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AGENCY FOR  
AGRICULTURAL RESEARCH AND DEVELOPMENT



Narrative Report  
on the  
Applied Agricultural Research Project

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**FOR THE  
MONTH OF APRIL 1983**

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NARRATIVE REPORT  
ON THE  
APPLIED AGRICULTURAL RESEARCH PROJECT  
FOR  
APRIL 1983

I. Introduction

In May one of the new activities of the AARP/RMI Staff was the initiation of the Intensification and Sustainability of Agriculture Project's preparation for the tidal swamp workshop. A field trip with Banjarmasin Research Institute for Food Crops (BARIF) staff, Ford Foundation personnel, and four staff and two volunteers of the AARP/RMI group was organized in this month to inspect possible sites for the case studies which will be presented at the workshop in July.

The AARP/RMI staff at the Maros Research Institute for Food Crops (MORIF) participated in the Institutes semi-annual review of it's research program. They were able to suggest several joint collaborative projects.

Concerted efforts were made to expedite the architectural plans and tender documents for the Research Institutes at Bogor, Maros, and Banjarbaru. The AARP/RMI expert was deeply involved in the necessary revisions of these documents.

## II. Personnel

During this month, the staff of the AARP/RMI group was increased by the arrival on April 7 of Ms. Diane Barrett who is the post harvest processing specialist assigned to the Bogor Research Institute for Food Crops and it's station located in Karawang. Previously she was a nutrition consultant assigned to the Department of Community Nutrition and Family Resources, Bogor Agricultural University for one year ending in March 1983. Before this assignment she was a food science consultant for the World Bank stationed at the Food Technology Development Center in the Bogor Agricultural University from January 1981 to Dec.31, 1981.

With the arrival of Ms. Diane Barrett the number of AARP/RMI staff fluent in the Indonesian language increased to five and the entire staff had the following capacity in Indonesia:

	<u>Level</u>
William L. Collier	Fluent
Carl R. Fritz	Fluent
Dianne Barrett	Fluent
Roland Harwood	Learning
Jerry McIntosh	Adequate
Kevit Brown	Learning
John Bolton	Adequate
Greta Watson	Fluent

Fritz Fleckenstein	Good
Igmido Corpuz	Fluent
Anwar Rizvi	Learning
James Myers	Good

Besides this, Greta Watson is also fluent in Banjarese. Obviously, the AARP/RMI staff can participate actively in meetings and discussions that are in the Indonesian Language.

### III. Staff Activities

I. William L. Collier, Chief-of-Party, assisted AARD staff in preparing two proposals for the World Bank. The first was for a project on Rainfed Agriculture in NTT and NTB and the second was on opening of the tidal swamps for transmigration and designated Swamps II. Both had an agricultural research component and AARD prepared the proposals for this research. He also was involved in preparations for the International Workshop for promoting Research on Tropical Fruits. As mentioned in previous monthly reports, he is working with Dr. Ibrahim Manwan in developing the project on "Intensification and Sustainability of Agriculture" which will receive some assistance from the Ford Foundation. The next activity in this program is a workshop on tidal swamp land development to be held at the Banjarmasin Research Institute for Food Crops in July. To prepare for this activity four staff and two volunteers of the AARP/RMI group,

two Ford Foundation staff, one World Bank consultant, and members of BARIF's staff visited five villages in the tidal swamp areas in South and Central Kalimantan. The purpose was to select villages for the case studies which will be presented at the workshop and to determine locations for the participants who will conduct brief studies during the workshop. He also continued his efforts on the manpower training study.

2. Carl R. Fritz, Administrative Specialist, continued with his work on budgeting, financial, and administrative matters, worked with AARP officers in planning the participant training schedule for April and May. He met with AARP staff to help implement the manpower training study and the detailed implementation plan.
3. James Myers, part-time Training Coordinator based in Jakarta, supported Mr. Fritz in making arrangements for training and departure of the participants. Mr. Walter Flinn who is the Washington D.C. Training Coordinator, contacted various institutions to support participants who are already in programs and to make arrangements for those who are scheduled to arrive.

4. Roland E. Harwood, Research Station Development Specialist assisted AARD's major effort during April to try to finish the architectural plans and the tender documents for Phase II, Package I and II for Bogor, Phase I for Maros, and Phase I for Banjarbaru. The devaluation of the Rupiah caused some revision of the nearly completed plans. Several errors in the plans are still being corrected. This work is done in close cooperation with USAID engineers and final approval of the plans must come from USAID.

Construction work at Cimanggu, with the exception of the auditorium, is proceeding satisfactorily though somewhat behind schedule. A decision is expected soon on a plan to reinforce the foundation of the auditorium and also some of the steel in the roof structure is undersized and must be replaced.

A trip was made to West Kalimantan (see Appendix I).

5. Diane M. Barrett, Postharvest Processing Specialist assigned to the Bogor Research Institute for Food Crops arrived on April 1. Her initial activities were to gather information on postharvest processing research, manpower involved and facilities used. After consultations with the Director of BORIF and the staff of the substation at Karawang, it was decided that she would concentrate on the following:

1. Design of a research framework for postharvest research at BPTP-Karawang. Tentative 5 year plan.
2. Weekly lectures/laboratories on research methodology.
3. Collaborative research with BPTP-Karawang staff in the area of cassava.
4. Assistance in scientific writing.
5. Assistance with interpretation of English language scientific papers.
6. Improvement of library, and laboratory facilities.

For more information, please see Appendix II.

6. Jerry McIntosh, Farming Systems Specialist at the Bogor Research Institute for Food Crops, spent most of the month assisting a team of about 15 scientists representing different disciplines, plus relevant GOI and USAID officials on an Upper River Watershed Assessment. He prepared two reports based on this activity which were:
  - a. Watershed Assessment Report Farming Systems Evaluation and Development
  - b. Technical Report-Farming Systems Research and Development, Upper River Watershed Assessment.

He also prepared for and attended the IRRI sponsored Crop/Livestock Farming Systems meeting at Los Banos. For his other activities, please see Appendix III.

7. Igmidio T. Corpuz, Soil Scientist assigned to the Maros Research Institute for Food Crops, worked with the staff in designing and establishing a "Sulfur Fertilization Experiment" in a farmer's field near Maros. He also helped in designing the research proposals of the Departments of Soil and Soil Fertility, and Agronomy for 1983-1984. Also he prepared a research proposal on "Azolla as a Nitrogen Source for rice" and participated in the Review of Research Programs of MORIF. Finally, he made two trips during this month. For more details on Dr. Corpuz's activities, please see Appendix IV.
  
8. S. Anwar Rizvi, Plant Pathologist at MORIF participated in meetings with the Pathology Department to prepare outlines of their research proposals for their semi-annual meeting on research. He participated in this meeting and presented three research proposals on rice tungro virus.

He accompanied the Head of the Pathology Department on a visit to the Lanrang Sub-station to observe results obtained from their Rice Tungro Virus nursery experiment. They reviewed

the data on population dynamics of the green leafhopper (vector for RTV) during the period of this experiment.

Discussions were held at this sub-station about the means, methods, and modifications necessary to improve the performance and efficiency of the results obtained in their future RTV nursery experiments at MORIF (see Appendix V).

- 1). Fritz von Fleckenstein, Agricultural Economist assigned to MORIF, used the data from his Bulukumba trip in March, to conduct an analysis of the current field work practices of the agro economics department and made recommendations for improvement of these practices. After consultations with his Department Head, it was decided that he should start a pilot study of a small group of farmers in the Maros area, in collaboration with staff of this Department, to demonstrate the methods used in an intensive whole-farm study. Preliminary work has begun in a selected village.

Besides this work, he traveled to Malang and Bogor (April 27 to May 5) to study the present status of the PATANAS programme and to participate in a meeting on computer procurement (see Appendix VI).

10. Ruth von Fleckenstein, volunteer English language teacher at MORIF has been helping the staff prepare for the ALIGU language exam. In order for the staff to participate in the AARP's short term training program they must get a reasonable score on this exam.
  
11. Kevit Brown, Rice Breeder at the Banjarmasin Research Institute for Food Crops (BARIF) made three trips in April to testing sites for collecting data and making plant selections. He joined the tidal swamp workshop trip to select sites for our case studies which gave him a better understanding of the effect and dimension of acid and potentially acid soils in the tidal swamps. He has also been assisting BARIF in the acquisition of local rice varieties to be used in test nurseries in the next wet season and in establishing a seed storage system (see Appendix VII and VIII).
  
12. Sara Brown, volunteer plant breeder on BARIF's secondary crops breeding program has begun working with the staff to determine where she can be most effective.

13. Greta A. Watson, Social Scientist/Agricultural Economist assigned to BARIF made six field trips during the month which are discussed in Appendices IX, X, XI, XII, and XIII. These trips were to assess present research facilities and/or potential of BARIF experimental stations and related government projects in South and Central Kalimantan.

She gave a seminar on "Water Conditions in Coastal Wetlands in South and Central Kalimantan" to the BARIF staff. She helped develop the pre-workshop survey of five tidal or tidally influenced village sites in South and Central Kalimantan. She gave the Plant Breeding Department twenty-five varieties of local rice from Central Kalimantan which she collected during her stay in the area. A complete description of her activities is in Appendix XIV.

14. Tom Gula, volunteer ecologist at BARIF has begun working with Ms. Makrita Willis who is an entomologist and Mr Farid who is photographer to make insect collection and photoessays of research at BARIF.

15. John Bolton, Soil Scientist at BARIF made a number of field trips during the month, and one is described in Appendix XV. The purpose of this visit was to inspect facilities, land and experiments on the Belandian sub-station. Most of his time during the month was spent reviewing the equipment lists for procurement by AARP for the various departments at BARIF. Discussions were necessary with the staff to improve the specifications for the orders (see Appendix XVI).

#### IV. Training

In April due partially to the review of the short-term training program no participants were sent abroad. However, there were six participants in various programs at Auburn University, the American Type Culture Center in Rockville, Maryland, and the Asian Vegetable Research and Development Center in Taiwan. A total of 32 participants have returned from abroad who were supported by the AARP in a wide range of training programs in the USA, Taiwan, Philippines, Turkey and Mexico.

For detailed information on the short-term training program, please see Appendix XVII.

## TRIP REPORT MARCH 21-26

R.E. Harwood

Pak Abdullah, Mr. Robert Davis, Mr. Alan Hurdus, Ir Eddie Kustiawan, Ir. Hargono, and myself flew to Banjarmasin where we were joined by Dr. Hans Anwarhan and Dr. John Bolton, and then we flew on to Samarinda.

Tuesday, after visiting with a representative of the governor and the mayor, we went by Jeep to Lempake. The road is very difficult and access to the station is a definite problem now which will be improved in the future. Land bordering the AARP station is being developed by \_\_\_\_\_ and several buildings are being constructed.

Two buildings, one a laboratory and the other a library, are under construction at the Lempake station. The station land must be cleared and it appears to be a very heavy, poorly drained, clay soil. The area is rather remote and must have a water system and diesel generator and, hopefully, some radio communication equipment.

