

FINAL REPORT

Institut Pertanian Bogor • University of Wisconsin

GRADUATE EDUCATION PROJECT



Aid Project 497-0290

1980-1985

F I N A L R E P O R T

IPB/UW GRADUATE EDUCATION PROJECT

Institut Pertanian Bogor University of Wisconsin

AID Project 497-0290

1980 - 1985

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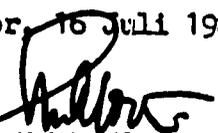
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FOREWORD

This is a foreword to a final report on a graduate education cooperative project between the University of Wisconsin/USAID and the Institut Pertanian Bogor/DGHE-GOI. The report is to be presented in the final annual review on the project to be held on 16-17 Juli 1985 at the Darmaga Campus of IPB. It will mark the termination of a long lasting cooperation between American and Indonesian universities supported by both the USA and the Republic of Indonesia.

May this report be useful as background material for comparative purposes in future cooperations between American universities and other universities anywhere in the Third World, and may the long standing cooperation between the University of Wisconsin and the Institut Pertanian Bogor lead to an eternal partnership between the two universities in search for truth to be devoted for the wellbeing of mankind.

Bogor, 16 Juli 1985


Andi Hakim Nasoetion
Rector of Institut Pertanian Bogor.

INTRODUCTION

The IPB/UW Graduate Education Project, as described in the Project Grant Agreement AID 497-0290 and the Project Loan Agreement 497-T-060,

consists of activities designed to delineate long-range plans and requirements for the graduate school of the Institute of Agriculture at Bogor, IPB, to identify facilities which IPB must have to meet those requirements, and to help develop those facilities and plans.

The purpose of this Project is to assist the Institut Pertanian Bogor (IPB) in the development of a graduate education program consistent with national efforts to vitalize rural development. Elements of the Project's purpose are outlined below.

1. The Project will strengthen planning processes and managerial capacities of IPB, exercising care that academic and physical developments are mutually reinforcing, and that educational programs are consistent with rural development and resource management requirements.
2. The Project will concern itself with the quality of advanced degree training at IPB, including the breadth of the graduate program with regard to rural development issues. Specific areas include environmental protection, rural family resource development, and rural communications.
3. The Project will include a staff development program which improves the level of training, and increases the sensitivity of IPB staff to rural problems. Greater staff involvement in programs of research and rural development will be achieved through efforts to broaden and strengthen IPB's research and public service activities.

The University of Wisconsin (UW) and IPB were responsible for executing the Project, using Title XII collaborative assistance procedures. The contract included a tentative generalized work plan

which served for the initiation of the Project. This plan was supplemented by participant training and technical assistance plans drawn up during the first two months of the Project and by Annual Plans of Work developed at Joint Annual Project Reviews (JAP). These plans, in turn, served as the basis for evaluating each year's work. Semi-annual reports 1 - 10 and consultant reports 1 - 45 provide detail of Project activities. A brief report for each of the major programs of the Project is given in the following sections.

UNIVERSITY ADMINISTRATION

The first element of the Project purpose addresses the need to strengthen planning processes and managerial capacities of IPB. A report on Project activities designed to improve two areas of university administration follows.

University Planning

The objective of activities in this area was to reinforce IPB's capacity to develop long-term academic and physical plans, to strengthen the planning process, and to improve managerial capabilities. The planning process was not new to IPB. During the past decade the institution had been involved in project planning and review processes and had developed a Master Plan which provided guidelines for IPB and served as a base for the development of this Project.¹ Thus, the task of the Graduate Education Project was one

¹IPB Master Plan, 1978.

of improving an existing program and increasing the degree of sophistication of the planning process.

Dr. Ikin Mansjoer, M.Sc., the IPB Project Co-director and Head of the IPB Planning Board (BP) had been involved in IPB's planning process for several years and so had the UW Project Co-director. Thus, activities in long-range planning were initiated in the very first weeks of the Project and continued until its completion.

University Organization--The reorganization of IPB under government directive PP05, 1980, constituted a major administrative change requiring attention in the early stages of Project development. Under this directive the number of faculties was increased from six to nine. The new faculties were the Polytechnic Faculty (FAPOLTAN), the Graduate Studies Faculty (FPS), and Faculty of Mathematics and Natural Science (FAMIPA). Institutes for Research (LP) and for Public Service (LPPM) were also established. Although these changes created an additional complexity in planning, it was fortunate that this important change came at the initiation of the Graduate Education Project, providing an opportunity for the Project to function within the new structure.

Campus Planning--During the third and fourth quarters of 1980, the BP-IPB was involved in completing the contract with Perkins-Will Sengkuriang (PWI-SKG) for the development of the IPB Campus Plan, and in preparing information for this activity. Although some information was available for developing the campus plan, additional analytical work was needed before projections of facility requirements could be

completed. One of the major questions was related to the size of the IPB student body by the year 2000. Studies of population projections, trends in numbers of graduates from high schools, the demand for entry into higher education, and government policy, indicated that dramatic increases in the IPB student body would continue. Projections of the IPB student body by the year 2000 were increased from 10,000 to 20,000. This drastic modification was important to both academic and physical planning for the new campus. The distribution of the projected student body among faculties and programs of IPB required immediate study. The BP-IPB continued to work with PWI-SKG during the first and second quarters of 1981, providing background information needed to develop the campus plan and to design for the Information Resource Center (IRC) and the Center for Environmental Studies (CES).

Academic Planning--In initiating the process of academic planning a series of meetings were set up with IPB faculties to discuss plans for each faculty and to prepare projections for program development and student distribution. The Rector of IPB attended the first meeting in each faculty and subsequent meetings were held by Project staff. The Department of Education and Culture (DEC) also initiated a system for developing Master Plans (RIP) which had to be taken into consideration in relation to the academic and campus planning activities under the Project. After consideration of the requirements for the RIP, it was decided that development of an academic plan should be continued, concentrating on program development within the various administrative units of IPB. Consequently, various models for academic planning were

studied and outlines and planning steps were developed. The suggested outline for the academic plan was first tested at the Faculty of Forestry, then all faculties were requested to develop a long-range academic plan. These plans were completed in the first quarter of 1982 and the results reported in a three-day seminar. These plans served as the base for the IPB Academic Plan. The IPB Academic Plan to the Year 2000 was completed, approved by the Vice Rector for Academic Affairs and published in the second quarter of 1983.

Academic Analysis--During the process of developing academic plans for each faculty, the IPB became more acutely aware of the need for an analysis of academic programs to improve the base for planning. The BP appointed an Academic Study Team headed by Dr. Jajah Koswara to work on this problem. The concepts, procedures, and testing of a system of analysis of academic workloads was completed at IPB in 1982. Since Academic Plans for the faculties and the Academic Work Load Study for IPB were completed during the second quarter of 1982, a two-day workshop on university planning was held at the JAP, August 19-21, 1982. The Team continued to work on various aspects of institutional analysis including:

1. an analysis of IPB student work loads, March, 1983,
2. an IPB workshop on curriculum design, modification, and evaluation, Jan. 21-22, 1983,
3. academic work load studies for 11 agrocomplex universities, and
4. an analysis of staff work loads in social science faculties.

In response to interest in the whole area of institutional planning and analysis, the IPB Work Group on Academic Analysis wrote a series of four guidelines for institutional planning and analysis.

Implementation of Plans--With the completion of the Academic Plan and the Campus Plan, the BP concentrated more of its efforts on the implementation. The IRC and ERC construction was initiated and materials were developed to support requests for assistance from USAID, Australia, Japan, and the World Bank to initiate specific parts of the Master Plan. Prior planning and the experience gained in project development was useful in developing these activities.

During the month of September 1983, the Rector of IPB, the Dean of the Graduate Faculty, the Director of Planning Board and the UW Chief of Party visited the UW and AID Washington. The Team met with US staff to discuss the potential for continued cooperation in educational and research activities. In AID Washington, the Team presented a progress report to the Board for International Food and Agricultural Development (BIFAD) and outlined IPB's plans for further development. They also met with AID administrative staff in Agricultural Research, Human Resources, and the Asia Bureau.

The idea of IPB/UW participation in an "Institution Building Outreach" program had its origins in a discussion between the Rector of IPB and the Director of the USAID Mission regarding potential university candidates for development assistance based on "critical need" and potential for development. The Rector reasoned that IPB, as a recipient of institution building assistance for several years,

would be in a good position to play a vital role in giving assistance to other universities. Thus, planning for further collaboration with AID and the UW has centered around this idea. A draft proposal was discussed with the Mission Director and Educational and Human Resources (EHR) Chief in December 1983. The DEC has also expressed great interest in the concept and has encouraged IPB to move ahead with the activity. A working agreement between IPB and the University of Lampung (UNILA) was initiated in March 1984, and an IPB/UNILA Team initiated a series of institution building activities. In the third quarter of 1984, IPB developed a four-year, 2.2 million dollar proposal for PL-480 funding for further development and expansion of the IPB outreach activity including cooperating with several outer island universities. This proposal was approved for funding in 1985.

IPB now has the following development activities which relate to the implementation of the Master Plan.

1. USAID Support in the amount of \$4,336,000 under Loan Agreement AID No. 497-T-060, 1980-1986, for the construction of the IRC and CES.
2. JICA support in the amount of US\$9.0 M for construction and equipping facilities for FATETA.
3. World Bank Support for:
 - a. Construction of a Polytechnic Center for Seed Technology, US\$1.0 M,
 - b. development of three Interuniversity Research Centers (IUC's) in life sciences, biotechnology and food sciences, US\$42 M, and
 - c. support for the Department of Community Nutrition and Family Resources (GMSK), US\$5.0 M.

4. Australian - support for development of IPB US\$10.5 M.
5. IPB 1985 development budget, US\$3.4 M.
6. The IPB Outreach Project, US\$2.2 M.

Publications

Reports

- | | |
|---------------------------------|---------|
| 1. Semi-annual Reports 1-10 | 1980-85 |
| 2. Consultant Reports 3, 12, 46 | 1980-85 |

Academic Planning Documents

- | | |
|---|------|
| 1. Directions for the Development of IPB to the Year 2000 | 1980 |
| 2. An outline for Strategic Planning | 1980 |
| 3. Planning Assumptions (outline) | 1980 |
| 4. Comprehensive Academic Planning | 1980 |
| 5. Outline for Academic Planning | 1980 |
| 6. Outline for Analysis of Academic Programs | 1980 |
| 7. Administrative Problems and Opportunities | 1980 |
| 8. The IPB Campus Plan | 1981 |
| 9. Outline of FAHUTAN Academic Plan
Third Semi-annual Review, | 1981 |
| 10. "Evergreen" Workshop Planning for
Program Development | 1981 |
| 11. Academic Plans for all Faculties | 1981 |
| 12. Information Required to
Make Planning Decisions | 1981 |
| 13. Essentials of a Good Academic Plan
Workshop on University Planning | 1982 |

14. Academic Plan for IPB 1982
15. Suggestions for Development of Management Information Systems 1982
16. Procedures for Educational Planning IPB Curriculum Workshop 1983

Academic Work Load Studies

1. Academic Work Loads - Staff Workshop IPB 1981
2. Suggested Components of an Analytical System for Academic Planning 1981
3. Information for Estimating Staff Requirements for Existing Programs for a Department 1982
4. Academic Workloads - IPB/UW Annual Review Workshop 1982
5. Report on Academic Work Loads for 11 Agrocomplex Universities 1984
6. Guidelines for Institutional Planning and Analysis 1985
 - a. Guidelines for Academic Planning
 - b. Guidelines for Academic Analysis
 - c. Guidelines for Campus Planning
 - d. Guidelines for Space Analysis

Brochures and Proposals

1. Institutional Development Plan- IPB Year 2000 1981
2. IPB Administrative and Communication Center 1981
3. IPB/UW Outreach Proposal for USAID 1983
4. IPB Proposal to Japanese International Cooperation Agency (JICA) 1980-84
5. IPB Proposal for Development of Interuniversity Centers 1983-85
6. IPB Outreach Proposal for PL-480 1984

- | | |
|---|---------|
| 7. IPB Proposal for Australian Development Assistance | 1980-85 |
| 8. Proposals for Seed Technology Center - World Bank | 1981-83 |
| 9. Proposal for GMSK - World Bank | 1984-85 |

Management Information Systems

The objective of these activities was to establish an information system which will serve the management and planning needs of IPB. Several administrative units within IPB are involved in the collection, processing, and use of management information. At the beginning of the Project, the primary units were the Bureaus for Academic and Student Affairs (BAAK) and for General Administration (BAU), the IPB Planning Board (BP), the Computer Center (UPT-KOM), and IPB's Central Administration. Each of these units worked with information required to carry out its own functions. There was no clearly defined relationship between the administrative units and the Computer Center. There was, in fact, no clearly defined policy about the use of the Computer Center for administrative computing and no comprehensive system of electronic data processing existed. However, the existence of well defined administrative units and a rapidly expanding data management work load provided a base and an incentive for establishing a more efficient and effective information system.

In selecting an approach to the problem of developing an information system at IPB, it was decided that the Project would provide technical assistance to help in establishing basic concepts and in outlining implementation steps to be followed. Short-term

study programs were also developed to introduce senior IPB staff to information systems in use at the University of Wisconsin. It was reasoned that these activities would provide the incentive and the skills for developing the system and that required organizational changes would be worked out internally.

Dr. Elwin Cammack, Associate Vice President for Information Systems, University of Wisconsin, was invited to serve as information system consultant to IPB. During his first visit, second quarter of 1981, a workshop was held at Evergreen, in which the following program concepts for developing a comprehensive information system were outlined.

1. A systematic approach must be used to define functions the information system will support. These include but are not limited to:
 - a. academic planning,
 - b. student record keeping,
 - c. facilities planning,
 - d. personnel planning and administration,
 - e. internal budget development and monitoring,
 - f. fiscal monitoring,
 - g. external reporting, and
 - h. alumni/employment follow-up.
2. For each of the functions above, the types of reports and information required should be determined. These might include:
 - a. student transcripts,
 - b. unit cost analysis,
 - c. facility utilization studies,
 - d. staff work loads,
 - e. staff student profiles, and
 - f. statistics on student enrollment.
3. For each of the functions above, the discrete data element required should be determined. These might include:

- a. personal identification number,
 - b. birth date,
 - c. sex,
 - d. religion,
 - e. field of study, and
 - f. date degree awarded.
4. Each discrete data element should be defined in a data element dictionary.
 5. The method of collecting and auditing data elements should be established.
 6. A detailed systems analysis should be conducted to assure a coordinated and comprehensive approach to information system development, i.e., ways in which different types of information are interrelated and how these interrelationships can be utilized to maximum efficiency.
 7. A program classification system is a prerequisite to developing an information system which will be useful in the management and planning process.

Consistent with this conceptual framework, the following implementation steps were recommended.

1. Develop an information needs and data requirements matrix.
2. Develop a data element dictionary for each data element of the data element matrix.
3. Define and develop the systems to be used in collecting the data elements.
4. Define the detailed file structure for inputting data to the computing system.
5. Develop the data entry systems.
6. Define and design the output reports and analyses which will be produced from the computerized data bases.

Five data bases are generally used to define the functions of a university. These are a student data base, a personnel data base, a curricular data base, and a facilities data base, and a financial data

base. Examples of an information need/data requirement matrix, program classification structure, and other data management forms were developed for use as guides.

During Dr. Cammack's consultancy, plans were made for work-study programs for senior IPB staff in:

1. information management systems,
2. information systems analysis,
3. program analyst, and
4. student and personnel data systems.

This study program was carried out at UW during the second and third quarters of 1981 with the assistance of Dr. Cammack and his staff. In 1982, two groups of IPB staff, one in administrative planning and the other in information processing, analysis, and reporting, were formed to follow through on the implementation of the steps outlined above. As the teams began to study the problems of implementation in more detail, two very basic problems arose. The first problem was related to questions of administrative responsibility and authority, and the second to the capacity and existing computer hardware and software to handle information systems for administrative purposes. The problem of administrative authority was further complicated by the initiation of a Management Information System (MIS) established by the DEC. This new unit was given the responsibility for collecting and processing specific data required by the DEC. At about the same time the establishment of the Computer Center as a technical service unit (UPT-KOM) under Directive PP05 took

place. Thus, a decision about the formal structure of IPB administrative information system was delayed until the direction to be taken by these new units was more clearly established. In the meantime the problem of computing capacity was being studied by the UPT-KOM on a pilot project for developing information systems for the common first year students and for the IPB-PP II selection process for new students. At the same time MIS, several academic departments, and the Planning Board began experimentation with the use of microcomputers for electronic data processing. Project Associates Darrell Skinner and Dr. Eve van Rennes, Physics, worked with the Director of the BP to train technical staff in the use of microcomputers. This period was clearly a time of experimentation and learning by trial and error. Though not much appeared to be happening, valuable experience was being gained.

Dr. Elwin Cammack was invited to return to IPB in the fourth quarter of 1982. In keeping with some of the difficulties being faced in the development of the information system at IPB, he concentrated on re-enforcing the need to recognize the dynamic nature of MIS and the technological constraints present at IPB at this time. Operational relationship of MIS in a university and alternatives for administrative structure were discussed. It was at this time that different configurations for data processing (centralized, decentralized, and network) were brought under consideration. The concept of combining micro and mainframe computers in a unified network began to be developed.

Once the idea for incorporating microcomputers in the information system was introduced, a decision was made to standardize the basic Micro-unit as an IBM PC XT. Additional units were ordered for the SIM, BAAK, and BP. Dr. Zahrial Coto, Head of MIS, went to the UW to work with the IBM equipment and to study the information systems in Dr. Cammack's office, UW-Madison, and with Dr. Charles Brenner at the UW-River Falls campus. Short-term training was also provided for Dr. Ansori Mattjik, Head of UPT-KOM, followed by a consultation visit by Dr. Brenner during the third quarter of 1984. This visit coincided with the formation of an IPB Team made up of representatives of UPT-KOM, BAU, BAAK, BP and IPB faculties charged with the duty of developing the MIS for IPB. This consultancy concentrated on the potential for using a distributed data system. The Team met regularly during the fourth quarter of 1984 and the first and second quarter of 1985 to:

1. consolidate the basic data processing system for IPB,
2. define data elements entering the system,
3. prepare data input list,
4. collect data (starting with student records),
5. plan data output format,
6. determine priorities for data collection and processing,
and
7. plan a microcomputer training program.

The Team developed a configuration for the data processing system utilizing IPB PC XT's in the faculties, MIS, BAU, BAAK, and BP in conjunction with the mainframe computer in the UPT-KOM. Ten

additional IPB PC XT compatibles were placed on a local commodity order to meet the needs of this system. The microcomputer training course for 20 technicians was given by IPB staff during the first quarter of 1985. The output of the Team goes a long way toward meeting the implementation steps outlined at the beginning of the Project.

