3 years
Domestic	\$ 3,200/year for a total period of 2.5 years

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Ph.D.

Abroad \$17,500/year for a total period of 3.3 years

Domestic \$ 4,900/year + research funds
 to be provided by the university 3.0 years

A new funding schedule will need to be developed for IRRI-Indonesian universities cooperative programs. I said that it would be appropriate for AARD or other appropriate funding agencies in Indonesia to manage the students' fellowship within Indonesia. However, according to IRRI's standard policy, it should be managed by IRRI while they are at IRRI. Also, a period of 2 1/2 years for M.S. and 3 1/2 years for Ph.D. program would be a more realistic estimate of the total time required for these degrees. Dr. Retzlaff said that the current rate of AARD scholarship for the Philippines is lower than that for IRRI. However, it was recommended that the fellowship rate for IRRI should be commensurate with other international organizations and not with the national institutes in the Philippines.

There was a general consensus on these points. Also, I was very impressed with the ability and dynamism of AARD and IPB senior administrators.

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MDP:acc
11-3-83