We then visited the proposed site of the forestry installations, with several people from the forestry group. This three hectare site does not have any flat land but is a very narrow ridge with extreme slopes on either side. The cost of levelling this land will be calculated to determine if the land can be economically used. A map must be made, starting from a known permanent bench mark, showing the exact location of the land.

We rode by bus from Samarinda to Balikpapan. On the way we stopped at the forestry installations, the site of the 500 H of virgin forest. We

saw only the building area which was badly in need of maintenance. The area between Samarinda and Balikpapan was almost entirely undergoing burning.

We stayed overnight in Balikpapan and the following day, Wednesday, the USAID group returned to Jakarta, the forestry group returned to Samarinda, and the rest of us flew to Banjarmasin.

Thursday, the construction plan for Banjarbaru was discussed with Pak Abdullah and Pak Noorsjamsi. This construction plan was considerably over budget and modifications are being made to lower costs.

Thursday, the newest list of equipment made by the procurement office at Banjarmasin was received and discussed.

Friday, Dr. Anwarhan, Dr. Bolton, and myself went to Banjarbaru to walk the site of the new experiment station. Most of the land was under water. The area designated for initial construction is not flooded. During the next dry season a detailed plan will be made for the experimental land. Drainage promises to be the biggest problem in the station's development.

Hans, John, Pak Abdullah, and myself discussed the needs for field equipment for Banjarbaru.

Saturday I discussed the drainage problem at Banjarbaru with Pak Abdullah and Pak Noorsjamsi. Much of the land will be used for deep water rice, but drainage will be needed.

Jeep vehicle maintenance was discussed with Dr. Anwarhan and some of his staff with an idea to having the needed maintenance at a most economical cost.

I returned to Jakarta at 17:30 hrs.

Note

The shortage or, at times, total lack of water in Banjarmasin makes living conditions there a bit precarious. The shortage of electricity is easier tolerated. Every precaution should be taken to insure a good water supply for Banjarbaru.

REH:ib

TRIP TO WEST KALIMANTAN, APRIL 26-6-8, 1983

R.E. Harwood *REH*

Our group included members of Litbang, both from Food and Industrial Crops, USAID, Encona, and R.M.I..

Tuesday we flew to Pontianak and drove from there to Singkawan where we met with several people involved with industrial crops and spent the night.

Wednesday we visited the sites of the two proposed experiment stations with people from the local Industrial Crops program who had maps of the sites.

The first, a forty minute trip from the city, on good paved road, consists of 175 hectares, part high land and part swamp. This topography is typical of the area. The high land will be used for pepper, cloves, and coconuts; the low land for rice, coconuts, citrus, and maybe some vegetable crops. Plantings of all but rice in the swampy areas are made on small mounds of soil about 50 cms to 1.0 meter high. Most of the low land on this site was not being used. On the high land some old rubber trees were being tapped and some cassava was growing among the brush.

There is potable water available from a nearby spring. There is no electric power available.

The second site of approximately 50H is less than a kilometer from the ocean and very low and swampy. The soil is a very heavy clay. The work proposed here will be with coconuts and citrus all grown on mounds built up to get out of the water. There was some sorghom being grown near the site using this system.

There is a good road passing the site, and three phase electric lines and telephone lines along this road.

The most common system of construction in the area is to use wood for piling as a foundation, with floor being about a meter above water level, wood for framing and roofing, and two to four centimeters of concrete plastered over heavy wire as wall material.

These structures appeared to be very satisfactory and should require little maintenance.

Both sites were approved by all concerned and land certificates are being processed.

REH:ib

MONTHLY REPORT  
April, 1983  
DIANE M. BARRETT

I. PRINCIPAL ACTIVITIES

- A. Began work on April 1, 1983. Initial activities included background information-gathering on the history of postharvest technology ( in particular cassava technology) in AARD, current research on-going, manpower and facilities involved, farm-level and industrial-level operations and areas of research most important.
- B. After consultation with the BPTP-Karawang staff and Dr. Siwi my activities were determined to be in the following areas:
1. Design of a research framework for postharvest research at BPTP-Karawang. Tentative 5 year plan.
  2. Weekly lectures/laboratories on research methodology.
  3. Collaborative research with BPTP-Karawang staff in the area of cassava.
  4. Assistance in scientific writing.
  5. Assistance with interpretation of English language scientific papers.
  6. Improvement of library, and laboratory facilities.
- C. Preparation of a Terms of Reference for an evaluation of Postharvest Research within AARD.

## II. CONSULTATION AND MEETINGS

- |                                 |               |                           |
|---------------------------------|---------------|---------------------------|
| A. Dr. Siwi                     | BPTP-Bogor    | Postharvest Research-AARD |
| B. Pak Wargiono                 | BPTP-Bogor    | Tuber Crop Research       |
| C. Pak Soemardi,<br>Ibu Rumiati | BPTP-Karawang | Rice, Palawija Research   |
| D. Dr. Roberto<br>Soenarjo      | BPTP-Bogor    | Cassava Research          |
| E. Dr. Soewarno                 | IPB           | Postharvest Evaluation    |

## III. FUTURE PLANS

- A. Review proposals for 1983/84 research at BPTP-Karawang.
- B. Begin weekly discussions/labs on research methodology.
- C. Begin working on 2 cassava research projects with Pak Soeharmadi and Pak Sudaryono (Karawang).
- D. Coordinate postharvest evaluation study.
- E. Try to locate a volunteer to teach English in Karawang.

DMB:h

COOPERATIVE CRIA - IRRI PROGRAM  
THE INTERNATIONAL RICE RESEARCH INSTITUTE

CABLE ADDRESS:  
IRRIAD BOGOR

MAIL ADDRESS  
COOPERATIVE CRIA - IRRI PROGRAM  
IRRI - P.O. Box No. 107  
BOGOR, INDONESIA

May 5, 1983

To : Dr. J. Ritchie Cowan  
IRRI Liaison Scientist

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

Subject : Monthly Report - April 1983

I. Principle Activities and Accomplishments

A. Upper River Watershed Assessment.

A team of about 15 scientists, representing different disciplines, plus relevant GOI and USAID officials spent the last week in March and the month of April involved in this exercise. The first week consisted mostly of planning and organizational sessions. The second and third weeks involved visits to the Citanduy, Solo and Brantas River watershed projects and to the Yogyakarta Rural Development Project. The fourth and fifth weeks involved discussions among the team members and further discussions with GOI officials. Dr. Surjatna and I were responsible for the Cropping Systems Assessment within the Context of Farming Systems Research and Development. I was able to spend 15 days working with the team and preparing summary and technical reports. Copies of the reports are enclosed.

- B. Preparation for and attendance (one week) at the IRRI sponsored Crop/Livestock Farming Systems meeting at Los Banos. Drs. Siwi, A.P. Siregar and Ir. Soetjipto represented AARD at the meeting. The Asian Farming Systems Working Group will serve as a coordinating body for selected Farming Systems Research Sites. Indonesian scientists wish to participate and have suggested that Baturaja be a collaborating unit.

The discussions at the meetings were very useful. Several scientists who have had experiences in Livestock Farming Systems from Asia as well as North America gave

presentations and discussed approaches that will be useful to the group. The main focus of collaboration will be on animal feeds.

Other items of interest were:

1. Forage crops after rice -- Trials at IRRI were started two years ago to evaluate the growth, longevity and seed producing characteristics of forage species grown during the dry season after rice harvest. These crops were planted soon after rice harvest in January and have been growing on residual moisture since that time. Most of the species studied were legumes. Of these pigeon pea, calopogonum, centrosema and pueraria have done very well. These are all commonly grown in Indonesia. The next step will be to identify the most palatable cultivars from these species. It is significant that sweet potatoes which were inadvertently left in the field have also grown well and are still growing.
2. Force feeding of beef cattle -- During a field trip to Batangas, we were able to see the management operations for Batangas beef industry. The key factor appears to be the use of rice bran and ground grain in a slurry and literally poured into the animals mouth. To a limited extent this kind of operation would have a place in Indonesia.

## II. Miscellaneous Activities

1. Editing of reports for IRRC and other conferences.
2. Consultations

## III. Constraints to Work

1. Lack of a coordinated Farming Systems Research and Development effort within AARD.

## IV. Plans

1. Visit Maros and Banjarmasin to assist in FSR&D Program development.
2. Help develop and carry out collaborative research plans.

Report of Activities for the  
Month of April, 1983

Igmidio T. Corpuz

I. Activities and accomplishments :

- A. Assisted in designing and establishing "Sulfur Fertilization Experiment" in a farmer's field at Desa Tambua, Maros (Appendix A).
- B. Assisted in designing the research proposals of the Departments of Soil and Soil Fertility and Agronomy for 1983-1984.
- C. Presented a research proposal on "Azolla as a Nitrogen Source for Rice (appendix B).
- D. Participated in harvesting and gathering experimental data on the following experiments :
  1. at Maros Experiment Farm
    - a. Long Term Soil Fertility Experiment (Cooperative Project with IRRI)
    - b. Long Term Experiment on Inorganic and Organic Fertilizers.
    - c. Nitrogen Fertilizer Efficiency on Irrigated Wetland Rice (Cooperative Project with IRRI)
  2. at Mariri Substation, Kab.Luwu
    - a. Long Term Soil Fertility Experiment (Evaluation on the Soil Fertility Status at Mariri Substation)
- E. Participated in The Review of Research Programs of the Institute.

II. Travels Made :

- A. April 7 and 8 to Sinjai (Trip Report Appendix I)
- B. April 13 to 16 to Bone-Bone (Trip Report Appendix II)

III. Plans for May :

- A. Participate in preparing reports of completed research project for 1982-1983.
- B. Participate in the symposium on "Sulfur in Southeast Asian and South Pacific Agriculture (Tentative pending approval by Chief-of-Party).

## Sulfur Fertilization Experiment

### Introduction

A farmer leader at Desa Tambua, Maros referred his farm problem to Ir. Christine J.S. Momuat, Head Soil and Soil Fertility Department. There was a need to actually visit the farm.

Even after the application of urea at the rate of 400 kg urea per hectare (90 kg N/ha) the rice plants remained yellowish in color. The rice plants IR50 were already one month old at the time the problem was referred to the Department and the urea fertilizer was applied 10 days earlier.

A decision was made to set up a simple fertilizer trial to prove or disapprove our evaluation of the problem. The yellowish coloration is due to sulfur deficiency although it may also be an early stage of tungro disease. It was observed there were plenty of brown plant hoppers in the padi.

### Procedure and Method

The following treatments were tried :

1. Control
2. Urea
3. Ammonium sulfate
4. Urea and elemental sulfur

#### Rate of application :

N	-	100kg/ha
S		120kg/ha

Since there are only four treatments a Latin Square design was employed.

All the fertilizers were applied as broadcast after making the necessary bunds to prevent movement of fertilizers.

It is fortunate the rice plants were transplanted in straight rows. There was no problem establishing the plots with a size of 3 meters by 4 meters. Plant spacing used is 20cm x 20cm.