Publications

1. Semi-annual Reports IPB/UW Graduate Education Project 1 - 10 1980-85
2. Consultant Reports 3, 13, and 34 1981-85
3. Papers of the Evergreen Workshop on University Administration 1981
4. Report of the IPB/MIS Team 1985

ACADEMIC PROGRAMS

The second element of the Project purpose addresses the need to improve the quality and breadth of graduate training in areas related to rural development issues. The following sections review activities which were carried out to fulfill this element of the Project.

Management and Conservation of Natural Resources

The objective of this activity was to strengthen and expand education in the environmental sciences. At the beginning of the IPB/UW Project there were two well-established multidisciplinary programs in the area of environmental sciences, the Center for

Environmental Studies (PUSDI-PSL) and the graduate program, Management of Natural Resources and the Environment (PSL). In addition, there were several related activities in departments such as Soil Science, Forest Management, Agricultural Engineering, Aquatic Resource Management, and Agronomy.

Environmental Studies--PSL is one of the most popular courses in the Faculty for Graduate Studies (FPS) and much of the graduate research is conducted with the support of PUSDI-PSL. Inadequate numbers of qualified staff and lack of facilities are the factors which limit program development in this area. Thus, IPB/UW Project activities concentrated on facilities development (construction and equipping the CES) and on degree level training. In keeping with this approach, Dr. Michael Adams, UW consultant in environmental biology and Project Associate Dennis Grossman provided suggestions for the development of CES building plans and assisted in developing an equipment list for the following laboratories:

1. General Analytical Laboratory
2. Biology Laboratory
3. Water Analysis Laboratory
4. Soil and Water Conservation Field Laboratory
5. Remote Sensing Laboratory

A program was planned to provide degree training for four staff and short-term training for four senior staff. Beyond this, the Project made contributions to a comprehensive study of the PSL graduate curriculum. These relatively mature programs continued to develop on their own as indicated by the following data on student numbers.

TOTAL NUMBER OF STUDENTS

<u>Program</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>	<u>1983-84</u>	<u>1984-85</u>
MS					
Students	57	81	67	68	71
Graduates	5	16	11	12	16
Ph.D.					
Students	10	11	17	20	21
Graduates	1	6	1	4	2

In addressing the second part of the objective, to expand the program, considerable effort was made to develop two programs of study which were badly needed to support national development efforts in natural resource survey and soil and water conservation. The Indonesian government has set a high priority on the development of upland watersheds and there is a critical shortage of people trained in resource survey, planning, and management of watersheds. The existing curriculum of PSL prepares graduates for work in the environmental aspects of watershed development but there was a need to expand the programs of instruction and research in the more technical aspects of natural resource survey and soil and water conservation.

Remote Sensing--Planning for expansion of the program in natural resource survey was initiated through contacts between the Remote Sensing Work Group (RSWG) of IPB and the Remote Sensing Center (ERCS), Institute for Environmental Studies (IES), UW, in 1983. During the first phase of this activity, June-August, 1983, Dr. Ralph Kiefer and Sean Ahearn from the ERCS worked at IPB to:

1. outline a curriculum for remote sensing;
2. develop the concept for a microcomputer-based digital image processing system; and
3. develop a plan for personnel exchange for developing both the hardware and software for the program.

The second phase of the program was initiated in September of 1983. Components for developing the remote sensing system were purchased by the IPB/UW Project and installed in the ERCS at UW. During the 1983-84 academic year, three IPB staff, Dr. Uup S. Wiradisastra, Abdurrauf Rambe, and Mahmud Raimadoya went to the UW to work with Dr. Ralph Kiefer, Professor, Sean Ahearn, Project Associate, Peter Weiler, Program Specialist, and Larry Seidl, Electronic Engineer. During this visit the system components were placed in operation and some of the software was developed. The IPB Team returned to campus in June of 1984 and the first shipment of equipment coincided with the arrival of Ahearn and Seidl at IPB in November of 1984. The laboratory was set up, and a two-week workshop was held to initiate the new laboratory and the program of instruction and research. UW and IPB staff continued to work on the development of the system and to seek funding for continued cooperation after the IPB/UW Project is completed. The remaining part of the equipment was shipped to IPB in June 1985.

The program of research and instruction in natural resource survey has been greatly improved by the interchange between IPB/UW and by the

development of the remote sensing laboratory. The laboratory itself uses a completely new concept in the use of microcomputers for digital image processing. It has greater capacity than some of the more expensive systems, is extremely flexible, adapted to student use, dependable, and relatively low in cost. Greater detail on the system is given in reports and articles written by the remote sensing team.

Watershed Development--The second major area of expansion in natural resource conservation and management was the development of M.S. (S_2) and diploma (S_0) level programs in watershed management. IPB/UW Project inputs were initiated in the second quarter of 1983 with a request for UW consultants in curriculum development and watershed management. Dr. Michael Adams and Dr. Arthur Peterson worked with IPB staff in studying a concept for further development of the PSL curriculum and to develop activities in soil and water management. An IPB Work Group was formed to initiate programs of research and instruction in this area during the academic year 1984-85. This Work Group concentrated on establishing programs of research and instruction which would prepare staff in watershed management, concentrating on models which would develop watersheds with:

1. high, sustained, productivity,
2. low erosion levels and high, uniform, water yield,
3. elastic and resilient systems of use, and
4. capability of providing adequate income for farm families.

The areas of study for this program would be in:

1. hydro-meteorology,
2. watershed characterization and development, and
3. socioeconomics and institutional problems of watershed development.

Curriculum outlines were developed, field laboratory sites were selected, and potential clientele were visited during the third or fourth quarters of 1984. A workshop with clientele groups was held in January 1985 to review the curriculum. Graduate programs in watershed development will be initiated in September of 1985.

Publications

1. Semi-annual Reports 1 - 10 1980-85
2. Consultant Reports 2, 20, 22, 24, 42, 47, and 48 1980-85
3. IBM PC XT Microcomputer-Based Image Processing System for Remote Sensing Education in Developing Countries--S. Ahearn, R. Kiefer, A. Rambe, M. Raimadoya 1983
4. Papers from Remote Sensing Workshop, 26-27 July 1983 1983
5. Study Program in Watershed Development--IPB/Work Group 1984
6. Training and Research Program in Watershed Development--IPB/Work Group 1984
7. Watershed Development Workshop Papers 1985
8. Watershed Development Project Report 1985

Basic Sciences

During the first year of the IPB/UW Project, FAMIPA was formed. This change was made in order to encourage greater interest and professional development in the basic sciences by providing an academic home for staff and for programs of instruction and research in these areas. It is expected that this change will provide basic science instruction to the S_1 level and will strengthen the foundation for S_1 and $S_{2,3}$ programs of instruction in other disciplines. This should also help to alleviate the chronic problem which IPB faces in maintaining qualified staff to teach basic sciences.

Project assistance in the basic sciences was concentrated in the areas of training and curriculum development. Training priorities were set in the following areas.

1. Chemistry
2. Physics
3. Mathematics
4. Biology (Genetics)

At the end of the Project 15.2 P/Y of degree training and 5.5 P/M Of nondegree training had been completed in these areas. Short-term training and consultancies were used to provide assistance in curriculum development.

Chemistry--In chemistry, Drs. Betsy Kean and Marion O'Leary served as consultants during the entire period of the Project. They provided backstopping for training programs on the UW Campus and worked with IPB staff in Indonesia. During their first consultancy, January 1983,

they worked with chemistry staff to assist in developing an S_1 curriculum and to make recommendations regarding its implementation. As a part of this activity, they visited chemistry departments of other Indonesian universities along with IPB staff. At the end of their stay, they organized a workshop on curriculum development. Dr. Anwar Nur, Head of the new Chemistry Department, was provided short-term training to study curricula and instructional methods in use at UW. This, combined with the consultancy of O'Leary and Kean and the visits to other Indonesian universities, provided a great deal of background material for developing the curriculum. Upon returning to UW, the consultants continued to work with degree and nondegree training programs for chemistry staff. Drs. O'Leary and Kean returned to IPB in July 1984 to continue their work with the chemistry department on the S_1 curriculum, to prepare an evaluation of the basic chemistry course, and to suggest alternative methods for teaching and testing in basic chemistry. Their reports contain a great deal of detail regarding the curriculum, teaching methods, laboratory management, and facility and equipment requirements. These reports will continue to provide valuable information for the further development of the S_1 as well as S_2 level courses. All three degree participants in chemistry completed their degrees and began teaching chemistry courses in September, 1984.

Physics--In Physics, the Project provided for two Project Associates, degree training for one staff, and nondegree training for the head of Physics. All programs were oriented toward the further development of

the program of instruction in physics. Darrell Skinner worked with the physics staff from October, 1982, through June, 1983, to assist in laying plans for establishing a new department and to outline plans for staff and program development. As a part of his work, he helped to establish a Physics Club with interested students and provided assistance in teaching microcomputer use to staff and students. Dr. Eve van Rennes also worked with the physics program during this time. She assisted in providing instruction in the use of microcomputers in teaching physics and ecology, and in conducting academic analysis. She also worked with the FAMIPA in a program designed to upgrade secondary school science teachers.

Ir. Soedarsono participated in short-term training with the Physics Department, UW. Particular emphasis was given to the development of demonstrations to illustrate basic principles in physics instruction. Dr. Hidayat Pawitan completed his Ph.D. degree in hydrology, returned to IPB, and began teaching and research duties in physics in December, 1983.

Mathematics--The third area of emphasis in the basic science area was mathematics. Two participants were selected and sent for advanced training in mathematics. This is the only area in which the participants experienced difficulty in completing their study programs. These participants did well enough in their academic programs but both terminated their programs for health reasons. Nevertheless, the courses completed did strengthen their background in mathematics and they are teaching at IPB.

Biology--The final area of emphasis in basic sciences was in the area of biology. There are many well-trained biologists at IPB but the staff and courses were previously distributed among the various faculties. With the formation of the FAMIPA, the new faculty administration has the difficult task of consolidating staff and programs in forming a new departmental structure with S_1 and S_2 level courses. Before his untimely death in 1982, Dr. Michael Zakaria was working on the new curriculum, with input from Dr. Michael Adams and Project Associate Dennis Grossman. Mr. Grossman worked with staff in botany and ecology from August 3, 1982, to July 15, 1983, in developing the curriculum, reviewing programs, and revising courses in these areas. Dr. Kay Schmeding, microbiologist, also worked as a volunteer with the Project for about a year, assisting in the development of programs of instruction and research in cooperation with Dr. Ratna Siri, microbiologist.

Faculty Development--FAMIPA has now developed departments of Chemistry, Geophysics and Meteorology, Mathematics, Statistics, Biology, and First-Year Studies. S_1 level programs are being offered in Geophysics and Meteorology, Mathematics, Statistics and Biology, and the S_1 program in Chemistry is scheduled to be initiated in September of 1986. The existence of a new faculty with five departments, four S_1 level programs in operation, and one planned for initiation during the next academic year, exceeds any reasonable expectation held at the initiation of the Project. This, as in other areas, is due to the culmination of past years of staff

development and planning which created the capacity of IPB to bring about rapid change, GOI support for the change, and the limited support and encouragement provided by the IPB/UW Project.

Publications

1. Semi-annual Reports 1 - 10 1980-85
2. Consultant Reports 2, 21, 26, 37, 38, 39, 40, 41, and 42 1980-85
3. Feasibility Study for the Establishment of a Faculty of Science and Mathematics at IPB-- Committee for the Establishment of FAMIPA. 1980
4. Faculty of Science and Mathematics-- Seminar on Long-range Faculty Plans 1982

Rural Home and Family Studies

The objective of Project activities in this area was to strengthen the programs of instruction addressing problems of rural families. These programs were to be designed to produce graduates with greater interest and capability to identify and resolve rural home and family problems. Prior to the period 1978-80, the Department of Home Economics (IKK) had been viewed by the students as being a very traditional department and only a few students were enrolled in this area. The staff, on the other hand, were determined to develop programs which would more accurately reflect the scope and importance of the work of this department. As a result of these changes, enrollment in the S₁ program increased from 9 in 1977, to 82 in 1980. The IPB/UW Project identified this department as a target for development and planned inputs of training and technical assistance.

Dr. Jean Weidemann, UW consultant in family resources, was invited to IPB to review the programs of IKK and to suggest ways of strengthening them. Dr. Weidemann worked with IKK staff to define its mission as follows:

The mission of IKK should be to promote economic and social development in the rural area through emphasizing knowledge, skills and attitudes related to production, consumption and management of human and material resources. Wherever possible educational and income earning opportunities, as well as participation of all members of the rural family in the development process, should be encouraged.

They also developed specific goals, studied departmental structure, and decided that the departmental name should be changed to the Department of Nutrition and Family Resources (GMSK) to more adequately reflect its mission. A study of the potential for developing an S₂ level program was also conducted. It was determined that the demand for the program existed and that a program of staff training and staff recruitment from other departments and agencies would make program initiation possible. An outline of the curriculum was proposed.

The nature of GMSK staff presented some problems in relation to staff training programs. Only four staff of the GMSK had M.S. degrees, while others held Ir. degrees. Although the staff had valuable experience, many of them had families and were not in a position to go abroad for degree training. Only two candidates, both transfers from other departments, were able to receive degree training. The problem of staff development was addressed as follows.

1. Five senior staff were sent to the UW for short-term work study programs. These programs concentrated on the study of curricula and the collection of materials for research and course development.
2. Six staff were enrolled in graduate programs at IPB.
3. The Project Associates who worked at IPB for six months to one year were used to provide in-service training.

Thus, a development pattern was set for GMSK very soon after Project initiation.

The idea of utilizing advanced graduate students from the UW as Project Associates was particularly well-suited for GMSK.

1. GMSK had mature, experienced staff who could react effectively with the technically well-qualified PA's. Both the IPB staff and the PA's had much to gain from developing a close working relationship.
2. A lot of detailed work was required for developing new graduate-level courses and research problems. This work was very specific in nature and within the technical capabilities of the young staff.
3. Both the PA's and the Department understood that they were to provide assistance within the framework of the department and under the supervision of the senior staff.

Project Associates in the following areas provided the major portion of technical assistance to GMSK.

1. Dianne Barrett, Nutrition, March '82 - March '83
2. Jerlyn Piggot, Community Nutrition, August '82 - March '83
3. Mary Roach, Child Development, August '82 - February '83
4. Joan Schroeder, Family Economics, March '84 - Dec. '84

Nancy Johnson served as a senior consultant for the program in the first quarter of 1982 and Jean Weidemann returned to work with the group in the third quarter of 1983.

During the Project period, many significant changes came about in GMSK programs.

1. The S₁ program

a. The S₁ curriculum was reviewed, revised, and several courses were restructured.

b. The S₁ student majors increased in number as follows:

$\frac{1980}{86}$	$\frac{1981}{116}$	$\frac{1982}{137}$	$\frac{1983}{181}$	$\frac{1984}{208}$
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c. The number of S₁ student research projects increased accordingly.

2. The S₂ program

a. The S₂ curriculum was proposed, approved, and implemented.

b. The following courses were developed.

- 1) Socioeconomic and Cultural Influences on Family Food Habits
- 2) Nutrition Aspect of Human Development
- 3) Food and Nutrition Systems
- 4) Family Health and the Environment
- 5) Community Nutrition
- 6) Family Economics
- 7) Food and Nutrition Planning
- 8) Principles of Family Resources Development
- 9) Biochemistry and Physiology of Nutrition

10) Principles of Nutrition

- c. Eight graduate students are enrolled in the S₂ Program.
 - d. Two graduate-level research projects are underway.
3. Public Service activities were also strengthened through activities of the National Student Service (KKN) and the Community Nutrition and Health Program. In addition, the Department developed the following programs.
- a. A major symposium - Development of Family Resources through Improvement in Community Nutrition - IPB, Dec. 14, 1983.
 - b. With assistance of Nellie McCannon, consultant in rural communications, developed a communication plan for GMSK.

Seminars and workshops were held to explore ways of improving GMSK's Public Service Role.

Publications

- | | |
|--|---------|
| 1. Semi-annual Reports 1 - 10 | 1980-85 |
| 2. Consultant Reports 1, 9, 14, 15, 17, 19, 30, 43, 45 | 1980-85 |
| 3. GMSK Curricula | 1984 |
| 4. Development of Family Resources Through Improvement in Community Nutrition, Symposium, GMSK-IPB | 1983 |

Rural Communications

The objective of this activity was to develop programs of instruction to prepare communications professionals for important tasks in the development of rural Indonesia. The IPB/UW Project recognized the importance of this area in the early stages of implementation. Dr. James Evans and Ray Woodis served as consultants

to the Project and worked with an IPB Team to develop recommendations for initiating S_0 and S_2 level programs of study at IPB. It was reasoned that such programs were needed not only to support rural development but to provide courses and trained personnel for IPB departments, the LPPM, and the IRC. Major Project efforts to implement plans in this area were initiated in 1983.

One year of course work abroad was provided for Mr. Gunardi in rural communications. This is to be combined with further study at IPB for a Ph.D. degree. Short-term training was also provided for six IPB staff who were interested in further development of skills in communications to prepare them for teaching courses in this area. All of them had advanced degrees in other disciplines. It was fortunate that the Faculties of Agriculture, Agricultural Engineering and Food Technology, and Animal Science had staff with interest in communications who were willing to further develop these interests. There was, however, a shortage of professional communicators to provide focus for the further development of the program. In order to alleviate this problem the IPB/UW Project requested one long-term senior staff, two PA's, and two short-term consultants to work with the development of the program from August 1983 to December 1984.

In view of the fact that this is a new discipline at IPB and that no formal structure had been developed to provide support for this program, one of the critical problems in initiating the S_0 and S_2 programs was to find an academic home for them. One possibility was within the IRC, because of the potential which this unit has to

provide modern equipment and facilities. However, the IRC is a technical service unit within the university structure and formal instruction is not included in its responsibilities. The problem was temporarily resolved by establishing an S_2 area of specialization with a Director under the FPS and a S_0 program with a Director under FAPOLTAN.

A series of eight seminars were set up in April and May of 1984 to discuss regulations for communications instruction at IPB. Many of the basic problems related to the development of the programs of instruction were discussed in this series of seminars and steps were taken to resolve them.