Furadan was also applied as broadcast together with the fertilizers. Weeding was done after fertilizer application. The weeds were buried in the mud. There was no actual removal.

Data to be gathered

1. Soil chemical analysis
2. Yield and yield components

Dr. Igmidio T. Corpuz  
Soil Scientist/Agronomist  
MORIF.-

## Project Proposal for 1983-84<sup>1)</sup>

Title : Azolla as Source of Nitrogen for Rice and other Food crops.-

### Introduction

Azolla had been used for a long time as an organic source of nitrogen for rice in China and Vietnam. Recently Azolla utilization was included in the national rice production program in the Philippines as supplementary source of nitrogen.

At the Maros Experimental Farm Azolla is present in large quantity. It is essential to study effectiveness of the local species as organic source of nitrogen for rice. It must be recognized that different species of Azolla differ in their capacity to fix nitrogen.

Earlier there was a study on Azolla in the Soil and Soil Fertility Department. It was not pursued for the basic reason that nobody has the expertise on the utilization of Azolla.

In this project both the basic and applied aspect will be pursued. It will be conducted at the Maros Experimental Farm starting the 1st semester of 1983-1984. It will be a continuing project.

### Objectives :

1. To characterize the local species of Azolla
2. To determine the effectiveness of the local species of Azolla as source of nitrogen for rice and other crops
3. To determine the influence of Azolla application on some soil properties.

### Procedure and Method :

Local species of Azolla will be used. An Azolla culture pond will be established near the weather station of the Institute.

---

1) Prepared during The Review on Research Programs for 1983-84 of the Soil and Soil Fertility Department,

The following treatments arranged in a Latin square design will be included in the experiment :

1. Control (no treatment)
2. Azolla
3. Urea
4.  $\frac{1}{2}$ N as Azolla and  $\frac{1}{2}$ N as urea

Rate of nitrogen application : 100 kg/ha.

For the initial experiment Azolla will be collected from the different paddies. At present Azolla are growing abundantly.

The Azolla will be incorporated with the mud to a depth of 10cm before planting; urea will be applied as split, 1/3 at planting and 2/3 at panicle initiation.

Plot size will be 5m x 10 meters. A high yielding variety recommended for the season will be used.

All recommended practices like insect and disease control will be employed.

Data to be gathered :

1. Soil chemical properties before start of experiment and after each cropping.
2. Yield and yield components.

Dr. Igmidio T. Corpuz  
Soil Scientist/Agronomist  
MORIF.-

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Trip Report  
Official Trip to Bone-Bone  
April 13 to 16, 1983

The trip was made with the invitation of Ir. Reginald le Cerff who is handling the Long Term Soil Fertility Experiment at Mariri Substation. Ir. Lukman Gunarto M.S, Incharge of the Soil Fertility Research on Palawija crops decided to join the trip.

The purpose of the trip was to harvest and gather experimental data on the Long Term Soil Fertility Experiment which was reported to have been seriously damaged by rats. A question was raised. Because it was seriously damaged should the experiment be just considered a failure or is there something that could be done to still save the experiment? If there is a way to save the experiment by all means save the experiment. To answer the question there was the need to determine the extend of the damage.

The first was to remove the border rows. These are the rows around the plot adjacent to the bunds. These rows could not be included in the yield and yield component determinations because they are favored by factors not included as variables.

What is unique in the damage caused by rats is that the damage is concentrated in the middle portion of the plots. This is the portion usually harvested for yield and yield components determinations.

After the border rows were removed the extend of the damage-free-hills were observed. In the IRRRI Cooperative Trials a minimum of 16 hills is required. Fortunately there were more than 16 hills that could be harvested with no rat damage. The extend of rat damage range from 40 to 90%. Ordinarily the extend of damage in per cent is determined and correction on the yield is made later.

The method employed was that the correction was done right in the field at harvest time. This was done by selective-random harvesting. Sixteen hills with no sign of damage were selectively harvested randomly. It was essential to select the hills with no sign of damage but the selection was done at random all over the harvestable area.

This was the best thing that could be done to get some information in the experiment. Although the project is a Long Term Soil Fertility Experiment the first crop is actually a measure of the soil fertility status.

Trip Report  
Official trip to Sinjai  
on April 7 and 8, 1983

The trip was made with the invitation of Ir. Christine J.S. Momuat, acting Head Soil and Soil Fertility Department and Ir. Reginald le Cerff, Incharge of the Cooperative Work on Fertilizer Cropping Systems Project with IFDC. The purpose of the trip was to observe and evaluate the experiments on the Timing of Nitrogen Application on Upland Rice, a project funded by Gresik and on the effectiveness of different P-sources in a cropping pattern involving corn inter cropped with upland rice, cassava and peanut. This cropping pattern was found to be stable and viable in a similar soil in Southeast Sulawesi.

Apparently there was a dry spell in Sinjai particularly in North Sinjai where the experiments are established. On the day of the visit both the rice and corn crops were wilted. There was sign of permanent wilting of the rice crop. Even there will be rain the first generation of tillers can't recover anymore. There is the possibility however of the development of second generation of tillers which could still reflect the effects of treatments. There was a better chance of the corn crop to survive. The degree of wilting was not yet permanent. Because the corn plants have deeper rooting system they were extracting their moisture needs from the lower soil layer which was not possible for the rice crop.

Because of drought problem it was essential to collect plant samples for the determination of dry matter production. The effect of the tested variable could be evaluated and tested having data on dry matter production per unit area at any given stage of the rice crop or any crop for that matter. There is a direct relationship between dry matter production and yield. The higher the dry matter production at any stage of the growth and development of the crop the higher is the expected yield.

A unique phenomenon was observed and noted. This was pointed out to both Ir. Momuat and Ir. Cerff. The rice plants fertilized with nitrogen showed more severe wilting than the control (rice plants not fertilized with nitrogen). Before the dry spell the rice plant fertilizer with nitrogen showed better vegetative growth, more tillers, taller, more leaves than the unfertilized rice plants.

Now come the drought or dry spell. The rice plants fertilized with nitrogen having better vegetative growth were losing more moisture through transpiration than the unfertilized rice plants. This is a case where nitrogen fertilization has a negative effect on the crop.

Monthly Report - April 1983  
Syed Anwar Rizvi - MORIF

I. Activities :

1. Assisted Ir. Shagir Sama, Head of Entomology Department at MORIF to translate his research report from Bahasa Indonesia to English through a discussion type session. The title of the report was, " Control of rice tungro virus (RTV) and its vector green leafhopper (Nephotettix virescens) in South Sulawesi ". Mr. Sama presented this report at the combined annual collaborative meeting of IRRI/AARD held at MORIF in Ujung Pandang. Later, very useful discussions were held with IRRI scientists to expand work on RTV at MORIF. This activity occurred during the month of March 1983 and is being reported now.
2. Abovementioned report was, later re-written in the form of a research paper (First draft) in accordance with the Editor's instructions for its publication (in English) in the Indonesian Agricultural Research and Development Journal being published from Bogor.
3. Efforts were continued to build up a collection of references at MORIF by making contacts with possible sources like individual researchers, libraries of various national and International research Institutes. References in collection will be related to research on RTV, its vector (green leafhopper) and breeding work on the development of RTV resistant rice varieties. These references will be used at MORIF in the research and training activities of the Institute's staff and in future advising UNIAS students who will be working at MORIF for their research projects.
4. Dr. Farid Bahar, Director of MORIF, assigned me to correct the language style and apparent English mistakes in the draft copy of, " The third year report on cropping system research at Puriala, Southeast Sulawesi ". This report was returned after necessary corrections and its review.

This exercise gave me an opportunity to learn more about the Institute's research activities at the other sites on the Sulawesi Island.

5. Ir. Hasanuddin, Head of Plant Pathology Department returned to MORIF after attending an English course in Bogor. A meeting was held with him and two other staff members of Pathology Department i.e. Ir. Syaharuddin and Ir. Yulianto to discuss research plans for 1983/1984. A complete review of the Department research activities, staff available and their responsibilities was made.
6. Discussions were held with the staff of Pathology Department to prepare out-lines of their research proposals to be presented at MORIF staff meetings during the last week of April. I assisted Ir. Hasanuddin to prepare project proposals for pathological research during 1983/1984 on corn, cassava and sweet potato which he presented at MORIF meetings.
7. I prepared and presented the following three research proposals regarding RTV work at MORIF during the meetings held to discuss Institute's research activities during 1983/1984 :
  - a) Effect of insecticide(s) on the spread of rice tungro virus (RTV) using breeding lines with different resistant gene background and control of green leafhopper, vector of RTV.
  - b) Development of improved field and greenhouse screening methods at MORIF to evaluate rice varieties/breeding lines for their resistance to rice tungro virus (RTV).
  - c) Effect of planting dates to identify rice breeding lines/varieties with minimal incidence of rice tungro virus (RTV) at different locations in Sulawesi.

Objectives, justification, status of present knowledge, methodology and materials needed for each of the abovementioned project were reported in detail for discussions at the MORIF meetings.

8. Participated in the Institute's (MORIF) semi-annual meetings held at Maros for 3 days. Each department presented its proposals in Bahasa Indonesia for 1983/1984 research activities at MORIF. Later, for a better understanding, I met Dr. Farid Bahar, Director of MORIF, who reviewed with me in English the meeting's discussions regarding rice diseases, pests and their control.
  
9. A trip to Lanrang sub-station of MORIF was made alongwith Ir. Hasanuddin, Head of Pathology Department at MORIF. We met with Ir. Koesnang, Head of the Lanrang research station and discussed with him results obtained from RTV nursery experiment. We reviewed the data on population dynamic of green leafhopper (vector for RTV) at Lanrang during the period of this experiment. Peak population time was identified which also coincided with greater degree of RTV infection in susceptible lines planted during such time. Observations on field reaction of all the test breeding lines/varieties to RTV were not yet complete. A visit to the experimental site in the field revealed a severe incidence of RTV in susceptible (TN1) control. Reaction of test lines ranged from susceptible to moderate resistant and resistant.
  
10. Discussions were held with Ir. Hasanuddin and Ir. Koesnang about the means, methods and modifications necessary to improve the performance and efficiency of the results obtained in our future RTV nursery experiments at MORIF. Better ways for the collection of RTV data and presentation of results were also discussed in the light of upcoming Seminar series for MORIF staff to report their individual research results in every Saturday during May and June 1983.
  
11. Sent a telex to IRRI through RMI for the purchase of certain selected IRRI publications and six training modules concerning rice diseases, leafhoppers, planthoppers and their control. These IRRI modules and publications will serve as an important audio-visual source aid to be used in the future training activities of Pathology Department at MORIF.

12. Continued taking Bahasa Indonesia classes in an effort to learn the language as soon as possible so I can more effectively communicate and participate in discussions with MORIF staff and other Indonesian colleagues during meetings about their research activities. Since February 1983, I am taking classes on every Tuesday, Thursday and Saturday for one hour from 4:30 to 5:30 PM. However, I have been unable to attend some classes when I have to be on work trips or attending meetings until late in the afternoon on days of Bahasa Indonesia class as it happened with greater frequency during March 1983.