Curriculum outlines for both the S_0 and S_2 programs were accepted in early 1984. The S_0 program was initiated with 21 students in early 1984. The schedule for initiating the S_2 program was set for the academic year 1985-86, however, Photography in Communications was developed and offered in 1984-85 to provide staff training and support for other graduate study areas. In the fourth quarter 1984 and the first and second quarters 1985, detailed course outlines and lesson plans were developed for the following courses:

1. Fundamentals of Rural Communications
2. Print Communications
3. Communication Research
4. Communication Program Management
5. Audio Communication
6. Photography in Communication
7. Publicity, Media, and Methods
8. Agricultural Advertising

A major part of UW consultants' time during the second and third quarters of 1984 was spent in in-service training. In addition to seminars and personal interaction, courses were taught by Dr. Maurice White and Project Associates, Nancy Brendlinger and Linda Krueger. Dr. Hernando Gonzalez, consultant in communications, also taught a series of seminars on Development Communication Theory and Research. He acquired 60 texts and 155 journal articles and reports on communications research to be used in the program. Dr. Gonzalez is also planning to cooperate with IPB staff to write a book in bahasa Indonesia entitled Mass Communications and Rural Development, provided funding is available.

Publications

1. An Education Program to Prepare Professional Rural Communicators in Indonesia 1980
2. Semi-annual Reports 1 - 10 1980-85
3. Consultant Reports 8, 33, 35, 36, 44, and 45 1980-85
4. Seminar Series Regulations for Communications Instruction at IPB 1984
5. Report of S₂ Work Group on Course Development 1985

General Graduate Education

The objective of this activity was to provide assistance for addressing critical problems in graduate program development and/or research in areas outside the primary activities of the Project.

This activity provided flexibility to look at new areas and to provide assistance to address critical problems in otherwise strong programs. The work in rural communications and remote sensing were both supported under this section before they were incorporated as major areas of study under the program.

Assistance was also provided to strengthen programs in the following areas.

1. Agronomy - consultant in crop physiology
2. Energy Modeling and Monitoring - A consultant and short-term training
3. Veterinary Science - consultant
4. Fisheries Biology - consultant and short-term training

Publications

- | | |
|--|---------|
| 1. Semi-annual Reports 3 - 8 | 1981-84 |
| 2. Consultant Reports 23, 27, 28, and 31 | 1981-84 |

Research

The objective of this activity was to support the further development of the administrative structure of the Research Institute (LP-IPB) and to strengthen strategies for planning, coordination, implementation, and evaluation of research at IPB.

The reorganization of research administration at IPB under PP05 coincided with the initiation of the IPB/UW Project. Thus, Project inputs of technical assistance and training were timely and effective

in supporting the development of the LP-IPB. Consultants for this activity were identified during the fourth quarter of 1980. During the first quarter of 1981, Dr. Robert Bray, Consultant in Research Administration, and Dr. J. Duain Moore, Consultant in Research Management, worked with the Director of LP and his staff to study various alternatives for structuring the LP and for organizing the work of the Experiment Stations. During their stay, they held a series of seminars with LP staff and IPB administration. They also developed a detailed training plan for short-term work study programs for Dr. Tonny Ungerer, Director of LP; Dr. Amris Makmur, Director of Experiment Stations; and Muchtar Argasasmita, Field Supervisor for the Experiment Stations. This program was carried out at the UW with participation of the UW/IPB consultants in the second and third quarters of 1981.

Upon returning to the IPB campus in August of 1981, the participants in the training program held a three-day planning workshop with other IPB staff to develop recommendations for the organization and operation of LP-IPB. This served as the base for a report, "The Development of Research at IPB," which was presented to the IPB Administration and the Faculty Senate as the basis for LP-IPB operation under PP05. It also provided the basic information for developing the research section of the IPB Academic Plan. Dr. Robert Bray and Dr. Robert Hougas, UW consultants, came to IPB during the second quarter, 1982 to work with the LP staff on the further development of procedures for administration, management, monitoring,

and evaluation of research programs. One LP staff was sent to the UW for M.S. degree training in research administration.

Although the LP continues to develop its administrative system and to consolidate research programs, Project emphasis began to shift toward the development of pilot action research programs and the initiation of multidisciplinary farming systems research. One of the areas of research in which there was a growing interest in Indonesia related to the improvement of crop production through the correction of soil acidity by the use of agricultural limestone. The Project brought Jose Stammel and Jardim Freire from the University of Rio Grande do Sul, R.S., Brazil, to work with IPB staff in the development of action research in this area. They shared the Brazilian experience in developing action research to support a rapid expansion of lime use on acid soil, especially as it related to soybean production. In connection with this application, Freire taught an intensive course in the production of soybean inoculants. IPB staff have made major contributions toward the development of the Indonesian national lime use program. One of the students of the course in production of soybean inoculants is now producing inoculants for research and commercial purposes.

During the first quarter of 1983, UW sent a team of researchers to work with IPB in developing a major research proposal to study wetland transmigration sites in South Sumatra and the potential for remote sensing research. This provided the base for the initiation of the collaborative program in remote sensing between the Remote Sensing

Center staff at IPB and the Remote Sensing Center, Institute for Environmental Studies, UW.

During the first and second quarters of 1983, IPB researchers began to give consideration to the formation of a multidisciplinary farming systems research program. This research activity was planned to give support to graduate training in this area and to support the development of upland agriculture in priority watersheds throughout Indonesia. The researchers held a series of workshops on the IPB campus, developed position papers, and participated in a Farming System Workshop at the UW. They prepared a report with recommendations for initiating a farming systems program. These recommendations are incorporated in the graduate research program now being executed by the Watershed Development Work Group.

Publications

1. Semi-annual Project Reports 1 - 10 1980-85
2. Consultant Reports 4, 5, 10, 16, 18 and 25 1982-84
3. The Development of Research at IPB 1982
4. The IPB Academic Plan 1982
5. The Farming Systems Work Group Report. 1983
6. Working Paper for Coordinating Meeting Between
National Research and Technology with Higher
Education 1984
7. IPB Research Results 1985

Public Service

The objective of Project activities in this area was to assist the LPPM in establishing basic policy, strengthening administration, and developing programs for public service. Early Project inputs to LPPM were particularly important, in view of the fact that public service activities were being completely reorganized under PP05, 1980. Dr. Glen Pulver, consultant in extension administration, was invited to IPB in May and June of 1981 to work with the LPPM in outlining:

1. principles for developing a strong public service unit,
2. organizational alternatives,
3. preconditions for program development,
4. approaches to program development, and
5. methods of program execution.

Dr. Pulver also worked with LPPM to plan a training program for the Directors of LPPM and its centers. The Directors participated in a work study program at UW during the third and fourth quarters of 1981. The training program for the Director of LPPM was concerned with extension administration and that for the three Center Directors was to improve their knowledge and skills in extension planning. Dr. Pulver worked with the group on the UW campus and invited them to participate in the UW Annual Extension Planning Conference in Madison. In late 1981 the LPPM developed its proposal for organization under the PP05 and continued to work on the development of its Social Laboratories and programs for the National Student Service (KKN). This provided the basis for public services strategies in the IPB Academic Plan.

During the second half of the Project emphasis shifted to program execution and four LPPM specialists in soils, animal science, forestry, and project administration were sent to UW on a program to work with UW staff on multidisciplinary extension programs in watershed development. Before leaving for UW, they held a series of seminars and workshops to prepare themselves for the visit. The UW Project Director met with them for seminars each week during the month of May, 1982.

As a part of its overall program of public services, the LPPM has established working agreements with six regional governments in West Java and one in Central Java. The LPPM works through the Regional Development Coordinators to implement KKN programs and the LPPM concept of execution of public service through Desa Inti or Nuclear Villages. Dr. Kooswardhono was appointed Director of LPPM in 1982 and went to UW-Madison to work with Dr. Pulver and others in September and October of 1982. During this time, plans were made to bring extension specialists in agronomy and farm management to work with IPB specialists in setting up field demonstrations. However, a timely schedule could not be worked out with the UW specialists. The UW Project Director filled in as a consultant with the LPPM during the second quarter 1983. Field demonstrations were planned in a series of field and campus meetings of the multidisciplinary staff. Field demonstrations were established in Cicantayan, South Sukabumi, to diffuse technologies of soil improvement, aquaculture, and soybean production to that area. Field meetings were held with local farmers

at planting and harvest times to demonstrate cultural practices and results. The farmers were encouraged to visit the area throughout the growing season. After the plots had been harvested, a workshop, Planning and Methodology for Community Service, was held. During the workshop, the results of the 1983 demonstrations, extension planning and implementation methods, and plans for the next crop season were discussed. These activities are continuing under the supervision of IPB staff.

Publications

- | | |
|---|---------|
| 1. Semi-Annual Reports 1 - 10 | 1980-85 |
| 2. Consultant Reports 6, 11, and 32 | 1981-85 |
| 3. Social Laboratories for Village Development | 1981 |
| 4. Papers I - IV of the July 11, 1984, Workshop on Planning and Methods for Execution of Community Service Programs | 1984 |

SUPPORT PROGRAMS

The third element of the Project purpose was to strengthen IPB staff. The programs reviewed under this section address not only staff development but also technical assistance and physical development activities designed to strengthen IPB capability in graduate instruction, research, and public service.

Technical Assistance

The objective of the technical assistance program was to provide long- and short-term staff of the UW to support program and facility development. The UW entered into the collaborative agreement with the commitment of providing experienced, permanent staff for the execution of its responsibilities under the Project. Only in special cases, and by design, was the rule of use UW staff altered. It was also the intent of the UW to maintain continuity to the program by recruiting key staff who would make a life-of-project commitment. Actually only two key persons, John Murdock and Wayne Kussow, were specified in the contract and both were assigned to the Project. John Murdock, Chief of Party, served the duration of the Project and Wayne Kussow, Campus Coordinator, filled that post until he resigned as Director of International Agricultural Programs in July, 1982. Although he continued to provide valuable support to the project, he was replaced as Campus Coordinator by the Acting Director and later by the new Associate Dean and Director of International Agricultural Programs.

In keeping with the collaborative concept of the contract the UW and IPB reviewed technical assistance needs as a part of the annual review process and included required changes in annual plans of work. The contract originally called for two long-term persons and Dr. Johnny Pendleton was nominated for the second position as Graduate Education Advisor. However, before the assignment was made, he took a leave of absence to work at IRRI. At this time, IPB requested USAID

and UW to modify the plan to allow the COP, supported by short-term staff, to fill this role. In 1982, a request was made to bring a long-term staff (1 year) to fill a need in the development of rural communications programs at IPB. Maurice White filled that position.

The life-of-project concept was also followed with short-term advisers assigned to the project. Many of the short-termers made more than one visit to IPB and all were expected to assist in developing and executing training programs and to provide specialized backstopping on the UW Campus. This assistance was used frequently and was extremely valuable to the effective operation of the Project.

Early in the life of the Project, a need was seen for assistance in developing materials for programs of instruction in some of the critical areas of the Project. Normally, the short-term senior staff could not be on the IPB campus for the period of time required for this type of work. Also, funds were insufficient to bring highly experienced staff to IPB for long periods of time. It was reasoned that this type of work might be done most effectively by advanced graduate students who had the technical background to assist the departments in this activity. A scheme was developed to invite qualified graduate students who had completed their M.S. degrees to work for six months to one year as Project Associates. They received only a graduate student stipend and a living allowance.

The tasks of the long-term staff as specified in the contract and their activities related to these tasks are summarized as follows:

1. Activities for the long-term positions in Educational Administration and Graduate Education were covered by John T. Murdock (5 P/Y) with assistance of consultants.

<u>Tasks</u>	<u>COP Activities</u>
a. Chief of Party	Served in this position for the duration of the Project.
b. Work with IPB to develop Academic and Physical Master Plan	<ol style="list-style-type: none">1) Worked with IPB to develop Academic Plan.2) Served as adviser to IPB and PWI-SKG on Campus Plan.3) Member of work group on academic analysis responsible to IPB Planning Board for preparing guideline for academic and campus planning and analysis.
c. Implementation of administrative reforms.	<ol style="list-style-type: none">1) Worked with IPB on concepts for implementation of government regulations PP05, 1980.2) Served as adviser to IPB on the development of management information systems.3) Met with top IPB administrators on a weekly basis during critical phases of development.
d. Institution of regular process of evaluation of progress toward institutional goals.	<ol style="list-style-type: none">1) Joint Annual Review process established as a means of self-evaluation2) Academic Plan serves as a guide in development.3) Program review processes established for annual updating of Long-Range Plan (RIP) and Budget (SP-4).

- e. Be concerned with staff development. Worked with IPB Administration and UW Consultants to develop short-term and long-term training programs.

- f. Assist with course and curriculum development. 1) Worked with IPB departments and UW consultants on curriculum for:
 - Community Nutrition and Family Resources
 - Chemistry
 - Biology
 - Physics
 - Remote Sensing
 - Watershed Development
 - Environmental Studies
 - Rural Communications2) New S₂ Level programs were developed in:
 - Community Nutrition and Family Resources
 - Watershed Development
 - Remote Sensing
 - Rural Communications3) Organized curriculum workshop with graduate school and UW consultants.

- g. Assist in the development of research and public service organization facilities and linkages. 1) Organized consultancies, seminars with LP and LPPM on administration and management. 2) Worked with Directors of LP and LPPM on concepts for organization and program development. 3) Worked with team to develop recommendations for collaborative research linkages between education and other ministries.

- h. Design pilot community development program.
 - 1) Worked with Farming Systems Research Work-Group.
 - 2) Advised in developing facilities for:
 - Environmental Studies
 - Watershed Development
 - Remote Sensing
 - 3) Worked with LPPM in developing field demonstration activities.
2. Rural Communications adviser (1 P/Y) Maurice E. White assisted in the development of Diploma (S₀) and Graduate (S₂) programs in Rural Communications.
- a. Consultation with IPB staff and UW-advisers on S₂ curriculum development.
 - b. In-service training in diffusion and communications theory.
 - c. Seminars in rural communications.
 - d. Worked with staff on organization and staffing of S₂ program.
 - e. Organized and directed work of consultants and PA's.

Short-term staff were to fulfill specific tasks for the Project as outlined in the contract and modified in annual plans of work. Tasks and short-term consultant activities follow.

1. Long-range Campus and Academic Planning

James Kennedy - Campus Planning
James Edsall - Campus Planning
Albert Beaver - Academic Planning

2. Management Information Systems - Electronic Data Processing

Elwin Cammack - Management Information Systems
Charles Brenner - Electronic Data Processing

3. Research Administration and Experiment Station Management

Robert Bray - Research Administration
J. Duain Moore - Experiment Station Management
Robert Hougas - Management of Research Programs

4. Public Service Administration

Glen Pulver

5. Equipping IRC and CES

LeRoy Zweifel - IRC - All areas
John Behrens - IRC - Communications
Ray Woodis - IRC - Communications
Michael Adams - CES - Biology
Art Peterson - CES - Soil and Water Management
Wayne Kussow - CES - Soil and Water Management
Sean Ahearn - CES - Remote Sensing
Larry Seidl - CES - Remote Sensing
Ralph Kiefer - CES - Remote Sensing
Dennis Grossman* - CES - Biology-Botany

6. Development of Programs of Instruction, Curricula, Courses,
and Supporting Research

Jean Weidemann - Community Nutrition and Family
Resources
Diane Barrett* - Community Nutrition
Jeralyn Piggot* - Community Nutrition
Mary Roach* - Child Development
Joan Schroeder - Family Resources
Nancy Johnson - Community Nutrition
Marion O'Leary - Chemistry, Biochemistry
Betsy Kean - Chemistry, Curriculum
Michael Adams - Biology, Environment Evaluation
Studies
Dennis Grossman* - Botany, Ecology
Kay Schmeding** - Microbiology
Art Peterson - Soil and Water Management
Darrel Skinner* - Physics

*Project Associates

**Volunteer

Eve van Rennes*	- Physics - Science Education
James Kitchell	- Fisheries
Ray Woodis	- Rural Communications
Nancy Brendlinger*	- Rural Communications
Linda Krueger*	- Rural Communications
Nellie McCannon	- Rural Communications
Hernando Gonzalez	- Rural Communications
Ralph Kiefer	- Remote Sensing
Sean Ahearn	- Remote Sensing
Robert Hall	- Veterinary Medicine

7. Special Topics Related to Graduate Research

Larry Schrader	- Plant Physiology
Wesley Foell	- Energy Resources
Calvin DeWitt	- Wetland Ecology
Christine Padoch	- Wetland Ecology
Jardim Freire	- Rhizobium Production
Jose Stammel	- Soil Science

8. General Administration of Project

Wayne Kussow	- Campus Coordinator
Leo Walsh	- Dean CALS - UW
Jane Knowles	- Campus Coordinator
Kenneth Shapiro	- Campus Coordinator
Lynn Nelson	- Academic Support Specialist
Sharon Baumgartner	- Training Coordinator
Nancy Fox	- Secretary
Loretta Erdahl	- Financial Specialist

Of this total of 364 PM of staff provided under the Contract only 5 PM of consultants and 17 PM of PA time or 6 percent of the total input were not from UW.

A summary of technical assistance input is reported in Table 1.

*Project Associates

Table 1. Person years of technical assistance projected in the Contract vs. that provided by the UW.

<u>Personnel</u>	<u>Projected Level</u>	<u>Amend. 2</u>	<u>Amend. 4</u>	<u>Amend. 5</u>	<u>Provided Level</u>
CAMPUS					
Campus Coordinator*	63 P/M	63 P/M	82 P/M	82 P/M	124 P/M
FIELD					
Chief of Party	48 P/M	48 P/M	56 P/M	60 P/M	60 P/M
Graduate Adviser	48 P/M	0 P/M	0 P/M	0 P/M	0 P/M
Rural Comm. Advisers	0 P/M	12 P/M	15 P/M	15 P/M	12 P/M
Project Consultants	50 P/M	34 P/M	38 P/M	38 P/M	40 P/M
	0 P/M	90 P/M	116 P/M	116 P/M	124 P/M
	0 P/M	5 P/M	5 P/M	5 P/M	4 P/M
TOTAL	209 P/M	245 P/M	312 P/M	316 P/M	364 P/M

*Includes office staff

Publications:

1. Semi-annual Reports 1 - 10 1980-85
2. Consultant Reports 1 - 48 1980-85
3. Workshop Proceedings* 1980-85

*See list under section on In-service Training pages 59 and 60.

Staff Development

The objective of this activity was to strengthen IPB staff resources in areas established as Project priorities. During the first months of Project implementation a plan was established for

staff development. IPB established the following guidelines to be used in selecting areas of training.

1. Degree training opportunities will be used for the following purposes.
 - a. For completion of degree programs for candidates whose programs cannot be completed under Loan 041.
 - b. To strengthen staff in:
 - 1) basic sciences,
 - 2) environmental protection,
 - 3) rural home and family studies, and
 - 4) university administration.
2. Nondegree training will be reserved primarily for the further development of administrative program areas (a small component is reserved for academic retraining of staff in highly specialized areas). This training will be used primarily to support staff development in:
 - a. university administration,
 - b. information resource systems,
 - c. research planning and administration,
 - d. extension planning and administration, and
 - e. university planning.