II. Travel made :

1. On April 30, 1983 to the Institute's sub-station at Lanrang to visit rice tungro rirus (RTV) nursery experiment (Activity # 9 and 10).

III. Plans for May :

1. Continue efforts to collect necessary training materials on the diseases of rice and other crops for which MORIF has the responsibility.
2. Assist Pathology staff in preparing reports on their 1982/1983 completed research projects including RTV experiment at Lanrang. These reports will be presented at MORIF's Saturday seminar series during May 1983.
3. Initiate work to prepare an inventory with index card catalogue of all chemicals, equipments etc. presently available in Plant Pathology laboratory. It will help to know what is needed to order for future supplies.
4. Continue evaluation of various screening methods for diseases of rice to select more reliable and efficient tests at MORIF.
5. Discuss arrangements with Mr. Hasanuddin for sending one of his staff to Bogor for learning laboratory techniques in virology.

Dr. Syed Anwar Rizvi  
PLANT PATHOLOGIST/MORIF

## Monthly Report

APRIL 1983

Fritz von Fleckenstein

1. As prematurely reported in March report, I was sick the first week in April.
2. Using the data from the Bulukumba field trip, I wrote an analysis of the current fieldwork practices of the agro economics department and recommendations for improvement of these practices. This report was appended to my March activities report.
3. As a result of discussions with Ir. Sarasutha, it was decided that I should start a pilot study of a small group of farmers in the Maros area, in conjunction with officers in the department, to demonstrate the methods used in an intensive whole-farm study. Ir. Hadijah Dahlan and I drafted a proposal for the study, which we also intend to use to compare the time required and the accuracy of different methods of data measurement. The questionnaire will be precoded for the FARMAP package of programmes.  
  
The basic proposal was presented to the research planning seminar at MORIF in late April.
4. Preliminary work on the whole-farm study began. A village was chosen, and two forms were drafted, one for a village census and the other for descriptions of the production processes required by each productive activity (such as padi sawah, buffalo, tobacco processing, and so forth).
5. In April we received copies of the research proposal for PATANAS (Panel Tani Nasional) and information about the computers to be provided to each station cooperating in this national project to monitor farmers continuously. It appears that we will be provided with 4 Hewlett Packard microcomputers, which probably dictate our ordering equipment which is compatible with these microcomputers.

In order to prepare for the visit of Dr. Geoff Swenson, I spent some time at the Kantor Statistik in Ujung Pandang gathering information on the number and area of census blocks in South Sulawesi, because it seemed likely that some of them would be quite large, and that this could lead to problems for enumerators if census blocks were used as the unit of sampling, as proposed.

Dr. Swenson's visit led to trip to Malang and Bogor to see the current state of the PATANAS project and to discuss procurement of computers for the programme. The trip report is attached.

### Plans for May

1. Begin fieldwork for recording of labour and animal power inputs in the pilot village study.
2. Finish other forms and begin measurement of land areas.
3. Obtain information necessary for selecting the PATANAS sample for South Sulawesi.
4. Arrange for FARMAP training for Maros economists.
5. Prepare materials on computers to begin orientation of potential FARMAP trainees and others.
6. If computer arrives, begin teaching people how to use the SUPERCALC programme.

Trip to Malang and Bogor to study the present status of the PATANAS programme and to participate in a meeting on computer procurement.

27 April - 5 May, 1983

Fritz von Fleckenstein

#### 1. Genesis of the trip

This trip was prompted by the visit of Dr. C. G. Swenson and Ir. Hermanto of the Centre for Agricultural Economics (Pusat Agro Ekonomi) on April 21 1983 to discuss the PATANAS (Panel Tani Nasional) programme, and more specifically, the participation of MORIF, which is scheduled to begin in 1983 with the choosing of a sample of 10 locations, each with 50 farmers, to be monitored continuously in future years.

At this visit, Dr. Swenson invited Ir. Sarasutha, acting head of the economics department at MORIF, and me to attend a meeting on computer procurement for PATANAS to be held in Bogor around 2 May. Following this meeting, we could attend the training for enumerators for the income and employment study in East Java to be held at Malang (MARIF) on 5th-7th May. Unfortunately, I was expecting a visitor from FAO Bangkok, in fact Alfred Diebold, the Regional FARMAP Trainer. For this reason, it was decided that I should go to Malang first, and then to Bogor, while Ir. Sarasutha would go to Bogor for the meeting, and then proceed to Malang to observe the training. This, in fact, is what happened.

#### 2. Malang (27 April - 30 April)

I arrived in Malang just in time to participate in a discussion of the second draft of the Income and Employment questionnaire, which had been brought to Malang by Ir. Widodo of CAER (PAE), who was accompanied by an officer from PUSDATIK.

Also present at the discussion were the staff of the agro-economics department at MARIF, including the Secretary of the Institute and Mr. Charles van Santen. The discussion was extremely lively, and the local staff made a number of telling points based on their experience in the field.

I was also able to visit one of the field sites of the PATANAS programme in East Java, located in Kecamatan Batu of Kabupaten Malang. This highland area has become deeply involved in dairying, with consequent stresses and strains, the most prominent among which seems to be the supply of fodder for the animals.

### 3. Bogor (1 May - 5 May)

I arrived in Bogor after taking the train from Surabaya, and again from Jakarta, a most pleasant and informative way to travel across Java. On my first day, apart from attending a weekly meeting of AARP, I visited Philippe Lambrecht at the Center for Soil Research who is the only actual user of the FARMAP package in Indonesia, and who is also the only one who has put it (or part of it) onto a micro-computer. He told me many things about his problems and successes, and provided me with very useful information.

The following day, I attended the meeting on computer procurement with Ir. Sarasutha, and discussed the FARMAP programme and its requirements, particularly the need for hard disks to store the large data files produced by this programme. Dr. Douglas Perry, who is working at Sukarami Research Institute for Food Crops in Padang, discussed other programmes which can be used. After the meeting, we observed the VISICALC programme running on the Hewlett-Packard 86 microcomputer, and also minicomputer (The Honeywell Mini-6) which PUSDATIK has installed in the same building. Sarasutha and I then went to the CSR, where Philippe Lambrecht gave us a demonstration of FARMAP on the Superbrain microcomputer, showing us the data input and checking and modification programmes.

The next day, I was able to talk to a Hewlett Packard representative about some of the problems of using the HP86, and the chances of getting larger hard disks to use with it. He later cabled to me that 10MB hard disks are available for the HP86, but some of the useful software which Philippe Lambrecht uses was not. I also followed up some of the discussion of the day before with Dr. Swenson and Perry. Dr. Perry is planning to pass through IRR1 in two months on his way to home leave, and he will discuss the problems of reading RADIO SHACK 8" disks on the Hewlett Packard machines when he is there. The software IRR1 has written for agricultural research applications is largely written for the RADIO SHACK computers.

The problem of reading diskettes written on one machine on another machine has to do with formatting of the screen or unavailability of source code, I was told in my cable from the Hewlett Packard man, as well as formatting of diskettes and incompatibility of operating system. So, even though 8" diskettes have standard formats, unlike other sizes of diskettes, and even though the programmes are written for use with the standard CP/M operating system, they still might not be readable. There is, of course, always one solution: to key the programme in from a listing. This is the method used by Lambrecht, but it requires great care, and it still does not assure that a programme will run. The problem of unavailability of source code is not solved by keying in. The programme must be physically rewritten.

To : Dr. William L. Collier  
RMI / AARP Project Director

From : Kevitt Brown  
Rice Breeder, Banjarmasin

Subject : Monthly Report for April 1983

Date : 30 April 1983

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April was a busy month with trips and visitors. This helped to generate new ideas and refine past impressions for the breeding program.

This month the project secretary was hired and the administrative assistant started work. Mr. Fritz also visited in early April to help with the March financial report. Finances will be turned over to the administrative assistant over the next few months. I will continue to assume overall financial responsibilities until a new program leader can be identified.

Plans made to send my counterpart, Mr. Suhaimi, to the U.S, in June for training in research management and to send to other plant breeder in BARIF, Ms. Hadiatmi, to Bogor for special training in corn breeding have met with several ups and downs. These matters will be settled in a forth coming trip to Bogor.

Breeding related activities this month include the acquisition of 14 local rice varieties from Central Kalimantan sent by S. Gardiner representative of P.T. Pancaran Cahaya Mulia. Technicians at Pleihari and Tilang station were also asked to collect seed of local varieties harvested in April to include in the BARIF seed store. These and other local varieties will be used in uniform nurseries in the next wet season. Also, further steps were taken to acquire silica gel for a seed storage system in Banjarmasin. Wet season rices harvested in March and April will be stored by this system until the following wet season. There has been a cutback of dry season experiments by BARIF this year because of the extreme drought in South Kalimantan. Dr. Mark Bordsen, RMI consultant with BAPPEDA in Banjarmasin also visited to discuss past experiments conducted by BARIF in Sungai Buluh, Tilang, and Tanggul which have partly been funded by BAPPEDA.

His information will be invaluable in giving direction to the deep and medium deepwater rice programs, particularly in environmental characterization of monotonous swamp areas.

Four major trips were taken this month. Individual trip reports are given separately.

Belandean - This is the adverse soils testing site for tidal swamp varieties tested by BARIF. Locations within the Belandean farm for putting the November planted peat and acid sulfate soil tolerance nurseries were identified. Also recommendations were made for the collection of routine data for pH, electrical conductivity, and peat depths of the soils.

Pleihari - Final data and plant selections were made in several upland nurseries in this site. A few of the selected lines were early and had reasonably high yields and blast tolerance but all lines tested were short and may not compete effectively with weeds.

Tilang and Sungai Buluh - Tilang is an upland testing site. The soils are very porous and the rice crop this season showed extreme drought damage during both vegetative and reproductive periods. This season's nursery was not useful but future testing for drought tolerance and grain blast would more effectively be done here than other BARIF sites. Sungai Buluh is BARIF's deepwater rice testing site. The maximum water depth this year was 80 cm which was insufficient for deepwater testing. Three lines were promoted for dry season sowing in the same site, however.

Tidal Swamp Workshop Tour - This trip helped to focus for me the effect and dimension of acid and potentially acid soils in the tidal swamps. Peat tolerance seems a less important breeding objective because several management practices are available to low income farmers to reduce the problem. An acid sulfate tolerance testing site will be needed if Belandean does not prove to be adequate for this purpose. Also on this trip Mr. Sumartono, the tidal rice breeder from Gajah Mada University was contacted. I hope we can establish further ties between BARIF and Gajah Mada for cooperation in breeding research in South and Central Kalimantan in the future.

Finally the prospects of the workshop itself seem promising from the viewpoint of the breeding program. We are particularly anxious to work closely with researchers in other disciplines to better understand village level agricultural constraints and prospects. We expect this to improve our breeding priorities and procedures in the future.