Additional guidelines were developed to assist unit administration in the final selection of candidates.

1. Candidates for degree programs
 - a. The field of study selected must fill a gap in existing priority programs or be critical to the development of new programs. Plans showing this need should be presented with the request.
 - b. Because of the shortage of funds and time projected for this project, the candidates must be prepared to enter the program quickly and complete their degrees in a relatively short time. The candidate should:
 - 1) have excellent academic standing,
 - 2) be able to meet English language requirements,
 - 3) if the degree to be earned is the Ph.D., the participant should have an M.S. degree or be prepared to complete the study program in the allotted time, and
 - 4) have strong letters of recommendation.
 - c. In order to meet government regulations, reduce social and/or financial stress, and ensure several years service to IPB on return to Indonesia, the candidate should:
 - 1) be an employee of IPB,
 - 2) have a letter of appointment from the DEC,
 - 3) must have passed P4,
 - 4) be 35 years of age or under, and
 - 5) be single (exception may be made).

2. Candidates for nondegree programs
 - a. The field of study selected must support the further development of the priority program areas.
 - b. Candidates being proposed for training should be staff of IPB who can be expected to maintain responsibilities in the area of the training program for a reasonable period of time.
 - c. In order to ensure effective training programs, each training activity should be preceded by:
 - 1) contact between the UW department or other unit and the individual to be trained to establish the basic problems to be addressed in the training program,
 - 2) a plan for the training program outlining the activities projected for the participant, the time period of the training, and a plan for program implementation in Indonesia, and
 - 3) when applicable, these programs should be coordinated with the use of short-term staff from the UW.

Degree Training Abroad--The contract specified that of the 34 person/years for degree training, 14 person/years should be used to finance the completion of degrees of candidates who have initiated their programs under Loan 041, 12 person/years should be used in the area of environmental protection, and 8 person/years in rural home and family studies. These projections did not anticipate the formation of the new Faculty of Basic Sciences which was being planned for IPB nor

did it project degree programs to strengthen university administration or rural communications. In view of the importance of these sectors to the development of strong academic programs, especially of graduate programs, and the critical shortage of well-trained staff in these areas, IPB suggested an adjustment in the operational plan in the Contract to include them. The contract was amended in 1982. A comparison between projected and actual person years provided by the Contract are shown in Table 2.

Table 2. Person years of degree training projected in the Contract vs. that provided by the UW.

<u>Areas for Degree Training</u>	<u>P/Y</u>	
	<u>Projected</u>	<u>Actual</u>
1. Completion of degrees initiated under other projects	10	9.7
2. Environmental Protection	7	8.5
3. Rural Home and Family Studies	7	4.5
4. Basic Sciences	9	15.2
5. Rural Communications	1	1.3
6. University Administration	<u>0</u>	<u>3.1</u>
TOTAL	34	41.3

A list of degree participants is given in Table 3.

Table 3. Degree training completed under the IPB/UW Graduate Education Project.

No.	Name	Degree	Field of Study	Person/Years	Status
<u>A. Initiated Under 041</u>					
1.	Syafrida MANUWOTO	Ph.D.	Agr. Entomology	3.3	(C)
2.	Tantan R. WIRADARYA	Ph.D.	Animal Breeding	1.4	(C)
3.	Sudirman YAHYA	Ph.D.	Agronomy/Crop Sci.	2.0	(C)
4.	Mulia PURBA	Ph.D.	Oceanography	3.0	(C)
	Subtotal			9.7	
<u>B. Environmental Protection</u>					
1.	Bibiana LAY*	Ph.D.	Environmental Biology	3.5	(C)
2.	Krisna M. HASIBUAN	M.S.	Biomathematics	2.0	(C)
3.	Dudung DARUSMAN	M.S.	Agr. Economics	1.5	(C)
4.	Abdurrauf RAMBE	S	Remote Sensing	0.7	(C)
5.	Mahmud A. RAIMADOYA	S	Remote Sensing	0.8	(C)
	Subtotal			8.5	
<u>C. Rural Home and Family Studies</u>					
1.	Hidayat SYARIEF	Ph.D.	Stat.-Food Science	2.0	(C)
2.	Siti N. SJAHRUDDIN	M.S.	Family Resources	2.5	(C)
	Subtotal			4.5	
<u>D. Basic Sciences</u>					
1.	Alex HARTANA*	M.S.	Genetics	2.5	(C)
2.	Suminar S. ACHMADI	Ph.D.	Wood Chemistry	3.7	(C)
3.	Hidayat PAWITAN	Ph.D.	Hydrology/Physics	3.0	(C)
4.	Benjamin B. SUNARLIM	Ph.D.	Population Dynamics	0.7	(T)
5.	Bambang SUMANTRI	M.S.	Mathematics	2.3	(T)
6.	Dondin SAJUTHI	M.S.	Chemistry	1.5	(C)
7.	Hendra ADIJUWANA	M.S.	Chemistry	1.5	(C)
	Subtotal			15.2	
<u>E. Rural Communications</u>					
1.	GUNARDI	S	Agr. Communications	1.3	(C)
<u>F. University Administration</u>					
1.	R.W.E. LUMINTANG	M.S.	Res. Administration	1.5	(C)
2.	Janti G. SUJANA	M.S.	Information/Library	1.6	(C)
	Subtotal			3.1	
TOTAL DEGREE TRAINING				42.3	

- * Completing study on independently-funded PIO/P--financed by UW
 (C) Program completed
 (T) Program terminated for reasons of health
 (S) Sandwich Program - IPB/UW

Degree Training in Indonesia--In addition to overseas training, IPB emphasized training at home. The development of the graduate school at IPB has greatly increased the potential for in-country training, not only for IPB but for other universities and agricultural service as well. During the period 1975-1985, 75 staff of IPB, 284 staff of other universities, and 297 staff of agricultural service agencies have received Doctorates from IPB. In addition to its regular program of instruction at the S₂ level, IPB is cooperating with UNHAS to provide credit-earning activities for UNHAS students. Five students have graduated from this program. During the academic years 1980-1985, the program of graduate training has grown from 511 students in 1980/81 to 789 students in 1984/85. Current members of student by field and degree objectives and numbers of graduates of 1985 are reported in Table 4 and 5.

Nondegree Training Abroad--Sixty person months of nondegree training were allocated to the IPB/UW Graduate Education Project. Since these training programs were of shorter duration than the degree programs, there was less urgency to initiate these activities during the first few months of the Project. However, much of the training was initiated during the first year in order to encourage early liaison between concerned IPB and UW units and to promote rapid development of programs to be strengthened by the training. Whenever possible, the nondegree training programs were coordinated with the use of short-time specialists to strengthen the liaison between IPB and UW and to increase the effectiveness of both training and academic program activities.

Table 4. M.S. students of FPS-IPB in 1984/85 and graduates from 1980 to 1984.

Field of Study	S ₂ Students 1984/85			Graduates 1980-85
	IPB	Other	Total	
Food Science	7	20	27	19
Environmental & Natural Resource Management	9	45	54	60
Biology of Reproduction	1	7	8	30
Agricultural Economics	11	53	64	50
Soil Science	4	28	32	23
Agronomy	9	53	62	66
Animal Science	5	35	40	51
Development Extension	2	22	24	23
Rural Sociology	7	32	39	23
Statistics	1	21	22	28
Entomology and Phytopathology	2	26	28	34
Agroclimatology	6	10	16	12
Agricultural Engineering	7	15	22	16
Wood Science and Forest Management	5	13	18	10
Rural Regional Development Planning	2	34	36	6
Medical Entomology	1	10	11	11
Biology	6	3	9	8
Veterinary Science	8	8	16	4
Aquatic Science	3	11	14	8
Veterinary Public Health	-	-	-	-
Community Nutrition & Family Resources	4	6	10	-
Agricultural Science*	-	-	-	-
TOTAL	100	452	552	482

*Programs not classified under existing departments

Table 5. Ph.D. students of FPS-IPB in 1984/85 and graduates from 1980 to 1984.

Field of Study	S ₃ Students 1984/85			Graduates 1980-85
	IPB	Other	Total	
Agricultural Economics	7	16	23	3
Soil Science	1	10	11	1
Agronomy	6	22	28	3
Animal Science	8	27	35	2
Development Extension	-	9	9	2
Rural Sociology	-	6	6	-
Statistics	-	1	1	1
Entomology and Phytopathology	4	17	21	1
Food Science	5	5	10	-
Environmental & Natural Resource Management	7	19	26	3
Biology of Reproduction	2	16	18	2
Agroclimatology	-	-	-	-
Agricultural Engineering	2	3	5	-
Wood Science and Forest Management	6	3	9	1
Rural Regional Development Planning	-	12	12	-
Medical Entomology	1	-	1	-
Biology	5	5	10	-
Veterinary Science	4	2	6	-
Aquatic Science	1	3	4	-
Veterinary Public Health	-	-	-	-
Community Nutrition & Family Resources	-	-	-	-
Agricultural Science*	1	1	2	-
TOTAL	60	177	237	19

*Programs not classified under existing departments

The contract specified that short-term training would be distributed as listed in Table 6.

Table 6. Person months of short-term training project in the Contract vs. that provided by the UW.

<u>Area of Training</u>	<u>Person Months</u>	
	<u>Projected</u>	<u>Actual</u>
1. Graduate School Administrators and Center Leaders	18	20.5
2. Special Academic Programs	42	46.0

A list of short-term participants is given in Table 7.

Table 7. Short-term training completed under the IPB/UW Graduate Education Project.

<u>No.</u>	<u>Name</u>	<u>Field of Training</u>	<u>Place of Study</u>	<u>Person Months</u>
A. <u>University Administration</u>				
1.	Amris MAKMUR	Exp. Farm Management	U. of Wisconsin	1
2.	Ikin MANSJOER	Info. System Design	"	1
3.	Tonny UNGERER	Procedures for Mgt. & Monitoring Research	U. of Wisconsin	1
4.	M. ARGASASMITA	Operation of Exp. Farms	"	2
5.	Oetomo DJAJANEGARA	Budgeting Systems	"	0.5
6.	B A R I Z I	System Analysis	"	1
7.	S. SASTROSUMARJO	Student & Pers. Data Systems	"	2
8.	Edi GUHARDJA	Prog. Mon. & Review System	"	1
9.	Muh. SYAMSUN	Electronic Data Processing	"	3

Table 7. (Cont.)

No.	Name	Field of Training	Place of Study	Person Months
<u>A. University Administration (Cont.)</u>				
10.	M. Anwar NUR	Adm. & Dev. Basic Sci.	"	1.5
11.	M. A. ZAKARIA	Teaching & Research Methods in Biology	"	1.5
12.	E. A. A. SIREGAR	Rural Comm. & Info. Resources	"	1.5
13.	Norman R. AZWAR	University Adm.	"	1.5
14.	Zahrial COTO	Mgt. Info. Systems	"	1
15.	Ahmad A. MATTJIK	Univ. Computer Mgt.	"	<u>1</u>
Subtotal				20.5
<u>B. Special Academic Programs</u>				
1.	M. A. UNGERER	Operation of the English Language	U. of Wisconsin	1
2.	Juju WAHJU	Ext. Prog. Dev. & Adm.	"	1
3.	Hartanti SANTOSO	Ext. Prog. Coord.	"	2
4.	Abdul D. HASJMY	Ext. Prog. Coord.	"	1.5
5.	Rudy BAWOLYE	Ext. Prog. Coord.	"	1.5
6.	S U H A R D J O	Community Nutrition	"	1.5
7.	Syafii MANAN	Watershed Management	"	2
8.	Maman DULDJAMAN	Watershed Management	U. of Wisconsin	1
9.	Salman PARISI	Watershed Management	"	1
10.	Moentoha SELARI	Watershed Management	"	1
11.	Aji S. JAMIRUDDIN	Financial & Personnel of Watershed Mgt.	"	1
12.	Sediono M. P. TJONDRONEGORO	Human Ecology	"	1.5
13.	Amri JAHl	Rural Comm. & Info. Resources	"	1.5
14.	Dedi FARDIAZ	Audio Visual Plan. & Production	"	1.5

Table 7. (Cont.)

No.	Name	Field of Training	Place of Study	Person Months
<u>B. Special Academic Programs (Cont.)</u>				
15.	Muhamad KHUMAIIDI	Food & Nutr. System	"	2
16.	Suprihatin GUHARDJA	Family Resources	"	1
17.	W. HARJANTO	Farming System Res.	"	1
18.	Soleh SOLAHUDDIN	Farming System Res.	"	1
19.	Amini S. NASOETION	Basic Nutr. & Exp. Foods & Agr. Conf.	U. of Wisconsin & Italy	1.5
20.	M. M. SUKARNI	"	"	1.5
21.	Abdullah KAMARUDDIN	Forest Biomass Mod.	U. of Wisconsin	1.5
22.	Uup S. WIRADISASTRA	Remote Sensing & Soil Science	"	1
23.	M. KOOSWARDHONO	Mgt. in Res. Econ. & Extension	"	1
24.	F A H I D I N	Library Management	"	3
25.	SOEDARSONO	Physics for Agr.	"	1
26.	Abdul R. SALEH	Library & Info. Sci.	"	3.5
27.	Syahrhun H. NASUTION	Prof. of A-V Materials & Mgt. of Rural Sat. Comm.	U. of Wisconsin & Washington, DC	2
28.	Albertus WIDODO	"	"	1.5
29.	Kiagus A. AZIZ	Aquatic Res. Mgt.	"	3
30.	Uup S. WIRADISASTRA	Geographic Info. System	"	<u>1.5</u>
	Subtotal			46.0
	TOTALS - Short-Term			66.5

In-service Training--This informal method of training was used in connection with all activities of the Project. All UW staff who participate in long- and short-term activities were encouraged to give

special attention to effective transfer of information. Specific examples of workshops and special training programs are listed below.

1. University Administration, 1981, Evergreen, Bogor
2. Program Development - IPB/UW Cooperation, 1981, Lembah Nyiur, Cisarua, Bogor
3. Academic Work Loads - Staff Workshop, 1981, IPB, Bogor
4. Workshop on Faculty Plans, 1982, IPB, Bogor
5. Workshop on University Planning, 1982, Biotrop, Bogor
6. Workshop on Liming Agricultural Soils, 1982, IPB, Bogor
7. Rhizobium Technology, 1982, IPB, Bogor
8. Wetlands Ecology, 1983, IPB, Bogor
9. Development of Family Resources, 1983, IPB, Bogor
10. Farming Systems, 1983, IPB-UW
11. Procedures for Educational Planning - Curriculum Development, 1983, IPB, Bogor
12. Curriculum Development - Remote Sensing, 1983, IPB, Bogor
13. Crop Physiology, 1983, IPB, Bogor
14. Biomass Energy Supply and Demand, 1984, IPB, Bogor
15. Diffusion and Communications, 1984, IPB, Bogor
16. Development Communication Theory and Research, 1984, IPB, Bogor
17. Development Communication, Curriculum 1984, IPB, Bogor
18. Public Service Program Planning and Implementation, 1984, IPB, Bogor
19. Remote Sensing - Digital Image Processing, 1984, IPB, Bogor
20. Watershed Development, Curriculum, 1985, IPB, Bogor
21. Information Management Systems, 1985, IPB, Bogor
22. Micro-Computer Operation, 1985, IPB, Bogor
23. Development of Mathematics Department, 1985, IPB, Bogor
24. Institutional Cooperation, IPB-UNILA, 1985, Bandar Lampung

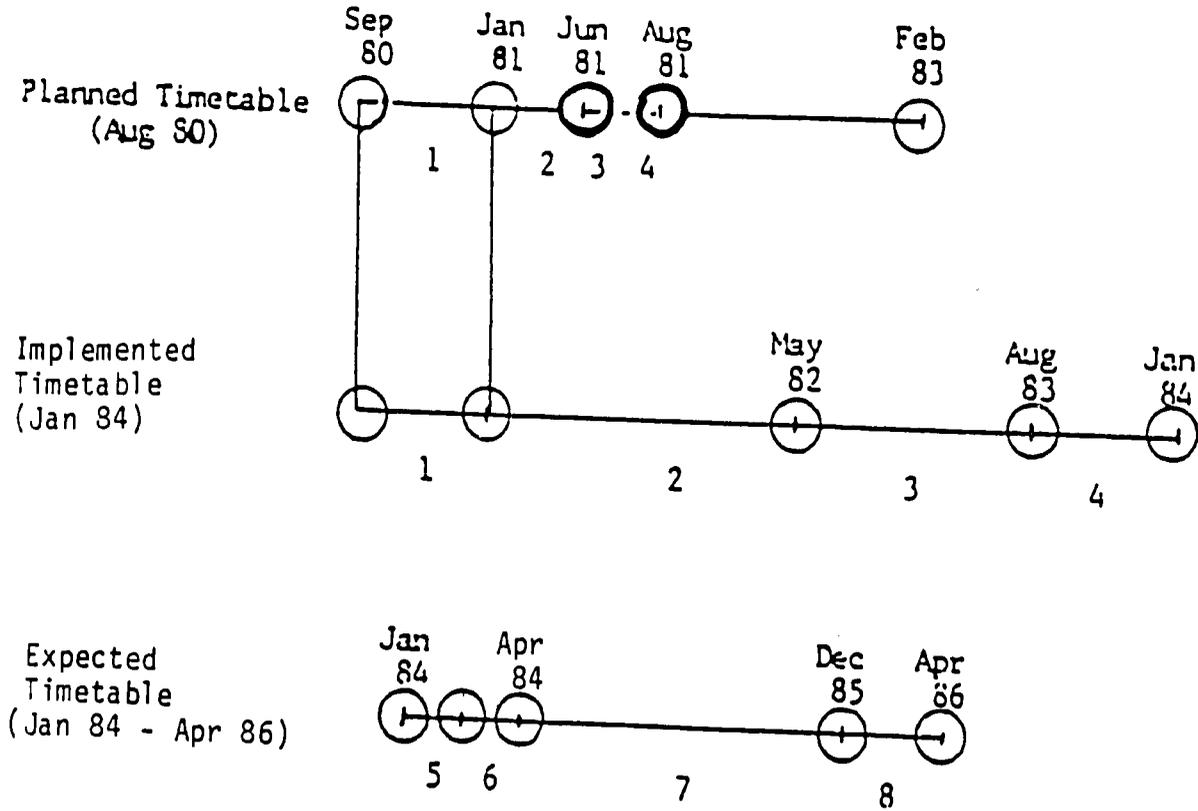
PHYSICAL FACILITIES

The objective of this activity was to complete construction of the IRC and CES, assist in purchasing, and installing equipment in the IRC and CES, and to develop programs needed to make the centers operational. Of the three essential components of this activity (construction, equipping, and developing programs) the IPB/UW Project had the primary responsibility to assist in the second and third activities. However, these activities had to be integrated with construction. Thus, a review of the construction timetable will precede the report on commodities and program development.

Construction--The first phase of the building program was to develop the campus plan and to design the two priority buildings. The IPB/UW Project was active in this phase of the program and UW consultants Zweifel, Edsall, Kennedy, and Adams made important contributions to the building location and design. However, the primary responsibility for these activities was with PWI-SKG. Upon final acceptance of the design, bid documents for construction were developed and approved, bids were let, and Wijaya Karya was selected as the contractor. Construction actually began about two years later than the time originally projected. The projected vs. the implemented timetable is shown in Figure 1.

Commodities--The initiation of work on commodity lists began with requests to IRC and CES staff of IPB during the first quarter of 1981. These lists were reviewed by the IPB staff with the assistance

Figure 1. Projected vs. implemented timetables for planning, design, and construction of the IRC and CES.



- 1 = Master Planning
- 2 = Detailed Design of IRC + ESC
- 3 = Dev. of Bid Documents and Approval
- 4 = Bidding, Evaluation and Recommendation
- 5 = Approval and Appointment of Contractor
- 6 = Contract Negotiations
- 7 = Construction Period
- 8 = Furnishing Period

Construction under the new time table is now on schedule.

of Dr. Michael Adams, CES, and John Behrens, IRC, during the second quarter 1981, and Dr. LeRoy Zweifel, IRC, fourth quarter 1981. First draft lists were sent to the Office of International Agricultural Programs (IAP) UW to obtain information regarding costs of the equipment. These lists were subjected to further study and revision based on the final design of the buildings but no action was taken to order the equipment because of the difficulties encountered by the GOI and USAID in initiating construction of the buildings. It was reasoned that the equipment should not be ordered to arrive before construction was completed because of problems involved in long-term storage of electronic equipment. During this period of waiting (1982), the lists were revised. At the end of 1982, a decision was made that the commodity orders should move ahead and that temporary facilities would be prepared for installing the equipment at IPB. The following steps were established for completing the commodity orders.

1. Detailed (item, description, source, cost) commodity list for local and foreign purchase will be developed by the Planning Board from request of program managers.
2. The lists will be reviewed by relevant University of Wisconsin consultants.
3. The lists will be reviewed and approved by IPB and USAID.
4. Approved lists will be sent to the IAP-UW, where purchase orders and instructions for shipment will be prepared.
5. "Country source" waivers will be requested if required.
6. The UW purchasing department will request bids and will purchase the commodities.
7. Small orders will be combined at a central point before shipping so that a minimal number of shipments are made.

8. The IAP will monitor the process and:
 - a. make sure orders do not exceed the budget,
 - b. make sure IPB receives negotiable bills of lading for each shipment at the earliest possible date.
9. IPB will process clearance for all shipments and arrange for transport and temporary storage at IPB.
10. IPB and UW Project staff will supervise:
 - a. checking goods and filing claim for damages,
 - b. inventorying and marking,
 - c. installation of the equipment, and
 - d. putting the equipment in working order for use by the IRC and CES programs.

During the first and second quarters of 1983, Dr. LeRoy Zweifel, IRC consultant, and Dennis Grossman assisted in developing the final draft of the commodity list which was approved by USAID in June 1983. IAP updated the price estimates for the commodities and began to prepare orders. As the bidding process was completed for each commodity or group of commodities, the firm winning the bid was instructed to ship the order to Madison where IAP had made arrangements to store the material until a major shipment was complete. The first order to be completed was for the remote sensing laboratory. This equipment was first installed and used in training and program development activities on the Madison campus. Equipment for the MIS was also ordered, used in training programs, shipped to IPB, and put into service the second quarter of 1984. This order was supplemented by local purchases of additional equipment in the second

quarter of 1985. The second shipment containing the remote sensing laboratory was shipped to IPB and installed in November 1984. The shipment and installation of the CES equipment was made during the first and second quarters of 1985. The IRC purchases were delayed because of the need to buy not pieces of equipment, but systems of which there are at least five in the IRC. Dr. Zweifel, IRC Consultant and his staff at UW contributed many hours, days, and weeks of their time to make sure that equipment ordered would function within the system and with equipment already available at IPB. Though this activity has delayed the completion of commodity purchases, it has been an essential and valued contribution, especially in view of the inexperience of other staff involved in the process. This shipment was made during the second quarter of 1985.

Program Development--The development of programs to make efficient use of new facilities was a matter of major concern for the Project. CES is a facility which functions within the academic programs of the university. These include:

1. the Center for Environmental Studies (PUSDI-PSL),
2. the Graduate Study Program for Environmental Sciences (PSL),
3. the Remote Sensing center, and
4. the Watershed Development program.

Strong programs of research and/or graduate instruction are underway or are being developed in each of these areas as reported in the section on Management and Conservation of Natural Resources

above. The IRC, on the other hand, is a Technical Service Unit (UPT), which has responsibility for providing support to all academic and administrative programs of IPB. The concept of an IRC is a relatively new one which does not fit into the structure suggested under PP05, 1980. This regulation recognizes a UPT-Library but not the broadened concept of the IRC. IPB, however, put the IRC into operation and has proposed a new structure under PP05.

At the beginning of the project only two IRC components, the library and the printing shop, were operational. Staff, facilities, and programs had to be developed for all other sectors. Fortunately, there were several staff at IPB who had an interest and some training related to these areas. These persons were encouraged to participate in the development of the IRC. In the fourth quarter of 1981, Drs. Emir Siregar, Dedi Fardiaz, and Amri Jahi participated in short-term training programs to study administration of IRC, audio visual support programs, and rural communications, respectively. During the second, third, and fourth quarters of 1983, two library staff members were provided short-term study programs in library management and one staff member completed a M.S. degree in information sciences. Additional training in audio visual production was provided to two IRC staff in the second quarter of 1984. LeRoy Zweifel, IRC consultant, provided a continuing service to the project by assisting in the development and execution of training programs. In spite of limited numbers of staff and incomplete facilities, the IRC strengthened its programs in the library, and the print shop, and developed new programs in audio visual production and distance instruction via satellite.

In the process of developing programs for the IRC, it became increasingly evident that without linkages to one or more academic departments to produce graduates with professional training in areas related to the service functions of the IRC, it would be extremely difficult to maintain professional competence and interest in IRC programs. Three programs were established which can supplement the existing extension education program in supporting the development of the IRC. In 1984 diploma programs were initiated in library science and in rural communications, and a graduate (S₂) program in development communications is to be initiated in 1985. These programs of instruction should provide staff for the IRC and will benefit from the use of IRC facilities in their research and instruction activities.

Publications

- | | |
|---|---------|
| 1. Semi-annual Reports 1 - 10 | 1980-85 |
| 2. Consultant Reports 2, 7, 8, 12, and 29 | 1980-84 |
| 3. Campus Master Plan | 1981 |
| 4. Commodity Printout Annex A | 1985 |

PROJECT MONITORING AND EVALUATION

In addition to the routine monitoring of training and technical assistance activities which occurs as a part of required approval procedures, three basic monitoring activities were carried out. These were internal monitoring of activities at IPB, regular checks on training programs by the IAP-UW, and semi-annual project reporting to IPB, GOI, USAID, and UW.

The internal monitoring at IPB was very intensive during the initial stages of project development when many administrative decisions were required for the implementation of new programs or the modification of existing ones. This was also the period in which long-range academic and campus planning were taking place. Weekly meetings with the top administration were held to review progress, identify problems, and plan strategies for further development. The Annual Plan of Work served as an important document in keeping objectives in focus, and in keeping activities on schedule. Later, after most activities were well underway, the weekly meetings between Project Co-Directors and IPB administration were replaced by meetings with those responsible for the execution of various programs, often with visiting UW consultants. There was a responsive, open door policy of IPB administration for the entire duration of the Project.

The IAP-UW had the responsibility for monitoring activities in the US, primarily training and commodity purchase, in addition to general management and backstopping the project. They used a system of regular checks on training programs and worked with participants, their advisers, IPB/UW short-term consultants, and Project field staff to resolve problems as they arose.

The third mechanism for monitoring was the JAR. The JAR, held on each anniversary of the Project played an important role in Project management. Although the format varied slightly from year to year, it generally lasted three days with one day devoted to a workshop in

which IPB/UW staff worked together to review progress on various activities and met in work groups to go over reports and lay strategies for IPB program managers to report to the review group. The JAR was made up of officials of IPB, GOI, USAID, and UW. The reports were discussed, and suggestions for program changes were made. Suggestions of the JAR team were then incorporated in an Annual Plan of Work which was approved on the last day of the review. If Contract amendments were required they were also initiated at this time. The mid-year review was used for reporting and to make program adjustments if necessary.

Project evaluation was a vital part of Project management. Ongoing evaluation took place every time the progress of an activity was compared to the goals and purposes of the Project or the schedules of activities projected in the Plan of Work. However, the JAR was the focal point for evaluation of Project activities. At each JAR a schedule of projected vs. implemented activities was drawn up to provide a basis for evaluation. These schedules are included in Semi-annual Reports 1 - 10. A summary of activities carried out to reach end-of-project-targets are as follows:

1. Target - An effective well-organized administrative structure providing leadership and guidance for the university and its future development.

- a. Major activities

- 1) Consultation was provided to IPB administration in reviewing and drawing up plans to implement Government Regulation PP05, the Organization of Indonesian Universities.

- 2) A workshop was held to develop concepts for developing a comprehensive management information system (MIS).
- 3) Short-term training at UW provided for IPB staff in MIS.
- 4) A study of organizational alternatives of MIS at IPB was completed.
- 5) A functional electronic data processing configuration for IPB was developed.
- 6) A data collection, verification, storage and processing system was developed.
- 7) Training programs for microcomputer operators were completed.
- 8) Microcomputer equipment was purchased.
- 9) Long-range planning capability was strengthened through short-term and in-service training.
- 10) Guidelines for academic and space analysis were developed.

b) Status of IPB administration at the end of the Project

- 1) IPB administration was fully reorganized under PP05, 1980.
- 2) MIS was organized and is functioning to provide IPB and Ministry of Education and Culture administrators with current management information.
- 3) An academic planning system is functioning routinely.

- 4) Academic and space analysis guidelines were developed, tested, and are in use at IPB.
 - 5) IPB is assisting other universities in improving university administration.
2. Target - An educational and physical campus plan that can serve as a basis for future development of the Darmaga Campus.
- a. Major activities
 - 1) Consultation was provided on the development of the Darmaga Campus Plan.
 - 2) Guidelines for academic and campus planning were written.
 - 3) Faculties were assisted in the development of long-range plans.
 - 4) A long-range academic plan was completed.
 - 5) IPB has instituted an annual planning process for long-term planning (RIP).
 - b. Status of IPB planning at the end of the project
 - 1) A long-range academic and campus master plan was written and is being implemented.
 - 2) In addition to USAID funded construction, additional development is underway with Japanese and World Bank assistance under the IPB Master Plan.
 - 3) IPB planning capability is strengthened and is functioning.

3. Target - Graduate programs expanded and improved. New graduate programs in such areas as family nutrition, rural home management, environmental protection, and rural communications to be developed. A two-track system for M.S. degree training to be initiated.

a. Major activities

- 1) A total of 42.3 PY of degree training for management and conservation of natural resources, basic sciences, rural home and family studies, and rural communications was provided.
- 2) A total of 46 PM of short-term training for graduate teaching and research staff.
- 3) Two long-term persons, 19 short-term advisers and 10 project associates provided consultation on curriculum development, course development and graduate research.

b. Status of priority IPB programs of instruction at the end of the project

- 1) All priority areas strengthened by staff development programs of the project.
- 2) The following basic science programs were improved: biology, botany, physics, chemistry, mathematics.
- 3) A new Faculty of Mathematics and Natural Sciences was formed to strengthen the foundation for the effective operation of 5 basic science departments, 4 of which now have B.S. level programs.

- 4) New M.S. level programs established in the following areas: community nutrition and family resources, watershed development, remote sensing, and rural communications.
 - 5) The concept of a two-track system for the M.S. degree program but rejected on the basis that the number of M.S. students returning for PhD studies is likely to increase in the future and graduates of the programs need experiences in research and technical writing.
4. Target - An instructional program which takes advantage of the most appropriate technologies with adequate and relevant instructional materials.
- a. Major activities
 - 1) Short-term training provided for 16 IPB staff involved in the priority programs of instruction. These staff studied relevant curricula and collected materials and ideas for improving their courses.
 - 2) Consultants worked in chemistry, ecology, physics, fishery management, remote sensing, watershed development, community nutrition and family resources, and rural communications. The consultants concentrated on the improvement of programs of instruction, including the development

of course outlines, lesson plans, visuals, and the introduction of computer-assisted instruction.

- 3) IRC and CES facilities were designed to provide assistance and support for improving instruction with self-instruction modules and audio-visual services.
- 4) The IPB-IRC is experimenting with distance-teaching technologies via satellite.
- 5) The academic analysis work group completed a study on student work loads which indicated that students have extremely full classroom schedules.

b. Status of priority programs of instruction at the end of the project

- 1) Programs of instruction at IPB are constantly being improved and modern teaching technologies are being introduced. Equipment such as overhead and slide projectors are generally available and are used by many instructors. However, much still needs to be done to encourage "student learning" as opposed to "teachers teaching".
- 2) A new digital image processing laboratory has been established which provides the most modern microcomputer technologies. This laboratory has student stations for the program of instruction.

- 3) The IRC and CES are 80% completed and commodities have been purchased. When these facilities are completed they will have the capacity to greatly strengthen programs of instruction.
 - 4) The distance teaching program via satellite is in use.
5. Target - Greatly expanded, centrally coordinated, programs of research relating to such areas as non-exploitative uses of natural resources; quality of life in rural areas; environmental protection; food production, processing and marketing; changes in socioeconomic status of small farmers; and nutrition of rural families. Approximately 80 percent of faculty will be involved in applied research.
- a. Major activities
- 1) The Project provided degree training for one person in research administration and short-term training for three persons in research administration and two persons in farming system research.
 - 2) The research structure of IPB was reorganized under PPO5 which establishes a Research Institute with five research centers to coordinate IPB research programs.
 - 3) UW consultants worked with the Director and the staff of the Institute to plan and implement the new organization.

4) Studies were conducted to design procedures for conducting collaborative research with other national research agencies.

5) A Farming Systems Workshop was conducted to encourage the development of integrated research.

b. Status of IPB's research organization and priority research programs at the end of the project

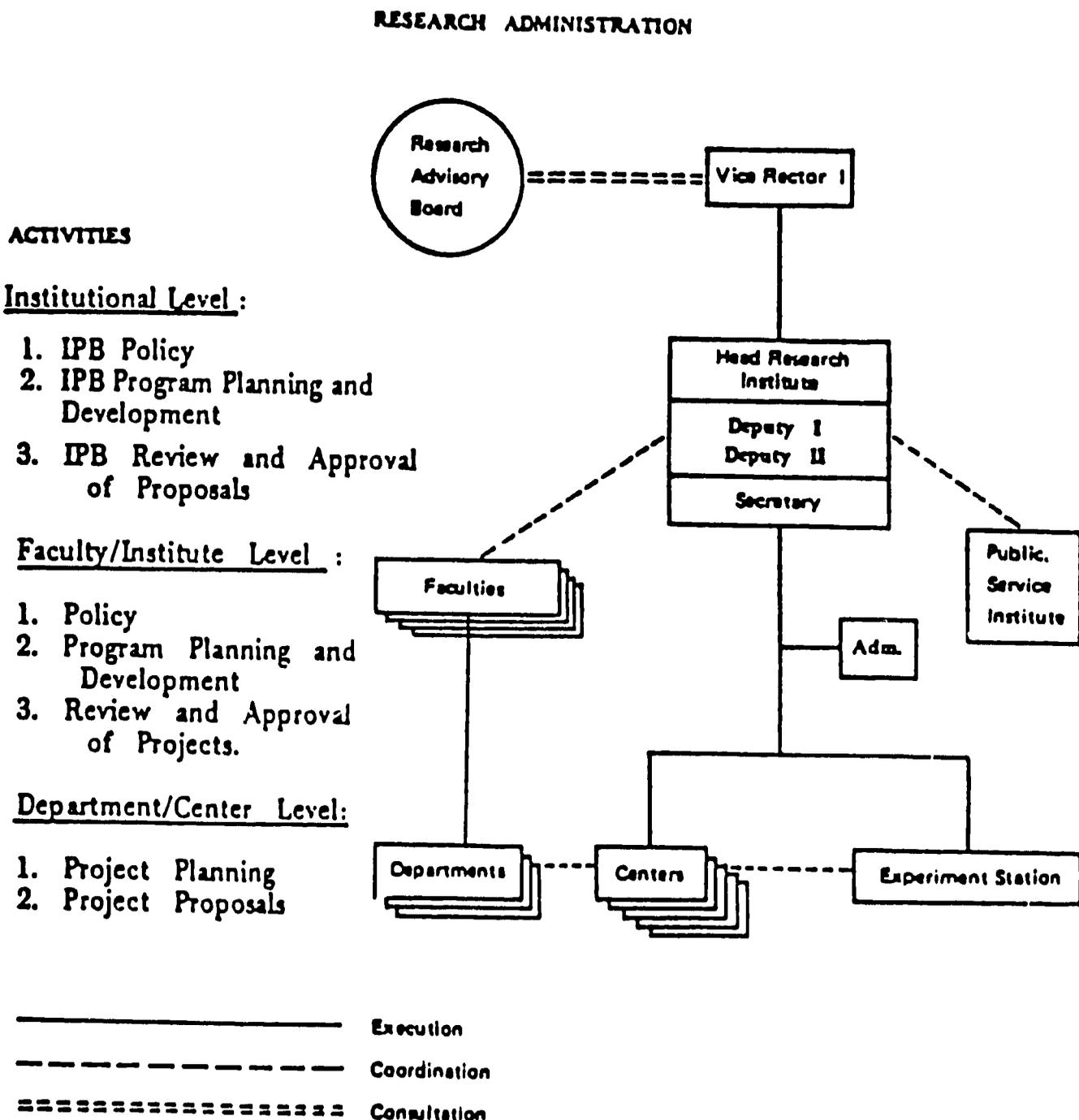
1) The Institute is functioning according to the structure represented in Figure 2.

2) The following five research centers have been established:

- a) Center for Environmental Studies,
- b) Center for Tropical Biology,
- c) Center for Food Technology,
- d) Center for Socioeconomic Research, and
- e) Experiment Stations (Production).