Kevitt Brown  
G A Watson

Trip Report to Tilang and S. Buluh

April 15-16 1983

Party : Suhaimi Sulaiman, Hairunsyah, Mahrita Willis, Tom Gula,  
Greta Watson, Sara Brown, Kevitt Brown

Itinery	:	<u>Location</u>	<u>Date</u>	<u>Objective</u>
		Barabai	15/4	Overnight
		Tilang	16/4	Upland rice trials, upland crops, and discussions with staff and farmers
		Sungai Buluh	16/4	Deepwater rice trial
		Muara Tapus	16/4	Rat control expt.

Tilang

Tilang is the site of the BARIF expt'l farm 5 to 10 km outside of Barabai. The station is a five hour drive from Banjarmasin including meal stops. The hotel in Barabai is quite adequate and costs Rp 2.500 for double occupancy. Frequently trips made to Tilang and Sungai Buluh are made with an overnight stop.

Tilang farm consists of 10 ha of land with 2/3 ha under rainfed lowland conditions. This small portion is reserved for seed increase but the field is quite new, gives poor yields and needs leveling. Maximum water depth is 40 cm. The bulk of the land is upland with sandy loam texture in the red-yellow podzolic class. The pH is 5.4. Mr. Hairunsyah explained that there would be a benefit in the use of sulfate fertilizer in this area as opposed to urea.

The farm manager of Tilang station is Mr. Zain Hamijaya who studied BPH at the university. There are also 5 SMA, 4 SMP, and 5 primary school graduates. The facilities of the station are the best of any out station I have seen. There are 2 Kubota 4-wheel drive mini-tractors, 1 mobil, and 2 motorcycles assigned there. There are also gm and kg balance and 8 sprayers although only 3 are operational.

The main emphasis of the station is in upland rice and vegetables and other upland crops.

The porous soils provide a good testing site for drought tolerance. This season drought was extremely severe in the trials. One nursery of rainfed and tidal swamp breeding lines was completely destroyed by drought and grain blast. Known upland materials like C22 did produce a low yield but were severely affected with grain blast. All seed increases of upland materials should be planted in well irrigated areas. Native varieties grown around Tilang this year produced 1 to 5 productive tillers and sustained yield losses from drought of 50% or more. Grain blast was tolerable. We collected seed of three local padi gogo varieties : Katumpring, Sibuyung, and Lurus. The 15 year average rainfall figures (1968 - 1975) for the station are listed below in mm :

Jan = 270, Feb = 270, Mar = 290, Apr = 260, May = 220, Jun = 120  
Jul = 90, Aug = 100, Sept = 100, Oct = 130, Nov = 280, Dec = 350

Because this dry season rainfall is very much lower than usual, farmers in the area will not grow a second crop of rice. Station personnel were planning to plant the second crop expt's but the decision was made in Banjarmasin to stop all trials not yet sown.

Mr. Zain identified the following as problems with the Tilang research station : a) Erosion, b) Uneven land in the rainfed area, c) Seed storage not adequate because of viability loss, d) Wild pig and rat predation. Barriers are needed for pigs and rats in the rainfed and upland areas.

### Sungai Buluh

S. Buluh is the main "deepwater rice" testing site for BARIF. It is conducted in a farmers field but technical supervision is provided from Tilang, a 45 minute drive away. The direct trip from Banjarmasin takes 4.5 hours including stops. The site consists of a 15 x 40 m area fenced in with a 2 meter high rat fence funded by BAPPEDA. The site is part of the lake bottom along the road and has a bamboo bridge which could be improved if the number of visitors increases.

The maximum water depth in the area is about 2 meters, but this year the water only went to a depth of 80-100 cm. The soil is a very black silt/clay with excellent natural fertility because of high organic matter decomposition in the lake bottom. The trials were seeded 17 Nov, 1982. By Feb 5 and again Feb 12 heavy floods up to 80 cm caused the submergence of 10 lines in the trial including the local cultivar. On the date of this trip there was little or no standing water in the field.

Water levels in the field have been recorded once a week by Jantera, the farmer cooperater, who is also headman of his village. We have asked him to record water levels on a daily basis in the future. Some of the problems with this experimental site include variability in soil levels (as much as 40 cm). Also lake currents passed through the field and destroyed a one meter path during Jan - Feb. Water quality can cause plant death or inhibition possibly because of toxic decomposition products or because of the reduction in photosynthesis of plants submerged in the murky waters.

The main economic activity of lake area people is fishing. Where water levels are not too high a double cropping rice system is traditionally followed. Sawah surung varieties are planted in Nov. when rains begin. The crop is harvested in standing water in March. This type of crop is not commonly planted because of extreme water depth and only when there is a dry period before planting so that weeds can be cut and burned first. Rapid water rise, rats, and stem borers are also a problem. The second crop or Sawah rintak is transplanted as waters recede. This is the usual crop but may suffer from late rains, murky water, flowing water, and aquatic weeds.

Jantera was interested in some of the floating rice lines which have done well in the past two years. His choice was the breeding line IR11141-6-1-4 which he estimated would yield 11.6 tons/ha. This line was fairly early, has floating characteristic, clean grains and leaves, good panicle exertion, kneeling ability, and high tillering ability (25 tillers/hill). Other promising selections were made and three lines will be planted in S. Buluh by Jantera in the dry season.

#### Muara Tapus

..... A ten minute drive from S. Buluh is a medium deepwater site (less than 1 meter) in which an UNLAM student is conducting his thesis research on rat control using the sustained baiting method in a sorjan system using the variety BKN-6986-108-2. The variety yielded very well but lodged completely. Rat damage was low and could not be observed or was obscured by lodging. No control was conducted. This is an extension site for promoting the sorjan cropping system but might be a good site for testing our superior lines.

### Transmigration Site Near Tilang

This government sponsored transmigrant site has been opened for two years. Migrants from the hill areas near Tilang have been supplied with housing farming tools and a monthly supply of rice, salt, fish. There is one deep well for 60 families on the site. The Tilang station has sent extension workers to the village to promote intercropping : cassava, corn, peanut and rice are primary. Under extension supervision, high yields have been obtained; however migrants find fertilizing, spraying and planting methodologies difficult to regulate themselves. This year the peanut crop was damaged by a boring larvae (pengerek polong), and rice failed to head and / or fill due to drought. Farmers also grow garden vegetables, taro, banana and spices.

Extension service workers say the transmigration project here is the most successful in the area because of the site's proximity to a major roadway (5 km away). Farmers also work as day laborers on surrounding rubber plantations and this added income is also an advantage.

G.A. Watson  
 J. Bolton  
 13 April 1983

Trip to the Faculty of Agriculture, Lambung Mangkurat  
 University, Banjarbaru, South Kalimantan.

Dr. John Bolton and Greta A. Watson travelled to Lambung Mangkurat University, Banjarbaru to discuss farming problems of Kalimantan and a possible workshop on Tidal Swamp agriculture in July with the Faculty of Agriculture. Mr. Sarbini, head of the Faculty, discussed recent tidal and monotonous swamp research. Mr. Abdul Muin Juriandar presented us with the complete results of a two year UNLAM research project on the agro-economics of locally-based cropping systems in tidal areas of South and Central Kalimantan. Mr. Shariffin, a plant breeder and agronomist supplied copies of student theses on Kalimantan lowland areas. Mr. Sarjani Musa, head of the Research Institute at UNLAM and Dr. Ismet Ahmad, an UNLAM professor of Economics also attended.

The discussion covered four areas :

1. Tidal Swamps. Two main areas were differentiated : those which undergo salt influx in rice fields during growing season and those which do not. Kurau is a village of the former category and Bati-bati of the latter. More research should be carried out in both areas with regard to salt tolerance of local varieties and the potential for improvement of their cropping systems.
2. Monotonous Swamps. Two types of rice cropping systems occur here. Rintak rice is transplanted into swampy areas at the end of the rainy season when water recede. This rice may suffer from lack of water during the end of the growing season. Portable pumps may improve irrigation. Feasibility studies are being carried out. Surung rice is planted at the beginning of the rainy season and harvested in standing water. Surung rice is "high risk" since it is often flooded. Deep water rice varieties may improve yields. Secondary crop research is necessary.
3. Upland areas. Unirrigated fields yield an average of 2000 - 2750 liters of rice. BAPPEDA installed a lowlift pump on a six hectare area of the Hulu Sungai region and almost doubled yields. Management and irrigation constraints resulted in discontinuance of the program : these problems must be solved.
4. Animal husbandry. Although there is some use of water buffalo and cows as draft and transport animals, such practice is rare. South Kalimantan also must

import beef annually. Bati-bati and Negara villages in the swamp region and Pleihari upland area presently utilize animals. Research should be carried out on the potential for animal husbandry in other swampy and upland areas.

5. Vegetable cropping. Many vegetable and fruit crops which are now imported from Java could possibly be produced in South and Central Kalimantan. Other crops presently farmed in Kalimantan may have larger markets. Since the rice farmer is in the lowest bracket for the region, secondary vegetable cropping has potential to increase farmer income, increase exports and reduce imports. Transportation and marketing networks and farming inputs including seed availability present major constraints.

UNLAM facilities include an experimental site for testing various crops. Mr. Shariffin himself is testing 100 lines of soybeans.

The Faculty of Farming at UNLAM in Banjarbaru agreed that there should be an exchange of information among UNLAM, BALITTAN Banjarmasin and BAPPEDA and / or Dinas Pertanian. RMI and BALITTAN Banjarmasin will attempt to implement such discussions.

Greta A. Watson  
Kevitt Brown

Trip to Pleihari Expenrimental Station

11 April 1982

Dr. Kevitt D. Brown and Greta A. Watson from RMI and Mr. Suhaimi, plant breeder from BALITTAN Banjarmasin visited the research station in Pleihari, South Kalimantan. Pleihari is an upland site. Soils are red-yellow podzolic with a reported pH of 6-7. Upland rice (padi gogo), cassava, soybean and other upland crops are grown year-round. Wet rice (padi sawah) is grown during the rainy season using irrigation from a nearby reservoir. We examined the station, crop trials and facilities, and obtained information on local farming practices and problems of the area.

Staff and Facilities. There is a staff of fourteen, headed by Mr. Sudirman. Three persons are on the technical staff; their specializations are rice, corn, and beans. A treasurer, logistician, machinery expert and five field laborers are also employed. An office building, one staff house and one seed storage/garage unit are on the site. Rainfall data is taken daily.

Experiments. Fourteen crop trials are planned for the 1983/84 year. There are seed increase projects for both upland and lowland rice varieties and lines. Many varieties suffered high mortality or reduced yields flooding during direct seeding and from blast. Cercospora leaf spot, stemborer predation and mineral deficiencies (phosphate ?) were also evident.

An experiment on CASSAVA yields tests variable yields with the application of fertilizer and fertilizer in combination with Atonic, a leaf growth stimulant. One cassava variety is being tested. Atonic plus fertilizer did not appear to be significantly better than fertilizer alone for vegetative growth.