3) Of 91 research projects coordinated by the Research Institute, 58 relate to non-exploitative uses of natural resources; 50 to the quality of life in rural areas; 31 to environmental protection; 69 to food production, processing, and marketing; 40 to changes in socioeconomic status of farmers; and 27 to nutrition and rural families. Some projects address more than one of the areas listed above.

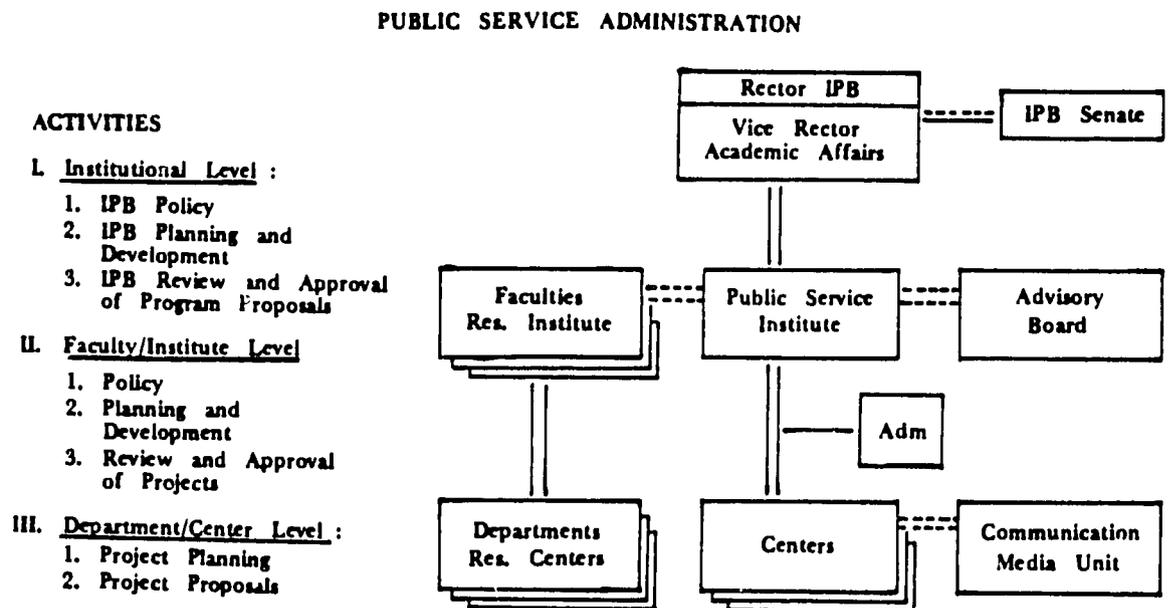
Figure 2. The structure of the Research Institute--IPB under government directive PP05.



- 4) Since all staff are required to report work on all three of the tridarma (research, instruction, and public service) for promotion, all staff are involved in research at some time. The academic study of staff work loads revealed that IPB staff spend 53 percent of their time in teaching, 16 percent in research, 7 percent in public service and 24 percent in administration. Based on 700 staff, this would be 112 FTE of staff time spent in research plus the research of 850 graduate students.
 - 5) Since providing research to support programs of instruction is a high priority of the research institute, many graduate students and their advisers are involved in research. Thus, approximately 40 percent of the time of graduate school staff is used in research.
6. Target - Greatly expanded, centrally coordinated programs of public service in agriculture, using improved methods of rural communications to effectively transfer research information to the rural community.
- a. Major activities
 - 1) The Project provided short-term training for two persons in extension administration, three persons in program coordination, and five persons on watershed management.

- 2) the public service structure of IPB was reorganized under PP05 which established the LPPM with five centers to coordinate IPB public service programs.
 - 3) UW consultants worked with the Director of the Institute to plan and implement the new organization.
 - 4) The Institute has worked out a nuclear village concept for transferring information to the rural people.
 - 5) UW consultants worked with the staff of the Institute to hold a workshop on extension methods and planning and in establishing field demonstrations on soybean production.
- b. Status of IPB's public service organization at the end of the project
- 1) The Institute is functioning according to the structure outlined in Figure 3.

Figure 3. The structure of The Institute for Public Service--IPB under PP05 government directive.



2) The following five public service centers have been established:

- a) Center for Rural Development,
- b) Center for Education and Training,
- c) Center for Extension and Publications,
- d) Center for National Student Service (KKN), and
- e) Social Laboratory.

3) Agreements have been established with six regional governments for work in rural development.

4) Community development programs have been established in two villages utilizing the nuclear village concept.

- 5) KKN provided assistance to 340 villages.
 - 6) According to the staff work load study approximately seven percent of IPB staff time is spent in public service activities. Based on a total staff of 700 this would be 49 FTE of staff time spent in public service plus the contribution of 1282 KKN students.
7. Modern, well-stocked, and properly equipped Information Resource Center and Center for Environmental Studies constructed and operating at the heart of the new campus.
- a. Major activities
 - 1) The Project provided one M.S. degree program in information sciences and seven short-term programs in IRC administration and management.
 - 2) UW consultants assisted in the design of the IRC and CES.
 - 3) Commodity lists were developed with major inputs from UW consultants, especially for the IRC.
 - 4) The organization of the IRC was developed by IPB under PP05.
 - 5) Commodities were put out to bid, ordered, and shipped by the UW with assistance of the IRC consultant.
 - 6) Construction on the facilities (under a separate project) is 80 percent completed.

b. Status of the IRC and CES at the end of the Project

- 1) The IRC is organized and functioning in temporary quarters.
- 2) The CES is functioning with the following interdisciplinary programs.
 - a) Programs on the management of natural resources and environmental sciences are being conducted by PUSDI-PSL.
 - b) Graduate School programs are offered in environmental sciences, remote sensing, and watershed development.
- 3) Commodities have been purchased and are in use in:
 - a) management information,
 - b) library (limited amount),
 - c) remote sensing, and
 - d) watershed development.

However, the major portion of the equipment is in storage awaiting the completion of the buildings before it can be installed.

- 4) The buildings provided under a separate project are only 80 percent complete due to the delay of completing the construction contracts. This delay made it impossible for the IPB/UW Project to completely reach this target.

The programs of each consultant who participated in the Project were also evaluated using a very simple questionnaire filled out by the consultant's counterpart. The results are shown in Figure 4.

IMPORTANT FACTORS IN PROJECT IMPLEMENTATION

There were several factors which played an important role in the implementation of this project. Some of them may be specific for this project but most would apply equally well to all institutional building projects.

Positive Factors in Project Implementation

Several factors were recognized as being important to the successful completion of this project.

The Project made use of long-term institutional, professional, and personal linkages.--At the beginning of this Project the UW and IPB had a history of close institutional ties developed through ten years of cooperation under the MUCIA/AID Higher Agricultural Education Project. During this period, many IPB staff had received degrees from the UW, and staff of UW had worked on the IPB campus. Thus, there were strong institutional, professional, and personal ties to provide a basis for mutual trust and respect, and an understanding of the programs, resources, and problems of each institution. This relationship was further strengthened by assigning key staff to the Project who were highly qualified, and who had been involved in the IPB/UW relationship since its initiation in 1970. There was never a question of loyalties or whether actions taken were to provide mutual benefit to IPB and UW. This mutual trust facilitated ties with IPB's

Figure 4. Evaluation of consultant visits to the IPB/UW Graduate Education Project.

1. Evaluation of Consultancy: 0 = No activity
1 - 5 = Poor - Excellent

		<u>Range</u>
a.	How well did knowledge and skills of consultant meet IPB needs?	3-5
	4.7	
b.	How efficient was the Consultant's work schedule while at IPB?	3-5
	4.4	
c.	Usefulness of Consultant's activities:	
	- Seminars and workshops	2-5
	3.9	
	- Counseling, advising on development of unit	3-5
	4.0	
	- Counseling for program development (Instruction, Research, Public Service)	3-5
	4.1	
d.	Usefulness of Consultant's recommendations	
	- At present	2-5
	4.0	
	- In the future	4-5
	4.6	
e.	Degree of follow-up on activities/recommendations developed from the consultancy	2-5
	4.1	
f.	Specific examples of follow-up:	
	1) <u>All respondents listed 1 or more follow-up activities.</u>	
	2) <u>up activities.</u>	

2. What suggestions do you have to make consultant visits more effective?

- Need better program definition before consultant arrives.
- More attention should be given to selection and preparation of IPB counterpart team.
- Visit should be coordinated with needs at a specific time.
- Communicate detailed plans as early as possible.
- Consultant visits should not be for less than one month.
- The program was effective--please keep it that way.

top administration which were critical to the effective management of the Project. This and other important contacts were supported by flexibility in language use. Most IPB staff are fluent in English and the UW Co-Director could read, understand, and speak bahasa Indonesia well enough to take an active part in meetings which were, for the most part, conducted in the Indonesian language.

Both IPB AND UW had long-term working relationships with USAID and the Directorate General for Higher Education. These agencies were important partners in the Project. Familiarity with these agencies, their procedures, and their staff facilitated communication and cooperation beyond contract requirements. Again, mutual trust and confidence resolved many questions before they become problems.

IPB was able to absorb and utilize the assistance effectively--IPB was at a relatively advanced stage of development in which its leadership, basic organization, and programs were in place. Thus, the institution was in a position to respond quickly to new concepts and to suggestions for program changes. The level of maturity of the staff provided confidence to reject ideas which were not useful, and (perhaps more important) to accept new ideas without feeling "put down." This made it possible for senior UW staff to interact with them as colleagues. It also made the effective use of advanced graduate students possible. These young, well-trained persons could work with senior IPB staff on a mutually beneficial basis. The junior staff gained experience and the senior staff gained technically well-qualified persons to serve the department.

It was possible to integrate the Project into IPB's existing structure. In most instances, project activities contributed to the rate of development of ongoing programs. In those few instances in which new programs were initiated, staff and other resources were contributed from related programs.

The maturity of IPB enabled it to take advantage of programs strengthened under the IPB/UW Project to forge linkages with other agencies, bringing even more resources to bear on the problem.

The Project made use of functional management procedures--The management procedures used by the Project do not fit into an easy classification. Because of the nature of the relationship between IPB and UW personnel, the collaborative nature of the Project, and use of the annual review and planning process, it was possible to direct the Project with a highly personalized, flexible, system of management by objective. Although responsibility was shared by the UW/IPB Co-Directors, there was never a formal separation of responsibilities and duties. Each Co-Director carried out tasks as agreed by mutual consent. It was understood that it was not necessary for both individuals to be present at every Project activity and neither was expected to serve as a "rubber stamp" for the other. The common goal was to keep the Project moving toward its objectives as rapidly as possible. When problems arose, they were worked out on the basis of personal interaction.

Although very specific Annual Plans of Work were written for the Project, it was possible to modify them in the review process and to make contract amendments to accommodate these changes. In daily operation of the Project, the Co-Directors were given the freedom to try different approaches. When one approach did not work, they tried another. Thus, the Co-Directors were not easily frustrated in their efforts to move the project forward. Good communications between UW/IPB and the supporting agencies were essential to this process. The DGHE and USAID were always responsive and resourceful in resolving problems as they occurred.

The delegation of authority to manage the Project at the field level was also important. UW Campus, DGHE, and USAID monitored project activities and provided backstopping but never took it upon themselves to try to run the Project.

Project backstopping support was strong--Project support at all levels was provided by highly qualified, experienced staff. For example, the three IPB, USAID, and UW persons responsible for managing participant training for the Project have a total of more than 50 years of experience in their jobs. Staff who provided backstopping in other areas were equally experienced and dedicated to providing needed support. They responded efficiently to requests for everything from blow-out plugs for a researcher's sterilizer to information needed to develop potential tasks for the Indonesian Payload Specialist programmed for a future NASA Shuttle flight.

Negative Factors in Project Implementation.

A few factors were identified as having a negative influence on the successful completion of the Project.

An important target of the IPB/UW Project was tied to the completion of building construction under a separate Project--It was impossible for the Project to put the IRC and CES in operation in permanent facilities because the buildings were not completed. Bureaucratic delays in completing the construction contracts delayed completion of construction by two years. Looking back at all the activities which had to be completed (development of the campus plan, design of the buildings, preparation of bid documents, selection of the contractor, developing the contract, and construction of the buildings) the original schedules were too optimistic. The construction would have had to be completed in late 1983 to have given the Project time to install the equipment and to initiate activities. As the situation developed, there was a period of time in 1982-83 in which it was not clear if the construction would be completed at all. Thus, commodity orders were intentionally delayed. When it became clear that the construction would move ahead, orders were placed and the IPB/UW Project was extended for a year to make it possible for the Project to complete commodity orders and to initiate some parts of the program in temporary quarters.

No program was available to insure continuity of training from one Project to the next--Manpower development is the most important part of assistance programs in higher education. Yet we often have to patch support together to bridge training from one project to another. In the IPB/UW Project we picked up 19 person years of participant training initiated under the MUCIA/AID Higher Agricultural Education Project. Nine person years of this time was transferred to priority areas of the Project but the remaining ten years, though important to IPB, were not in the priority areas. Thus, for new areas such as the basic sciences, the funding and time allocated for the completion of training was limited. Although all training programs initiated under the Project were completed (more training was provided than was projected), the Project had to maintain pressure on the participants to complete their programs as rapidly as possible. This created more stress, in some instances, than was desirable. At the end of the Project (and the funding) at least three persons had to be brought home with M.S. degrees who had completed their work in record time and had GPA's ranging from 3.6 to 4.0. There should have been a provision which would have allowed them to complete their Ph.D.'s. No IPB staff are now studying abroad with AID support.

AID has, as yet, been unable or unwilling to respond to the question, "what next?"--For many years AID has had a problem of how to respond with effective programs for continuing linkages with host country institutions as they mature. The result being that as soon as an institution reaches a point that it can work as an effective

partner in programs of national development, support is dropped. The IPB/UW Project staff realized that IPB had reached a stage of maturity in which history was likely to be repeated. Thus, at the beginning of the third year of the Project they began to consider alternatives for continued linkages. The result of this effort was the development of a proposal for an IPB/UW Outreach Project. It was proposed that IPB and UW would work together to assist several of the smaller outer-island universities in institution building. This proposal was reviewed informally by IPB, DGHE, and the USAID Mission. A report was also made to BIFAD in September of 1983. Although there was a very positive response to the proposal, no opportunity to develop a new AID Project was forthcoming. IPB and the DGHE felt so strongly about the value of the Outreach Project that they initiated as much of it as they could with internal funding. Later the USAID Mission responded with encouragement to make a proposal to utilize PL-480 funding for this purpose. IPB wrote a four-year project proposal which was approved. But this provided only funds for only the IPB side of the Project and UW participation in work in Indonesia terminates on July 31, 1985.

The University of Wisconsin is appreciative of the long-term support from AID and the Title XII program. It has used this support to develop ties with IPB and Indonesian higher agricultural education. However, it is disappointed that for the third time in the last 15 years AID support to the UW for continuing linkages in a developing nation have been broken (Nigeria, Brazil, Indonesia).

Nigeria and Brazil may be explained away as middle income countries where all AID support has been removed (rational or not). This is not true in Indonesia where new AID Projects are being established in agriculture, rural development, and other related areas. These activities are important but need continuing strong inputs from higher agricultural education. Since IPB's Graduate study program was initiated in 1975, it has received the following students from other institutions:

<u>Agency</u>	<u>Number of Students</u>	
	<u>M.S.</u>	<u>Ph.D.</u>
Department of Education and Culture	712	223
Department of Agriculture	450	83
Department of Forestry	51	14
Department of Interior	36	6
Department of Health	36	5
Other Departments	30	11
Bureau of Statistics	20	-
Other Countries	16	3
O t h e r	64	4
TOTAL	<u>1,145</u>	<u>349</u>

The multiplier effects of support to IPB are obvious. What may not be so obvious is the dynamic nature of Indonesian development which constantly calls for new fields of study to support priority programs. Examples of programs which have been developed at IPB in the last two years in response to national needs are:

1. Community Nutrition and Family Resources,
2. Watershed Development (Soil and Water Conservation),
3. Remote Sensing, and
4. Rural Communications.

Will these and other required programs develop without further outside support? We hope so! But unless they do, AID will continue to send participants from other agricultural development agencies to study abroad at greater expense than would be needed to continue the collaboration within these disciplines at IPB. This, added to IPB's ability to assist other universities in institutional development, appear to us to be compelling reasons for continuing support to national development through IPB. The University of Wisconsin made a long-term commitment and has developed a great deal of expertise in Indonesian higher agricultural education. This is just the kind of commitment AID and BIFAD say they want. Will it go the way of other commitments? We hope not!

IPB/UW AND THE FUTURE

There is a strong desire on the part of both IPB and UW to continue institutional cooperation on a formal basis. Though informal, personal, and professional relationships are valuable and should be encouraged. IPB and UW feel that there is a great deal more that they can and should do to support the further development of higher education in Indonesia, to strengthen UW resources in Southeast Asian studies, and to foster friendship and understanding between the USA and Indonesia.

Several mechanisms for maintaining IPB/UW linkages have been considered.

1. Joint venture arrangements could be established in which IPB and UW work together to provide development assistance to other institutions. IPB and UW have already written a draft Project proposal to assist several outer island universities in their development programs, Annex B. This project would have the purposes listed below.
 - a. It would further develop graduate programs in selected provincial universities outside Java.
 - b. It would strengthen four smaller universities serving regions outside Java, rapidly increasing their capacity to accept more students and to work effectively in the development of agriculture in their regions.
 - c. It would provide a valuable continuing collaborative relationship between IPB and US institutions for higher education.
 - d. It would make effective use of IPB's experience in institutional development to strengthen the organization and management of cooperating universities through the development of long-range academic and physical planning, institutional program analyses, and improved use of information management systems.

- e. It would have the potential for combining the resources of an Indonesian university with US universities to strengthen manpower of Indonesian universities and other agricultural development agencies, and to develop integrated programs of instruction, research, and public service, including improved methods of diffusing knowledge for nation-building.
 - f. It would test a new model for cooperation between US and third world institutions of higher education in which the combined expertise developed by years of institution building can be effectively used in country development programs.
2. Collaborative activities might use IPB and UW expertise to provide assistance to other national or international development agencies to:
- a. execute programs of research and/or rural development,
 - b. conduct feasibility studies,
 - c. develop project proposals,
 - d. review and evaluate development programs.
3. Exchange activities could be developed in which scholars from IPB might work and study in UW programs of research, instruction, extension, or administration.
4. UW could serve as a strong base for providing research collaboration, training and backstopping for programs such as the Interuniversity Centers for Research (IUC) being developed with World Bank support.

5. Individual research programs of UW staff which have an international component could be strengthened by collaboration with IPB researchers. UW Strengthening Grant funds might be used to initiate these linkages.

In order to foster continuing communications between IPB and UW the existing Memorandum of Understanding between the two institutions will be updated and IPB and UW contact persons named with the responsibility of maintaining communications between IPB and UW, and for promoting continued cooperation.

FINANCIAL REPORT

The financial report for the Project is given in Table 8 and 9. These tables reflect actual disbursements to project termination.

Table 8. Financial report for the grant portion of the IPB/UW Graduation Education Project.

AID Contract 497-80-100.29 Grant

U.W. Account 144-P572

IPB GRANT FINANCIAL REPORT

	BUDGET	DISBURSEMENTS	BALANCE

1. SALARIES:	695,472.00		
Project Director		247,313.80	
Campus Coordinator		39,290.68	
Long-Term Consultants		61,971.94	
Short-Term Consultants		176,418.62	
Office Staff		158,163.08	12,313.88
2. CONSULTANTS	29,878.00	29,877.81	0.19
3. BENEFITS:	173,590.00		
Project Director		72,053.42	
Campus Coordinator		8,391.95	
Long Term Consultants		17,204.78	
Short Term Consultants		38,496.80	
Office Staff		40,701.37	(3,258.32)
4. INDIRECT COSTS	364,904.00	366,862.75	(1,958.75)
5. TRAVEL & TRANSPORTATION	299,798.00	309,264.65	(9,466.65)
6. ALLOWANCES	80,570.00	76,480.99	4,089.01
7. OTHER DIRECT COSTS	57,788.00	57,030.98	757.02
TOTALS	1,702,000.00	1,699,523.62	2,476.38

Table 9. Financial report for the loan portion of the IPB/UW Graduate Education Project.

AID Contract 497-80-100.29 Loan

U.W. Account 144-P573

IPB Loan Financial Report

	BUDGET	DISBURSEMENTS	BALANCE
1. TRAVEL	212,012.00	212,354.37	(342.37)
2. TRAINING	651,732.00		(5,314.47)
Tuition		203,141.47	
Subsistence		380,443.25	
Book Allowance		19,990.00	
Research		22,451.38	
Prof. Society		2,362.00	
Shipping		4,954.05	
Thesis		6,535.39	
Typing		2,417.93	
Health Insurance		14,751.00	
3. COMMODITIES	719,189.00	650,359.12	68,829.88
4. SUPPLIES	50,432.00	19,941.67	30,490.33
5. STAFF SUPPORT	116,924.00	114,975.14	1,948.86
6. OVERHEAD	39,804.00	42,112.15	(2,308.15)
TOTALS	1,790,093.00	1,696,788.92	93,304.08

NOTE: There are still outstanding invoices on commodity orders that have not been submitted by vendors.

GLOSSARY OF ACRONYMS

- BAAK - Bureau for Academic and Student Affairs
- BAU - Bureau for General Administration
- BIFAD - Board for International Food and Agricultural Development
- BP - IPB Planning Board
- CES - Center for Environmental Studies
- COP - Chief of Party
- DEC - Department of Education and Culture
- DGHE - Directorate General of Higher Education
- EHR - Education and Human Resources
- ERCS - Remote Sensing Center
- FAHUTAN - Faculty of Forestry
- FAMIPA - Faculty of Mathematics and Natural Science
- FAPOLTAN - Polytechnic Faculty
- FATETA - Faculty of Agricultural Engineering and Product Technology
- FPS - Faculty for Graduate Studies
- FTE - Full-time employee
- GMSK - Department of Nutrition and Family Resources
- GOI - Government of Indonesia
- IAP - Office of International Agricultural Programs
- IES - Institute for Environmental Studies
- IKK - Department of Home Economics
- IPB - Institut Pertanian Bogor
- IRC - Information Resource Center
- IUC - Interuniversity Research Center

JAR - Joint Annual Review
JICA - Japanese International Cooperation Agency
KKN - National Student Service
LP - Institute for Research
LPPM - Institute for Public Service
MIS - Management Information System
MUCIA - Midwest Universities Consortium for International Activities
PA - Project Associates
PSL - Specialization Management of Natural Resources and the Environment
PUSDI-PSL - Center for Environmental Studies
PWI-SKG - Perkins-Will Sengkuriang
RIP - Master Plan for Development
SP-4 - Budget
UNHAS - University of Hasinuddin
UNILA - University of Lampung
UPT - Technical Service Unit
UPT-KOM - Computer Center
USAID - United States Agency for International Development
UW - University of Wisconsin

APPENDIX A

LABORATORY APPARATUS/EQUIPMENT

1	Low temperature incubator, Lab Line	1	\$1,182.40
2	Lab Line 600 double door incubator	1	1,236.00
3	Flame photometer w/accessories:	1	2,586.26
5	115 v		
6	Pressure regulator	1	123.81
7	Connecting cable	1	58.62
8	Filter, calcium	1	133.63
9	Filter, sodium	1	116.23
10	Filter, potassium	1	86.52
11	Cleaning tool, atomizer	2	9.18
12	Screen, conical flame	2	28.92
13	Screen, cylindrical flame	2	33.00
14	Flame spreader	2	33.00
15	Burner ring	2	33.00
16	Acid pump	2	23.50
17	Pump, pressure	1	241.32
18	Vacuum grease, Apiezon N.	2	95.20
19	Vacuum grease, Apiezon T.	3	142.80
21	Microscope for pathology & haematology	1	1,902.00
22	Microscope for bacteriology & research	1	1,892.00
23	Microscope for general use	1	1,514.00
24	Stereozoom Model BVB 125	1	618.00
25	Nicholas illuminator	1	64.80
26	Illuminator bulbs	2	7.80
27	Lens shield	1	17.45
28	Supplementary lenses 0.5x	1	50.25
29	Supplementary lenses 2.0x	1	48.00
30	Eye pieces 15x	1 pk	96.10
31	Eye pieces 20x	1 pk	75.70
32	Linear micrometer	1	21.85
33	Camera adapter for microscope (as per JTM)	2	751.84
34	Portable Furnace, 220 V, 50 Hz, 1510 W	1	304.65
35	Pyrometer	2	129.60
36	Thermocouple	2	20.50
37	General purpose bath Model 188, 220 V, 50 Hz	1	726.00
38	cover for above	1	71.50

39	Kahn Rack	2	75.60
40	Shaking water bath, Model 125, 220V, 50Hz	1	960.00
41	Bath cover	1	39.10
42	Flask tray	1	35.55
43	Test tube rack	1	83.95
44	Replacement thermometer	4	54.00
45	Water level regulator	1	128.70
47	circulation, 220 V 50 Hz	2	972.00
48	Deluxe Dynac II centrifuge, 220v, 50hz, 300W	1	950.00
49	Horizontal head, 4 tubes, 5 x 15 ml	1	113.85
50	Horizontal head, 8 tubes, 3 ml & 10 x 75mm	1	166.75
51	Angle head, 6 tubes, 3 ml + 10 x 75mm	1	113.85
52	Reducing adapters, 100 ml for tube 50 ml	2	25.00
53	Reducing adapters, 50 ml for tube 15 ml	2	22.80
54	Shield	5	30.25
55	Cushion 12/pkg	2 pkg	7.40
56	Autocrit II, 220 V, 50 Hz, 24 place head	1	690.00
57	Heparinized capillary tube	10 pkg	15.50
58	Hematocrit tube scalant	5 cs	132.00
59	Oven, Isotemp Series 200, Model 255G		
60	220 V, 50 Hz	1	455.00
61	Thermometer for 13-245-255G	2	9.90
62	Blue M. Power-0-matic-70, 240V, 50Hz	1	720.00
63	Thermix stirring hot plate Model 610 M,		
64	220 V, 50 Hz	1	190.55
65	Thermolyne, 220 V, 50 Hz (120 v 60HZ)	1	475.00
66	Thermoyne micro hot plate, 220V, 50Hz	1	\$52.35
67	Infra-radiator heater, 220V, 50Hz AD/DC	1	108.35
68	Replacement infra-lamp for 11-504-6	4	13.00
69	Rotamantle, 115/240 V, 50 Hz 250 ml	1	172.25
70	Rotamantle, 115/240 V, 50 Hz 500 ml	1	173.60
71	Pyrometer for 11-473	2	161.70
72	Thermocouple for 11-472-65	2	7.70
73	Microtherm heater 50 hZ 115/220 V	1	35.75
74	Automerse heater 50 Hz, 115/220 V	1	114.15
75	Immersion heater with steel sheath	2	171.60
76	Power input controller	2	148.30

77	Standard heating tape	2	24.50
78	Standard heating tape	2	33.70
79	Wheaton split stream automatic still 208/240 AC, 50 Hz 15-18 Amp. 3600 W	1	1,250.00
80	Mounting bracket for 90-124-100	1	13.95
81	Demineralizer, 220 V, 50 Hz	2	297.00
82	Filter cartridge for 09-035-021	10	354.00
83	Micro Kjeldahl Distillation unit	10	3,150.00
84	Silver micro condenser tube for 21-101	5	1,176.25
85	Vapor vessel for 21-101	20	583.85
86	Receiving flask for 21-101 48/case	2 cs	85.90
87	Vial mouth flask for 21-101	10	40.50
88	Rubber stoppers 1 lb/pack	5 pk	11.00
89	Digestion Units, Micro Kjeldahl, 220/240 V, 50 Hz	2	1,110.00
90	Digestion Manifold	1	86.45
91	100 ml Digestion flasks 6/pkg Mettler PK series, electronic top loader,	6 pks	107.10
92	Model PK 300, 220/240 V, 50 Hz	1	2,750.00
93	Model HL 52, 110/220 V, 50 Hz (repl AE 163)	1	2,330.00
94	Chaus Model 730, with animal cage	1	81.40
95	Chaus Model 710	2	128.50
96	Chaus Model 311	1	70.30
97	Polypropylene scoop with counterweight	3	22.35
98	Dust cover	3	13.65
99	Double-beam Balance, rust resistant, weight to 10 kg	1	57.60
100	Accumet 156 pH/mV Meters,		
101	9 alkaline replaceable battery	1	\$266.40
102	Electrode support assemble	1	38.95
103	Accumet model 325 pH/ion meter, 230 V, 50 Hz	1	680.00
104	Polarizing jumer	1	3.15
105	Automatic temp. compensation probe	1	43.45
106	Combination electrode for	4	237.60
107	Refill soln 6/500 ml/case	2 cs	30.40
108	Refill soln 6/500 ml/case	2 cs	32.70

109 Dri-cote siliconizing fluid 6/50 ml/case	4	83.80
110 Buffer soln for pH 4.00 6/500 ml/case	1 cs	12.95
111 Buffer soln for pH 7.00 6/500 ml/case	1 cs	12.95
112 Buffer soln for pH 10.00 6/500 ml/case	1 cs	12.55
113 DRT-1000 Turbidimeter for 230 V, 50 Hz	1	1,401.10
DRT-15 Portable turbidimeter for		
114 115/220 V, 50 Hz	1	568.00
115 Formazin Stock Soln kit	1	76.55
Remote alarm contans, 115 AC, 50 Hz		
116 Reference standard	1	27.70
117 Glass vial cuvetts 3/pkg	1 pkg	16.50
118 Reusable cuvetts 10/pkg	2 pkgs	110.90
119 Spare lamp source	5	52.75
120 Mini 20 spectrophotometer, includes		
battery charger	1	550.00
Lamp assembly 3/pkg	1 pkg	56.95
121 B & L Spectronic 20 Spectrophotometer,		
115/220 V, 50 Hz	2	1,370.00
122 Wide range phototube with filter	1	74.80
123 Infrared phototube with filter	1	42.10
124 Tungsten lamp 10/pkg	1 pkg	64.05
125 Test tubes 12/pkg	2 pkg	42.90
126 Mini 20 nephelometer	1	350.65

B. BIOLOGY LABORATORIES

1 Freeze dryer, bench top economy, 115V, 50Hz	1	1,782.00
2 Lyph-lok flasks 19/38 STJ (accessories)	5	322.25
3 Lyph-lok flasks 19/38 STJ (accessories)	3	245.55
4 Connects flasks 19/38 STJ 1/2"	15	138.00
5 Connects flasks 19/38 STJ 3/4"	6	55.20
6 Pump vacuum, two-state Precision model D75	1	795.00
Belt guard (Precision Sci) included with above		
115v 60 HZ		
7 Vacuum pump oil 4/case	1 case	22.25
8 Portable Coliform incubator, 120 V AC,		
50/60 Hz + 12 V DC, 02 A	1	775.00
9 Battery adapter 115 V	1	40.00
10 Battery trickle charger 115 v 60HZ	1	89.00
Sterile membrane filters, 1000/pkg	2 pkgs	340.00

11	Whipple disco	5 pkgs	205.00
12	Magnifier for counting bacteria	5	44.00
13	MIF Procedure kit, 20/case	5 cases	215.00
14	Autoclave with dryer, 115 V AC, 50/60 Hz	1	1,246.00
15	Biological work station with blower, 115 V, 50/60 Hz, H1f clean bench	1	2,770.00
16	Automatic pipettor, 220 V, 50/60 Hz	1	500.00
17	Syringe valve assembly, 2-20 ml	1	125.40
18	Syringe valve assembly, 0.5-5 ml	1	125.40
19	Glass syringe, 50 ml	1	20.55
20	Syringe adaptors	1	33.00
21	Syringe adaptors	1	35.60
22	Micropore filter "Nalgene," pore size 0,20 um 72/case	2 cs	286.20
23	Incubator CO ₂ Water Jacket, 2 AR 220V, 50/60 Hz	1	4,678.75
24	Stirring hot plate "Corning Combo"	1	148.00
25	Bacteria Colony Counter	2	787.60
26	Marking pen	2	83.60
27	Push button counter	2	7.90
28	Sterilizer, vertical, Precision 67012, 120 V, 50 Hz	1	1,984.50
29	Pipette boxes, stainless steel	2	38.30
30	Tissue Culture rotator for 120 V 50/60 Hz	1	494.45
31	Tissue culture drum	1	125.43
32	Tissue culture bottles	2 cs	115.60
33	Blood cell counter	1	575.00
34	Test tube rotator for 220 V AC, 50/60 Hz	1	121.00
35	Incubator BOD 220 V 50/60 Hz	1	936.00
36	Inverted tissue culture microscope	1	2,375.00
37	Rotary microtome, AO Spencer 820	1	2,630.00
38	Knife back, 120 mm	1	13.20
39	Knife handle	1	30.50
40	Microtome knife 120 mm	1	93.25
41	Microtome knife sharpener A904	1	2,100.00
42	Embedding matrix	1 pkg	1.15
43	Embedding medium 20 lb/case	1 cs	23.50
44	Base molds	1	35.00

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45	Parafin bath	1	380.00
46	Slide staining set 08-812-1A - 1 doz	1 set	25.15
47	Slide staining holders 08-812-1B	1 set	12.70
48	Staining dishes 08-812-1A	1 set	153.00
49	Staining dishes 08-812-1B	1 set	103.07
50	Roller tube culture	1	413.25
51	Bottles 4/case	2 cs	110.20
52	Lamp bulb, oram mercury OPTI-OPIP	2	279.50
53	Cellulose DEAE Baker	1 case	485.00
54	Sephadex G-200 50 g	1	74.99
55	Glass reservoirs, 500 ml	4	162.00
56	Glass reservoirs, 1000 ml	2	108.00
57	Iver 3-way stopcock (teflon)	3	135.00
58	Iver tubing adaptor	2	108.00
59	Male-Male Iver connector	1	31.50
60	Peristaltic pump Haake/Buchler 426-1000 115v	1	920.00

C. WATER ANALYSIS.

1	YSI 33 SCT - meter, model 33	1	306.43
2	Combination probe	1	68.40
3	Platinizing kit	1	94.52
4	Platinizing solution, 2 oz/bottle	1	56.77
5	Water purity meter	1	378.40
6	Conductometer titration	1	941.60
7	pH Color comparator, bromothymol blue	1	108.40
8	Color disc	1	79.60
9	Comparator tube	10	46.20
10	Water test colorimeter	1	195.62
11	Colorimeter tube	1	14.02
12	Plunger	1	13.00
13	Lamp bulb	1	\$4.45
14	Colordisc, APHA, Hazen	1	40.70
15	Testkit, Ammonia-N	1	40.70
16	Testkit, Chlorine	1	43.23
17	Testkit, Fluoride	1	40.70

18	Testkit, Iron	1	40.70
19	Testkit, polyphosphate	1	40.70
20	Testkit, sulfide	1	40.70
21	Object Disc, 29 mm	1	7.52
22	Embedding Block	1	16.92
23	Oxygen meter, YSI Model 53, Biological Oxygen monitor	1	635.00
24	Bath stirrer assembly YSI 5301	1	792.00
25	Oxygen probe YSI 5331	1	101.65
26	Microconversion kit YSI 5304	1	173.25
27	Membrane mounting kit YSI 5350	1	31.00
28	Replacement plungers YSI 5093	1	45.85
29	Replacement plungers YSI 5215	1	52.80
30	Model 54 ABP Oxygenmeter with disposable batteries.	1	532.00
31	YSI 5736 Oxyger./temperature probe	1	103.60
32	Detachable for 13-299-43 probe	1	181.50
33	Cable adapter for 13-299-43 probe	1	29.70
34	Dual cable stirrer for 13-299-43 probe	1	226.90
35	External battery pack for YSI 54 ABP	1	81.20
36	Field calibrtion chamber	1	79.20
37	Carrying case for 13-299-23	1	79.20
38	Self-stirring BOD bottle probe	1	233.00
39	Replacement beater boot assembly for 13-298-81 BOC probe stirring model	1	3.60
40	BOD Bottle probe, non-stirring model	1	125.40
41	Standard membrane/KCl kit	1	5.95
42	Special membrane kit	1	5.95
43	Fisher subsieve sizer	1	1,150.00
44	Extra filter paper discs for 14-311 500/bos	1 pkg	3.20
45	Extra funnel for 14-311 12/pkg	1 pkg	2.75
46	Extra precision-bore sample tube for 14-3111	1	40.65
47	Inside manometer, replacement for 14-311	1	32.35
48	Outside manometer, replacement for 14-311	1	20.65
49	Porous plug, replacement for 14-311	1	11.10
50	Auxillary tube, replacement for 14-311	1	1.00
51	Sub-sieve sizer, calibrator	1	40.80
52	Velometer	1	587.00