Corn, Soybean and other crop experiments are being carried out

General Observations . Station technicians Mr. Noorulpadli and Mr. Ngadino listed blast as the major problem in rice fields and stemborer as second. In Upland testing areas army worms and the rice bug are prominent; in sawah rice, the mole cricket and the sundip (a stemborer which kills rice during the vegetative phase) are also important. Rice farms surrounding the station suffer from wild pig predation. Station managers fear that pig predation could become a problem at BALITTAN Pleihari as well.

Many station workers use fallow land within the station area to plant their own rice crops. The soils are deficient in nitrogen, and workers use urea or animal fertilizer and occasionally TSP in their fields. In these plots Ir 36

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and other unidentified IR varieties suffered extensively from a blast like disease. One improved lowland rice which did not show blast symptoms was Ayung, a 110 day variety resembling IR-36. Station farmers had independently obtained Ayung from Java.

Station technicians are well acquainted with farmers in nearby areas. There are 31 farming families adjacent to the station who migrated from Java to Pleihari under government sponsorship in 1977 - 1978. They grow upland and sawah rice of local varieties; they say Padi Unggul (high-yielding varieties) are too susceptible to blast. Average yields in upland fields are moderate (4 bilek/borongan or approximately 1400 liters /hectare unhusked rice), but good in sawah areas (7 bilek/borongan = approximately 2450 ltr./ha.) In years of ordinary rainfall a second crop in the sawah might be grown. An irrigation system would be valuable. Farmers also plant coconut, clove, banana, soybean, peanut, coffee and other vegetable and fruit crops. Many farmers become day laborers at nearby construction sites during the dry season.

Hilly forest areas surrounding the station have been almost completely denuded. *Imperata cylindrica* is the major weedy regrowth. There is some cattle grazing of this species. Farming systems research is need for long term management of these areas. Perhaps crop and animal research can be coordinated for these 600,000 ha in South Kalimantan.

Constraints within Pleihari Station. Seed storage is a major problem. No refrigeration or drying or dessication materials or machinery are available. Seed viability is low to nonexistent. No insecticides or fungicides are used to preserve seeds. This makes collection and preservation of both local and HYV of crop seeds difficult. Equipment especially a dryer, should be obtained.

There is almost no crop protection from pig predation. Only the cassava experimental site, which used zinc / tin corrugated fence, was at all protected. Barbed wire or another type of fence should be installed around the entire experimental area.

Communication between Pleihari and the main station in Banjarmasin is difficult. There is no telephone or shortwave, and staff are sometimes not prepared to receive visitors.

Only three of seven station technicians and none of the farm workers live in on-station housing. Some technicians must travel 10 km each day to arrive

at the site, and public transport is not available. The rainfall measurement has been corrected by a factor of 10.

At present, rice crops can be grown if there is sufficient water from the upland reservoir. During the dry season this source is frequently available and ground water recedes to 10 meters below ground level. As a result, many test crops fail. A lowlift pump of 2 to 5 horsepower could conceivably pump water into fields during this season.

Additional Recommendations. Rice Seed Collection. A collection of viable locally-used seed varieties is invaluable. Varieties can be tested for resistance to blast, insect predation, and other diseases or pests. Phenotypic and physiological characteristics can be measured and tested, and better varieties can be used in crosses.

Watson, Brown and Suhaimi have drawn up data sheets for local varieties. Collection of upland rice varieties will begin next week, during the end of the harvest season. Brown and Suhaimi will establish seedling nurseries for measurement of characteristics and to increase supply of seed. Watson and the BALITTAN agro-economic team will use data to map farming practices.

Brown recommends that upland and other rice varieties be tested for blast in seedling nurseries as soon as possible.

Brown and Watson recommend that height of rice and other phenotypic characteristics of rice be measured and recorded using IRRI methodology. This would ensure international standards in communication with other rice scientists and for publication. At present some data is recorded using BALITTAN standards.

Watson recommends that time and labor costs be taken on all agronomic, cropping systems, pest and disease and physiology experiments. This would exclude only those breeding, seedling increase, or associated trials which have no relation to farmer-based adoption of cropping systems in fields. Additionally, data on disease and predation of crops should routinely be recorded. This will provide baseline agro-economic and risk data for feasibility studies on all related agricultural projects.

Pleihari staff told us that soils seemed to have both phosphorous and nitrogen deficiencies. Experimentation should be done to determine phosphorous response and nitrogen-phosphorous relationships, and the establish standards for application.

Greta A. Watson

Report on World Bank Visit to BALITTAN,  
Banjarmasin

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19 April 1983

Drs. John Coulter and Sidney Draper from the World Bank's Washington and Jakarta offices, and Dr. William Young from IADS Bogor, visited with AARP and BALITTAN staff in Banjarmasin. The trip was made to evaluate facilities, project and staff of the BALITTAN, plans for projected research and anticipated needs within the institute. During the discussion we explained the role of AARD funding and consultants within the context of BALITTAN expansion in Banjarbaru, Handil Manarap, Lempake and Kuala Kapuas. Although the GOI - AARP project has sufficient funding for instruments and buildings at these sites, we stressed that facilities for upland and deepwater extension sites (Binuang, Tajau Pecah, Pleihari etc.) are needed. Moreover, research funding is limited.

The BALITTAN staff, headed pro tem by Mr. Rumansyah, described past and present survey and experimental research. They advised more intensive research in the upland and swampland potential for food production.

After the meeting, Coulter, Draper and Young with AARP & RMI representatives visited Handil Manarap station and observed basic seed production and rice experiments. Here they were joined by Dr. Harry Mattheson, World Bank consultant for swamp development in Indonesia and Dr. William Collier, AARP Project Coordinator for the GOI - AARP Project.

IADS may be able to provide some grants for Masters or Doctoral candidates who plan to attend a university in the United States. These grants would apply only to government employees.

G A Watson  
Kevitt Brown  
J. Bolton  
19-20 April 1983

Two Day Tour of Villages Within the Tidal Swamps  
of South and Central Kalimantan

Participants : AARP - GOI Consultants :  
Dr. William L Collier, Project Coordinator, Dr. John Bolton,  
Dr. Kevitt Brown, Ms. Greta A. Watson  
  
BALITTAN Banjarmasin (Banjarmasin Food Crops Institute) Staff :  
Ir. Rumansyah, Mr. Tairan  
  
Ford Foundation Consultants :  
Dr. Gordon Conway (Imperial College, London) and  
Mr. David McCauley (Jakarta Office)  
  
World Bank Representative :  
Mr. Harry Mattheson  
  
P4S (Tidal Swamps Survey Team) and Gajah Mada University  
Representatives (5) including ; Mr. Kardi Arientha,  
Mr. Supradjo and Mr. Sumartono.

Objectives of Visit: To choose potential sites for visits during the Tidal swamp  
Workshop, 17 - 24 July 1983, Sponsored by Ford Foundation.  
To determine research priorities in direct tidal and tidally  
influenced areas. To examine the transferability of research  
programs in the Kalimantan area to other swamp lands of  
Indonesia.

Locations Visited : Day 1 : Purwosari and Purwosari Baru, South Kalimantan; Tamban  
Luar, Tamban Lupak and Lupak Dalam, Central Kalimantan.  
Day 2 : Basarang Experimental Station (P4S) and Basarang  
Village, Central Kalimantan; Barambai, South Kalimantan.

Description of Sites:

Purwosari and Purwosari Baru :

These sites were opened in the late 1930's (1937-1939) by government-sponsored  
Javanese transmigrants following the completion of the Tamban Canal by the Dutch.  
Settlers grow rice or rice and coconut as the major crops. Purwosari village on  
the north side of the canal has shifted to coconut agriculture since peaty, acid  
back swamp fields undergo little drainage and rice yields are consequently low.  
Purwosari Baru, on the south side of the canal, grows rice as the major crop, and  
yields are higher. Soils are less acid and presumably better drained. Local varieties  
of rice are used.

### Tamban Lupak and Lupak Dalam :

Tamban Lupak was opened in 1971 to Indonesian government sponsored Javanese and Balinese transmigrants. There are alluvial and peat soils. Double cropping of rice fields is carried out by 4 farmers on alluvial soils : IR36 rice is planted first, then after harvest local rice is transplanted to those fields. Water buffalo are used for plowing. Much land is too dry to plant rice, and cassava and corn are grown. Rats, mice and insects (the planthopper in particular) are major problems. Inadequate drainage leaves saline water in fields. These problems also occur in Lupak Dalam, where during the trip, salinity had reached 10,000 ppm and 180 ha. of rice land were closed due to green planthopper infestation. Lupak Dalam residents complained that marketing was difficult, price of rice at harvest was low and doublecropping was impossible. Many inhabitants worked as day laborers during the dry season.

### Tamban Luar :

A visit was made only to the Gajah Mada University test farm where variety and soil management trials are conducted. Acids are leached from half hectare plots by a system of drainage canals, flumes, and flood gates. The system also reduced the rate of water flow from the area to keep the acid-sulfate horizons saturated in the dry season. Gajah Mada varieties, labelled Tf, are selected in Yogyakarta up to the fifth generation for yield capacity, BPH resistance, and photoinsensitivity and then field tested in Tamban Luar. We were told that detailed records are made of salinity and pH of the water entering and leaving the farm.

### Basarang Experimental Station and Village, Km.6, and Basarang Village, Km.9 :

Basarang Station and village were founded in 1963 when 700 families moved in from South and Central Java and Bali. These families have been joined by spontaneous migrants who claimed the remainder of the forest. Soils are variable and range from alluvial to peat to potential acid sulfate. Basarang Station is situated on alluvial and peaty soils, Basarang Km 9 is on peaty and acid sulfate soils. On alluvium, some farmers are growing two crops of rice a year; on peat soils one crop is grown; on very acid soil a rotational crop-follow system of 2:1 or 1:1 may be necessary. Stemborer and planthopper, and deficiencies in N, potash, copper or manganese may reduce yields. Some simple field trials were suggested. There is inadequate drainage and no tidal influence in back fields. The main canal is shallow and has not been dredged in 5 years. Many transmigrant families have left the area because of the many problems.

Barambai :

This village was established in the late 1960's, and government-sponsored transmigrants came shortly thereafter. Original soils were shallow peat and underlying soils are not very acid. Many farmers plant two rice crops a year, using IR and local varieties. The primary canal is fitted with an automatic flap gate, but there is unequal distribution of trapped water to individual secondary canals; weirs and additional flap gates are needed. Buffalo have been recently introduced. Cassava, taro, banana and cloves are grown on row mounds. Reduced yields during this year were due to drought, rat predation, inadequate water management and possibly degenerated IR stock. Of all sites on the trip, this one seemed most prosperous and well-run.

Recommendations :

Tamban Lupak / Lupak Dalam and Purwosari / Purwosari Baru were chosen as research and training sites for the 1983 Tidal Swamp Workshop. They provide for comparison and contrast of length of site occupation, soils, salt intrusion and cropping system.

All available information (maps, reports etc) on these sites will be collected for the Workshop. Preparation will include further visits to the sites by staff from Banjarmasin. Finance for this was discussed with Ford Foundation.

G A Watson  
25 April 1983

Trip to Dinas Pertanian, Dinas Perkebunan  
 and The Office of Meteorology and Geophysics, Banjarbaru

- Group : G A Watson, Ir. Rumansyah, Ir. Syamsu Noor
- Objectives : To examine the present status of agricultural / tree crops research in tidal and tidally influenced areas of South Kalimantan; to collect information on instrumentation for agro-climatological research.

Visit to Dinas Pertanian :

We met with Mr. H. R. Mado and Mr. Hasmi Fadillah Akhbar. This government farming extension service has focussed on rice production in swampy areas. For the past 3 years double cropping trials have been carried out in Gambut / Handil Manarap / Sungai Tabuk area, where 800 ha<sup>2</sup> is presently under this system. In Kurau, 38 ha<sup>2</sup> is under double crop. In Belawang and Barambai, such practice is long term. The Dinas Pertanian staff noted that in Tabung Anen or Aluh-aluh, there is high salinity due to direct tidal influence and 2 rice harvests a year is unlikely. Moreover, double cropping is difficult in years with a long dry season; AARP and BALITTAN staff noted this in Barambai and other sites where the second crop showed effects of drought.

The Dinas Pertanian officials mentioned that seasonal labor demands may effect the farmer's decision to grow one or two rice crops a year and influence the varieties (long or short maturing) chosen. Market demands and off-farm employment opportunities are additional factors.

Production using IR varieties is encouraging - from 5,7 to 13,8 tons of dned unhusked rice per hectare. This is under a fertilizer regime of 210 Kg urea, 175 Kg TSP and 70 Kg KCL per hectare. Insecticide sprays and controlled irrigation complete the program.

Prospects for corn, soybean, and citrus are being investigated.

Visit to Dinas Perkebunan :

The head of Dinas Perkebunan, Mr. Terijono, told us about current projects for increased production of coconut, rubber, sugar cane, coffee, clove and pepper, among other crops. Coconut is being introduced to newly opened tidal areas.

No concerted research on other tree or fruit crops is being carried out in swampy areas at the present time.

Visit to the Office of Meterology and Geophysics :

Mr. Moertedjo, the head of the office helped us decide on adequate instrumentation for Banjarbaru, Handil Manarap and outlying BALITTAN sites. He informed us of sites within South Kalimantan which presently measure rainfall, humidity and other factors. His (and our) problem was that the M & G office does not receive weather reports from other stations in South Kalimantan; many stations report directly to Jakarta or to BPP or Dinas offices in Kalimantan. This makes compilation of data impossible. There is therefore no generalized survey of rainfall, humidity, temperature or radiation for the province, even though the data is available. We shall try to use similar climactic recording equipment to G & M and submit our data to this center once we have established BALITTAN Banjarmasin stations.

Recommendations :

A general meeting between BALITTAN Banjarmasin, Dinas Pertanian, Dinas Perkebunan and other associated offices would be invaluable for setting guidelines for priorities in research.

BALITTAN, being an institute for food crops, focusses on grains and tubers, but also vegetables, fruits and associated tree crops. More attention might be given to the latter category, especially in relation to fruit and vegetable potential in swampy and saline areas.

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To : Dr. William L. Collier  
RMI / AARP Project Director

From : Greta A. Watson  
RMI / AARP Consultant in Agroecconomics / Social Science,  
Banjarmasin

Subject : Monthly Report for April 1983

Date : 30 April 1983

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I. Synopsis :

This month was both hectic and rewarding. Representatives from the RMI/AARP staff, Ford Foundation and World Bank visited the BALITTAN (Institute for Food Crops) in Banjarmasin. Various field trips were made in connection with these visits and to assess present research facilities and/or potential of BALITTAN experimental stations and related government projects in South Kalimantan. Groundwork preparation was made by Ford representatives and AARP and BALITTAN staff for BALITTAN pre-survey of tidal areas in connection with the Ford Foundation sponsored Tidal Swamps Workshop to be held in Banjarmasin 17 - 24 July 1983.

In house activities were equally varied. My husband, Tom Gula, volunteered and has already begun to work with the entomologist, Ms Mahrita Willis, and the photographer Mr. Farid on the BALITTAN staff to make insect collections and photoessays of research here. Mr. Carl Fritz, administrative specialist from RMI/AARP Jakarta trained our new administrative assistant, Mr. Siddik in his duties and helped organize the AARP monthly financial report. Mrs. Mutia Meilina Aham, who speaks English well and is an excellent typist, became our secretary.

II. Activities :

A. Consultations with Visitors

* 1. World Bank	- Dr. John Coulter, Soils Scientist	19 April
	Dr. Sidney Draper, Economist	
IADS	- Dr. Bill Young, Entomologist	

- \* 2. World Bank - Dr. Harry Mattheson 19-20 April  
RMI / AARP - Dr. William Collier
  - \* 3. Ford Foundation - Dr. Gordon Conway 19-20 April  
Mr. David McCauley
  - 4. RMI / AARP - Mr. Carl Fritz 4-6 April
  - 5. PT Pancaran Cahaya Mulia  
- Sjarifin Gardiner, Agricultural Consultant and Bill Thompson. Came to BALITTAN 7 April 1983 to discuss potentials for agriculture in Central Kalimantan uplands. Have since sent rice seed samples from those same areas.
  - 6. AARD / BAPPEDA - Dr. Mark Borsden, BAPPEDA Consultant. 28 April 1983. Discussed BAPPEDA and BALITTAN joint projects in deepwater rice, methods of submergence testing, and the need for maps of seasonal fluctuation in water levels and flooding time in monotonous swamps.
- \* see report

B. Field Trips and Outside Consultations - Report

- 1. Belandean, Rsch. Station 9 April
- 2. Pleihari, Rsch. Station 12 April
- 3. Lambung Mangkurat University 13 April
- 4. Sungai Buluh, Tilang, Rsch. Station 15-16 April
- 5. Handil Manarap, Rsch. Station 18 April
- 6. Tidal Swamp Settlements in South & Central Kalimantan 19-20 April
- 7. Dinas Pertanian, Dinas Perkebunan and Badan Meteorologi dan Geofisika 25 April

C. AARP - BALITTAN Activities

- 1. Gave seminar on Water Conditions in Coastal Wetlands in South and Central Kalimantan. The seminar included data on differential effects of diurnal and semi-diurnal tides and rainfall through a seasonal perspective and implications for irrigation, drainage, and cropping systems.

2. Worked on personnel organization, budgetting and objectives of pre-conference survey of five tidal or tidally influenced village sites in South and Central Kalimantan. This survey work will be carried out through joint efforts of the AARP-RMI staff and the BALITTAN, and be used as background material for the Tidal Swamp Workshop 17 - 24 July 1983, Banjarmasin, sponsored by Ford Foundation. David Mc Cauley from Ford, Dr. Anwarhan, Ir. Rumansyah and Mr. Tairan from the BALITTAN and myself will be predominant in carrying out this survey. We hope this pilot study will be instrumental in obtaining further grants for coastal agricultural research.
3. Provided Kevitt Brown with 25 varieties of local rice from Central Kalimantan. Dr. Brown will test seed viability and measure plant characteristics.
4. Drew up, with the help of Dr. Brown and Ir. Suhaimi, BALITTAN plant pathologist, a one page questionnaire on local rice characteristics. This list has been distributed to various experimental stations. Local rice varieties are being collected. The questionnaire will provide information on local agricultural patterns and some phenotypic and climatological data on rice.
5. Wrote an English-language synopsis of Program Penelitian Balai Penelitian Tanaman Pangan Banjarmasin (Research Program for Food Crops Institute, Banjarmasin) 1981.
6. Reviewed an Indonesian article on the potential for integrated resource management of tidal swamps by farmers and discussed it with author. Gave editing assistance on a cropping systems paper in English.
7. Discussed placement and level of agro-economic candidates within English courses. Ms. Yanti Rina and Mr. Eddy Purwanto plan to study in the Philippines within the year : it was imperative they begin study with Mr. Don Stewart.
8. Completed list of items for procurement by the agro-economic group under the AARP RI-USALD project. Aided Mr. Syamsu Noor in discussions

on selection of agro-meteorological measurement equipment.

#### D. Miscellaneous Activities

1. Office Supplies. This month we received an IBM Selectric and a portable typewriter. We have ordered a custom-made bookcase cum equipment locker. This will house our library and protect our machinery. A second filing cabinet, more functional desks and storage cabinets are needed.
2. Generators. Since there is electricity in Banjarmasin only one day in three, RMI agreed that generators seemed essential. Kevitt Brown and I have acquired Yamaha E2000 Z generators which burn kerosene and have an output of 1400 watts.

### III. Plans for May - June

#### A. Early May

1. Presentation of objectives and rationale for BALITTAN Banjarmasin participation in pre-survey and workshops in Tidal Swamp Workshop.
  - a. Objectives and rationale related to Indonesian government priorities for research.
  - b. Relationship of AARP - BALITTAN, research objectives to Ford Foundation goals.
2. Organization and training of pre-survey Workshop teams.
3. Creation of abbreviated agro-economic/agronomic data sheet for use in all BALITTAN research which has possibilities for farmer adoption.
4. Give seminar on peat and acid sulfate soil potentials and problems for agricultural use re. human ecological manipulation.
5. Continue to visit research stations and village sites, and establish better communication between BALITTAN and other GOI - affiliated agencies.

#### B. Mid May to Mid June - carry out first part of pre-survey research.

IV. Constraints. Time-constraints continue to be the principal problem, primarily in scheduling pre-survey Workshop research. Many of the staff

attend English class three times a week. All staff have present research demands and scheduled field trips. Field presurveys can not be carried out after the middle of June due to food and water restrictions during the Moslem fasting month.

V. Other

A. Dr. John Bolton, RMI/AARP Soils Scientist to BALITTAN Banjarmasin will be returning to England in mid-May. He has been of great assistance to RMI/AARP and BALITTAN staffs. His expertise in soil science, agronomy, chemistry and meteorology (among other disciplines) has been invaluable. His upgrading of procurement lists of research equipment not only insured the appropriate materials, but saved the project tens of thousands of dollars. We will certainly miss this personable, intelligent man.

B. Sick one day.

Trip Report. Belandian 9. April 1983

The purpose of this visit was to inspect facilities, land and experiments on this substation of BARIF. The station is reached by speedboat (3/4 hour) to the village of Belandian followed by a 40 min. walk along the parit off the main river to the station site. Total time from Banjarmasin approximately 1 1/2 hours.

The station land is a 500 m x 500 m block on the northern bank of the parit. Of the 25 ha only about 2.5 ha in the south near the parit was under cropping - all rice recently replanted. The rest was under secondary forest (Hutan galam) or belukar (one year growth). The soil is shallow peat ranging from a few cm to about 40 cm further away from the parit, overlying a grey-brown loam with acid-sulphate lower horizons. Because of standing water a soil pit could not be dug. Some analyses of the soil are available in Banjarmasin. The land is directly influenced by tide's in the parit which are saline in the dry season and had been saline a few days before our visit.

Facilities.

The office building contained lounge, working area, 2 offices and kitchen and some out buildings. There was also a net house and 2 house units.

Equipment included typewriter, rice moisture-meter (no batteries), pH meter (probe type, not working) and 2.5 Kg and 12 Kg pan balances.

Experiments.

We saw 2 experiments concerned with methods of transplanting 3 non-photosensitive rice varieties and a variety trial. The rest of the area was recently transplanted with local varieties - non-experimental.

Dr. Brown selected an area for a trial to be planted in November.

Seedbeds in front of the office were not well maintained and obviously lacked sufficient water. They had also planted too many seeds per meter of row. No fertiliser had been used.

Constraints.

The two major constraints to further development of this station are water supply and power (hand labour or mechanical). There may also be a lack of operating funds but we did not enquire into this.

When water in the parit is non-saline, the only problem would be transfer to

the fields or seedling beds. A small portable powered pump with sufficient hose or pipe would be an immediate solution. However in the dry season or at other times when salinity is a problem, the only possible water source might be a pond or reservoir outside the influence of the saline parit. However the acid sulphate subsoil may result in the water being acid. A small trial pit might dug and the water tested regularly for pH and conductivity - with occasional removal of the water from the pit.

The other problem, power, is more difficult. At present the 7 labourers are paid by task rather than daily rates. Labour supply is limited. Cultivations are made difficult by roots from the forest which are just below the puddled horizon. One solution would be to use heavy power equipment (tractor + ripper) at the end of the dry season but this is probably impossible because of the remote site. If more land is to be cultivated the labour force must be increased (approx 1 labourer per 0.5 ha).

To : Dr. W. L. Collier  
From : Dr. J. Bolton, Soil Scientist, Banjarmasin  
Subject : Monthly Report for April 1983  
Date : 30 April 1983

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## I. Principal Activities

1.1 Visits. These were made to Banjarbaru (31 March) to check distances from the roads to proposed building areas. As a result changes in position of the main buildings were suggested in a letter to R. Harwood (to avoid water in low areas).

Visits were also made to the BARIF sub-station at Belandian (see attached report), to University Lambung Mangkurat Faculty of Agriculture, Banjarbaru (see report of G. A. Watson, J. Bolton) and, for 2 days, to various settlement sites in swamp areas of South and Central Kalimantan with Ford Foundation and World Bank teams. (see report of Watson, Brown and Bolton). I also visited the BARIF substation at Handil Manarap with another World Bank team on 18 April. Details of the names of these visitors can be found in the reports.

1.2 Equipment list for procurement by AARP. Most time during this month was spent reviewing the lists prepared by BARIF departments. There were many problems needing discussions with the staff. These were mainly caused by :

- a) Lack of experience in ordering - many items were wrongly cited or inappropriate for local use. Some essential items, including a list of chemicals, were omitted.
- b) Lack of sufficient English to read catalogue details - especially what is included or not with instruments, and what accessories are essential.
- c) Lack of a wide enough range of USA catalogues for equipment for specialized work e.g. Physiology agronomy, field research.

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- d) Limited availability of 220 V equipment in USA catalogues.
- e) Staff had not realised that the Project Paper budget included the agent fee, packing, shipping and insurance (and possibly installation costs ?). No allowance for this caused some overordering.

Much work remains to be done on these orders and I have arranged to visit Bogor next month to discuss these problems with Mr. Harwood, to use the wider range of catalogues available there and to try to coordinate with the other Institutes making similar orders within AARP.

1.3 Help was given in the design of 2 soyabean fertilizer trials.

## II. Administration

2.1 Our office and accounting problem have been greatly eased by the arrival of Mr. Siddik as Admin. Assistant and Mrs. Mutia Meilina Aham as Secretary / Typist. We appreciated the help given by Carl Fritz during his visit (4-6 April) with the March accounts and instructing Mr. Siddik in procedures.

2.2 Living conditions in Banjarmasin have deteriorated in April with electricity supplies now only 1 night in 3 and very limited water supply. Generators have been purchased for Watson and Brown's houses.

## LIST OF AARP/RMI PARTICIPANTS AS OF APRIL 30, 1983

No.	NAME	EMPLOYING OFFICE	COURSE/OBJECTIVES	INSTITUTIONS/COUNTRY	DURATION
<u>DEPARTURE:</u>					
None					
<u>CONTINUING IN TRAINING:</u>					
1.	Novenny A.Wahyudi	RIIF/Bogor	Aquaculture Trg.Prog.	Auburn University Alabama, USA	Mar.18-Jul.15,1983
2.	Ati Sri Duriat	LERIH/Lembang	Elisa Technique	American Type Culture Center in Rockville Maryland, USA	Feb.20-May 28,1983
3.	Nani Sumarni	LERIH/Lembang	Interdisciplinary re- search in Plant Bree- ding	Asian Vegetable Res.& Dev. Center,Taiwan	Nov.07-May.07,1983
4.	Etti Purwati	-do-	-do-	-do-	-do-
5.	Yoyo Sulyo	-do-	-do-	-do-	-do-
6.	R.E.Suriaatmadja	-do-	-do-	-do-	-do-
<u>RETURNEES:</u>					
7.	Kosasi Kadir	FPRI/Bogor	Woodworking & drying & research proj.plan- ning & evaluation	Forest Products R&D Inst. Los Banos, Philippines	Mar.7-April 7,1983
8.	Mas Ismunadji	BORIF/Bogor	Spec.Trg.in upland crops physiology	Asian Vegetable Res.& Dev.Center, Taiwan	Nov.11-Dec.01,1982
9.	Mochamad Sirdan	CARP/Jakarta	Project Preparation & Evaluation in Ag. and Rural Development	Statistical,Economic & Social Research & Trg.Center for Islamic Countries , Turkey	Oct.18-Nov.12,1982
10.	Syafril Lamsayun	CARP/Jakarta	Procurement Training	TransCentury Corp.USA	Oct.15-Nov.14,1982
11.	A.M.Laponangi	MORIF/ Maros	-do-	-do-	-do-
12.	Abdussamad Syahrani	BARIF/Banjarmasin	-do-	-do-	-do-
13.	Warsito Hutomo	C A Q/ Jakarta	Agric.Proj.Planning & Analysis, Section II	USDA, Washington,DC	Sept.7-Nov.11,1982

No.	NAME	EMPLOYING OFFICE	COURSE/OBJECTIVES	INSTITUTIONS/COUNTRY	DURATION
14.	Mohamad Mansur	CRIIC/Bogor	Agric.Proj.Planning & Analysis Section II	USDA,Washington,DC	Sep.7-Nov.11,1982
15.	Hafni Zahara Syukri	CARP/Jakarta	-do-	-do-	-do-
16.	Wahyadi Sosrowardoyo	CRIFI/Jakarta	Applic.and Diffusion of Agric.Research Results to the Community Level	Iowa State Univ.USA	Aug.25-Oct.1,1982
17.	Sofyan Ilyas	RIFT/ Jakarta	Determination & Prevention of Postharvest Food Losses	Cornell Univ. USA	Sept.6-Oct.13,1982
18.	Achmad Hidayat	C A Q/Jakarta	Plant Quarantine	USDA,Washington,DC.	July 19-Sep.17,1982
19.	Dewa M. Tantera	BORIF/Bogor	Integrated Pest.Mgmt.	Purdue Univ. USA	June 9-Jul.23,1982
20.	Sudiarto	CRIIC/Bogor	Agric.Research Method	Kansas State Univ.USA	May 31-Jul.23,1982
21.	Lalu Sukarno	BORIF/Bogor	-do-	-do-	-do-
22.	Siti Sufiani	MORIF/Maros	-do-	-do-	-do-
23.	M. Saleh Pandang	MORIF/Maros	-do-	-do-	-do-
24.	Wafiah Akib	MORIF/Maros	-do-	-do-	-do-
25.	Tambak Manurung	CIRIAS/Bogor	-do-	-do-	-do-
26.	Didi Suardi	CRIFC/Bogor	-do-	-do-	-do-
27.	Yono C. Rahardjo	CRIAS/Bogor	-do-	-do-	-do-
28.	Budhoyo Sukotjo	Prog.and Proj.Form. Unit.Jakarta	Agric. Research Management	Washington,DC and Hawaii, USA	June 6-12, 1982 June 18-21,1982
29.	Tambunan SM Manungkol	BORIF/Bogor	Estab.Data Bases&Analit.Syst.for Econ.Decision making in Agric.	University of New Mexico	June 6-Aug.13,1982
30.	Rachmat Kartapradja	LERIF/Lembang	Veg.Crop.Prod. & Markt.	Rutgers Univ.USA	July 12-Aug.20,1982
31.	Artaty Wijono	CRIFI/Jakarta	Ag.Comm.&Med.Strategy	Iowa State Univ.USA	July 12-Aug.20,1982
32.	Abisoro	TARII/Tg.Karang	-do-	-do-	-do-
33.	Adi Widjono	CRIFC/Bogor	-do-	-do-	-do-
34.	T.H.Mangunsong	Reg.Ag.Quarant/Jkt	-do-	-do-	-do-

No.	NAME	EMPLOYING OFFICE	COURSE/OBJECTIVES	INSTITUTIONS/COUNTRY	DURATION
35.	Fathan Muhadjir	BORIFC/Bogor	Wheat & Maize Phys.	CIMMYT, Mexico City	July 20-Aug.25, 1982
36.	Nurlaila Hasbulah	BARIF/Banjarmasin	Rice Production	IRRI, Philippines	July 1-Aug.27, 1982
37.	Nurul Aida	BARIF/Banjarmasin	-do-	-do-	-do-
38.	Achmad Dimiyati	BORIF/Bogor	Tech.& Econ.aspects of Soybean Production	Univ.Illinois,USA	May 10-Aug.6, 1982
<u>TRAINING OUTSIDE RMI CONTRACT:</u>					
39.	Achmad Sarnita	RIIF/Bogor	Study Milkfish Cultiv. Methods	SEAFDEC/Philippines Institute of Marine Biology and Gulf Coastal Fisheries Center/USA	5 July-Aug.15, 1981
40.	H a n i a h	-do-	-do-	-do-	-do-
41.	Suningrat	NLAS/Bogor	Regional Micrographic T. Course	SEARCA/Philippines	Jan.10-23, 1982
42.	Sumardi Dahlan	-do-	-do-	-do-	-do-
43.	Azis Arifin	LERIF/Lembang	The Decimal Long of Cip.Peru Comperative Study for Tuber Crops Research Comparative for wheat Research	CIAT/Columbia CIMMYT/Mexico	Feb,22-26, 1982 Feb.29-March 1,1982 March 3-4, 1982
44.	Surhahmat Kusumo	CRIFC/ Bogor	-do-	-do-	-do-
45.	Sundaru	BORIF/ Bogor	Management Agric.Organ	USDA/ USA	May 17-Jul.9,1982