53	Orion specific-ion meter	2	1,422.00
54	Cadmium electrode	2	592.90
55	Ionic strength adjustor	20	343.00
56	Carbon dioxide electrode	2	592.90
57	Carbon dioxide molarity standardizing soln	5	85.75
58	Chlorine electrode	2	693.00
59	Chlorine molarity standard	5	85.75
60	Cupric electrode	1	304.00
61	Cupric Activity Standard	1	17.15
62	Cyanide electrode	1	227.15
63	Alkaline reagent	1	17.15
64	Iodide electrode	1	227.15
65	Iodide activity standard	1	17.15
66	Lead electrode	1	296.45
67	Lead activity standard	1	17.15
68	Silver/sulfide electrode	1	250.25
69	Double-junction reference electrode	1	82.25
70	Filling soln, inner chamber 5/50 ml/pkg	1 pkg	20.00
71	Filling soln, outer chamber 5/50 ml/pkg	1 pkg	20.00
72	Arsine generator	1	24.00
73	Joint clamp	2	6.80
74	Silver diethyldithiocarbonate, 5g ea	2	11.90
75	Extraction apparatus	1	105.50
76	Shallow water sampler	1	71.55
77	Portable sampling pump drive	1	499.50
78	Masterflex standard pump head	1	51.75
79	Silicone pump tube	100 ft	137.00
80	Tubing connector	4 doz	11.04
81	Tubing weight	5	99.00
82	Tygon tubing	100 ft	66.00
83	Portable total dissolved solid mater, triple range	1	215.10
84	Instrument carrying case	1	19.80
85	5 ppm standard soln	1 qt	10.80
86	25 ppm standard soln	1 qt	10.80
87	250 ppm standard soln	1 qt	10.80

88	500 ppm standard soln	1 qt	10.80
89	2500 ppm standard soln	1 qt	10.80
90	25,000 ppm standard soln	1 qt	10.80
91	pH monitor and controller 115/230V, 50/60Hz	1	1,120.50
92	Universal pipe mount adaptor	1	54.00
93	Chart paper, box/6	6 boxes	142.02
94	Combination electrode	1	\$67.50
95	Combination electrode	1	125.10
96	Direct distillation kit	1	120.30
97	COD reflux kit	1	37.50
98	Cyanide distillation apparatus	1	135.50
99	Sound level meter	1	166.50
100	Hydrogen sulfide detector	4	396.00
101	Sample disc 5/pkg	10 pk	190.00
102	Quantum/Radiometer/Photometer	1	575.00
103	LI-185B Carrying case	1	66.00
104	Power supply	1	90.00
105	Photometric sensor	1	265.00
106	Underwater photometric sensor	1	396.82
107	Extension cable	50 ft	50.00
108	Underwater cable	30mtrs	240.00
109	Lowering frame	1	89.00
110	Ekman dredge 6x6x6" w/carrying case	1	187.65
111	Messenger	1	19.80
112	General purpose 1000 lb winch	1	80.00
112	Winch mount	1	68.50
113	Birge closing net sampler	1	304.00
114	Conical net sampler	2	427.50
D. ENVIRONMENTAL LAB			
1	Sound level meter	1	166.50
2	Hydrogen sulfide detector	1	99.50
	Sample discs, 5/pkg	10 pk	38.00
3	Air sampler 110v	1	219.00
	Filter	1	170.00
4	Hydrocarbon : Flame Ionization Dectector		
5	Kymograph, 110 V 60 Hz	1	275.00
	Kymograph paper 100 strips/pk	10 pks	65.00

E. SOIL AND WATER RESEARCH INSTRUMENTS/EQUIPMENT FOR WATERSHED STUDY		
1	Raingage recorder	4 10,724.00
2	Standard binary decimal 16 channel paper	50 550.00
3	Water level recorder and accessories	8 9,732.80
	Dr, Model 1002, float driven 99.99 meters	8 incl.
	Kit, S.S. timer, 5 min select, relay output	8 incl.
	Float pulley, 375 mm C., 125mm perf. space	8 incl.
	Tape, recording, 60 min	8 incl.
	Floattape, 125mm perf., blank supply	
4	in 8 ea. 6 mtrs.	48 189.60
5	End hooks, set of two	8 39.60
6	Float, copper, 153 mm/6" dai.	8 244.00
7	Lead wt 8 oz	8 58.00
8	Battery 6 V 1461	30 570.00
9	Tape, recording, 5 min.	20 289.00
10	Tape, recording, 15 min.	20 289.00
11	Tape, recording, 30 min.	20 289.00
12	Tape, recording, 60 min.	20 289.00
	Automatic sediment sampler & accessories	
13	Echo sounder, model DE-719C-metric operation	1 3,718.00
14	60' roll paper	20 240.00
15	Flowmeter, digital, mechanical	2 284.00
16	Stainless steel wand 36" for 2030	2 80.00
17	Depth Integrating soil sediment sampler	2 526.79
18	Pint glass sample containers with caps	10cs 140.00
19	Labels for glass sample containers	2 rolls 5.10
20	Taylor Clear-VU rain gauge	15 112.50
21	21X Micrologger	4 7,800.00
22	021 CR21 Enclosure with radiation shield and mounts	4 940.00
23	CM10K Tripod kit (excludes 1.25 & 0.75 inch pipe)	4 400.00
24	019K Cross arm sensor mount kit (excludes 0.75 inch pipe)	4 100.00

25	Licor silicon pyranometer	4	760.00
26	Licor pyranometer base & leveling fixture	4	200.00
27	025 Pyranometer cross arm stand	4	100.00
28	Met one wind speed sensor	4	940.00
29	207 Temperature & RH probe	4	900.00
30	RH Replacement chip	4	260.00
31	041 Sensor shelter & mounts	4	500.00
32	Soil thermocouples w/10' lead	4	80.00
33	Soil moisture block	4	140.00
34	Sierra tipping bucket raingage	4	760.00
35	Cassette Recorder (unmodified)	5	525.00
36	Datalogger cassette connector interface	1	60.00
37	Cassette interface	1	1200.00
38	Metric scale water level recorder	1c	775.00
39	6-hr gears	1	12.65
40	144-hr gears	1	12.65
41	30 ft graduated perforated tape	30 ft	25.50
42	Charts for recorder	3	39.00
43	Hook gage w/metric graduation	1	206.00
44	Stilling well	1	120.00
45	Float wheel gear w/5:6 ratio	1	44.95
46	Black ink, 1 oz. bottle	1	2.75
47	Lubricating oil, 16 oz. bottle	1	17.25
48	Chart drive w/6-hour gears	1	159.00
49	Rainfall simulator	1	5,000.00

F. SURVEYING, MAPPING, REMOTE SENSING

1	IBM PC/XT Computers	6	21,506.56
2	256 KB Memory	12	1,077.75
3	monochrome boards	6	1,444.19
4	Color boards	4	779.34
5	Monochrome Display	6	1,504.96
6	Color Monitor	4	1,981.87
7	Macro Assemblers	2	169.58
8	Pascal compilers	2	593.51

9	IBM 64K 2 drives	1	1,893.01
10	IBM Monochrome Adapter	1	241.20
11	IBM Monochrome Display	1	251.85
12	Dos 2.0	1	51.00
13	196K IBM PC memory chips	27	191.70
14	Computer supplies *		740.44
15	AST SixPakPlus card with 64K RAM	7	2,647.75
16	IBM 8087 ROM's	7	1,308.58
17	Dot matrix printer Epson FX-100	2	1,434.70
18	IBM technical reference Manual, PC	2	71.90
19	Maverick SMD PC-80 IBM PC Storage Module Controller/formatter	1	1,800.00
20	Interface bus wire wrap board	2	464.50
21	PC/STP Magnetic tape system	1	6,357.74
22	Fixed storage drive	1	6,272.85
23	Expansion chassis for IBM PC/XT	1	803.25
24	DOS 2.0 for IBM PC/XT	1	102.00
25	64 K memory chips	252	1,506.55
26	Instruction manuals for "Proofwriter"	7	175.00
27	Base boards	10	2,763.04
28	Basic image display system controller	2	16,560.00
29	Image memory 512x512x12 bits	2	5,220.00
30	Image memory 512x512x12 bits plus overlay	2	6,660.00
31	Color video output controller	2	6,480.00
32	Video signal analog-to-digital converter (8 bit) with memory interface & feedback	1	4,860.00
33	Conrac RGB monitor (559 lines)	2	5,600.00
34	Coaxial cables	6	150.00
35	HIPAD digitizer with 4-button cursor & power pack	2	1,849.22
36	Stylus for DT-114	2	150.00
37	64 K memory chips for IBM PC/XT	63	378.85
38	DOS 2.1 for IBM PC/XT	4	221.50
39	SixPac expansion chassis with adapter & 4-foot cable	1	757.58
40	Manuals for FD5000	1	88.41
41	Blanket order for photo services		138.00
42	Electronic supplies	1	974.10

COMPUTER EQUIPMENT

1	IBM PC/XT with 128 K	1	\$3,582.43
2	Graphics printer	1	474.81
3	RGB Color display	1	495.16
4	Printer adapter	1	107.73
5	Color graphics adapter	1	194.51
6	DOS 2.1	1	50.87
7	Wordstar	1	419.70
8	dBase II	1	593.51
9	SORC Supercalc	1	165.34
10	Basic Compiler	1	254.36
11	dUtilities	1	83.94
12	Quadlink	1	576.76
13	Memory expansion board	1	252.00
14	Replacement hard disk drive	1	370.00
15	PC/XT with 128 K	1	3,582.43
16	Memory expansion board	1	251.37
17	64K Memory add on chips	5	448.88
18	IBM Mon par ptr adapter	1	240.60
19	Monochrome display	1	251.22
20	DOS 2.1	1	50.87
21	dBase II	1	593.51
22	Epson FX 80 printer & Tractor	1	592.66
23	Ribbon cartridge assembly for printer	1	28.02
24	Ribbon roller assembly	2	3.18
25	Ribbon roller supports, right	1	1.08
26	Ribbon roller supports, left		
27	IBM PC-XT	2	7,164.86
28	Epson MX-80 printer	2	949.62
29	Color monitor	2	990.32
30	Interface cards for printer, color monitor	2	215.46
31	DOS 2.0	2	101.75

32	Wordstar	2	840.45
33	dBase II	2	1,187.02
34	SuperCalc	2	331.50
35	Basic Compiler	2	508.72
36	dUtil (dBase utilities)	2	167.88
37	Quadlink, Apple to IBM interface card	2	1,153.11
38	Colorgraphics	2	389.42
39	IBM PC-XT Computer	2	6,147.46
40	Graphics printer	2	718.40
41	Color monitor	2	992.80
42	IBM interface cards for printer, monitor	2	108.00
43	DOS 2.0	2	110.50
44	Wordstar	2	841.50
45	dBase II	2	1,190.00
46	SuperCalc	2	331.50
47	Basic compiler	2	510.00
48	dUtil (dBase utilities)	2	168.30
49	Quadlink, Apple to IBM interface card	2	1,156.00
50	Colorgraphics	2	390.40

Information Resource Center

1	Tamron Mount-Nikkon AI	1	\$19.53
2	F -3 Body Nikkon	1	510.30
3	FM-2 Chr Body Nikkon	2	458.00
4	Carrier, glass, universal negative carrier	1	31.50
5	Negatran 35 mm carrier	1	82.53
6	Negatran 2.25"x2.25" carrier	1	103.95
7	Beseler drum, 11"x14"	5	151.20
8	Circulating temperture controller 750 W	2	331.12
9	Color analyser, PM-3L	1	418.95
10	Program module for above	4	152.48
11	Condenser head for Beseler 45MxII	1	204.75
12	DATA Module for comp controlled dichroic head	1	913.50
13	Day light film developing tank w/adj. reels	2	36.96
14	Developing trays 11x14, Casco Lite trays	2	16.00

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15	Developing trays 8x10,	4	16.68
16	Dichroic enlarger, PCS-2000, 220V,50Hz	1	464.00
17	550 Back for 4 x 5 view camera	1	95.70
18	Dichroic 45 color comp head enlarger	1	959.00
19	525 Digital timer 220V, 50Hz	1	145.00
20	SSS Flashmeter	1	92.00
21	PC Synchronization cord, 20' for flashmeter	1	9.70
22	Dolly for 3035	1	63.12
23	45 MX-II Enlarger (chasis only)	2	1,039.50
24	VHE-100/5.6 enlarger lens	1	170.24
25	VHE-150/5.6 enlarger	1	228.36
26	Apo-Rodagon 50/2.8 enlarger lens	1	145.25
27	E1 Nikkon 50/2.8 enlarger lens	1	86.31
28	E1 Nikkon 80/5.6 enlarger lens	1	122.85
29	PK-13 Ext ring	1	32.76
30	Flash unit, Model 5600 for Nikkon F-3	1	107.06
31	3700 Flash unit for Nikon F-3 Camera	1	61.35
32	Heavy duty tripod 3035 w/head	2	238.00
33	Lens board, standard	1	17.65
34	Lens board, wide angle	1	23.55
35	Lens board, blank 1/4" center drilled	3	56.70
36	lens, multicoated	1	301.00
37	Loupe for view camera	2	154.56
38	Lunalux lightmeter	1	78.00
39	Luna pro SBC light meter, Model II	1	125.00
40	Macro lens, 90 MM/2.5, multicoated 1:2	1	185.00
41	Focusing hood for 4x5 camera	1	55.24
42	Magnasight enlarging focuser	5	44.00
43	Slide storage / Display capacity 120 slides, capacity 10,000 slides	1	1,164.00
44	Base for Multiplex 4000, drawer slide storage, capacity 10,000 slides	1	599.20
45	Nikkon micro lens, 55/2.8	1	166.32
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DRAFT
11/21/1983

INSTITUT PERTANIAN BOGOR-UNIVERSITY OF WISCONSIN

HIGHER EDUCATION OUTREACH PROJECT
(1984 - 1990)

P R O P O S A L



INSTITUT PERTANIAN BOGOR
NOVEMBER 1983

CONCEPT FOR IPB/UW
EDUCATION OUTREACH PROJECT

BACKGROUND

The results of active support for the development of the Institut Pertanian Bogor can be readily seen in the strength of the existing institution. Since IPB was established as an autonomous institution in 1963, it has developed two fledgling faculties into a major university with a full complement of agricultural, politechnic, graduate and basic science faculties, 650 teaching staff, and a student body of 7,000. This attests to the dedication of the IPB leadership and the commitment of the Indonesian Government to make its own investment in Indonesia's agricultural future and to use outside assistance wisely.

In the early decades of its history, IPB educated over 50% of the staff for other Indonesian universities and for Indonesia's agricultural research, extension and agribusiness institutions. Even though there are now 52 Agro-complex faculties in Indonesia, IPB still teaches 20% of the nation's undergraduate and 80% of its graduate students in agriculture. IPB has developed an active research program which plays a key role in providing research opportunities for the program of instruction (especially for graduate instruction). The research helps to keep teachers current in their field, and contributes to national development. IPB has also given greater focus to public service in order to keep the programs of instruction in touch with the realities of rural life and to transmit services to the rural community.

Institution building has been the goal of joint Indonesian-US efforts at IPB and there can be no question that the efforts have been successful. IPB has developed many characteristics of a mature institution. It has strengthened its institutional philosophy, established important linkages, developed its primary

and support programs and has improved its ability to plan for future development. It has reached a critical mass for continued development in many areas and has projected a program of expansion of major proportions to fulfill its responsibility in meeting the rapidly growing demand for agricultural scientists and educators.

POTENTIAL FOR FURTHER DEVELOPMENT

In many respects, the years ahead will be a greater challenge to IPB than those of the past. During the fourth PELITA (National Development Plan), institutions of higher agricultural education are being called on to give greater support to Indonesia's development programs. Agriculture, including forestry and fisheries, must be developed as rapidly as possible to meet the ever expanding need for food and fiber. As petroleum reserves dwindle, agriculture must also provide greater export earnings needed to support further development. These activities will require a large number of skilled professional workers in agriculture. The Department of Education and Culture is projecting a need for enrollment of 7.5% of university age citizens in higher education by the end of PELITA IV. In spite of limited resources, Indonesian agrocomplex universities must respond to the challenge for program expansion.

IPB's strategy for meeting its share of national needs in higher agricultural education is based on a 7-8% annual increase in its student intake. This would result in an IPB student body of 20,000 by the year 2000, along with similar increases in other primary programs. To give one example of what this would mean in terms of resource needs, IPB would have to triple its staff during the next 2 decades. This means that by the year 2000 it would be adding 200 new replacement staff annually, 70% of whom would have advanced degrees. This is approximately the number trained under the MLCIA/AID Program in a 10 year period! Other agro-complex faculties will be faced with similar problems of

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staffing. These staff development needs can only be met by developing a strong national graduate study program.

As the first phase of the IPB/UW Project draws to a close in August 1984, serious consideration should be given to the development of a project which moves beyond the basic concepts of institution building (though viable institutions never stop building) to a project aimed at teaming IPB with a US institution to prepare manpower for high priority educational and agricultural development programs, concentrating on outreach programs to:

1. Further develop graduate programs in provincial universities outside Java.
2. Strengthen 2 or 3 smaller universities serving regions outside Java, rapidly increasing their capacity to accept more students and to work effectively in the development of agriculture in their respective regions.
3. Provide manpower development and support for other agricultural research and development agencies.

This development outreach project would accomplish several things:

1. It would provide a valuable continuing collaborative relationship between IPB and US institutions for higher education.
 2. It would make effective use of IPB's experience in institutional development to strengthen the organization and management of cooperating universities through the development of long range academic and physical planning, institutional program analyses, and improved use of information management systems.
 3. It would have the potential for combining the resources of an Indonesian university with a US university to strengthen
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manpower of Indonesian universities and other agricultural development agencies, and to develop integrated programs of instruction, research and public service, including improved methods of diffusing knowledge for nation building.

4. It would test a new model for cooperation between US and third world institutions of higher education in which the combined expertise developed by years of institution building can be effectively used in country development programs.

PROGRAM PROPOSAL

As the academic and institutional management capacities of IPB have developed, its ability to provide assistance to other institutions has increased. To date, this assistance has been extended through staff training, curriculum development and informal advising for academic and physical planning. However, IPB would like to play a more positive role in implementing outreach activities to promote the rapid development of graduate study programs, support the rapid expansion of universities serving critical outer island areas and train manpower for specific needs of other agricultural education, research and development agencies.

Academic programs required to meet national needs must address the effective use of agricultural resources to reach production targets and respond to basic social, economic and environmental concerns. IPB has the capacity to establish interdisciplinary programs, especially at the graduate level, which will prepare scientists and educators to provide leadership in resolving this broad range of developmental problems.

Emphasis would be given to the following areas of study which serve as components for the development of appropriate farming systems.

- a. Resource Inventory and Classification - instruction, graduate research, and technical assistance for resource management programs.
- b. Soil and Water Conservation - instruction, graduate research, and technical assistance in utilization and management alternatives for land and water resources.
- c. Agricultural Production Systems - instruction, graduate research, and technical assistance for crop and live-stock production.
- d. Biomass Energy - instruction and graduate research in biomass balance modelling.
- e. Community Nutrition - instruction and graduate research in rural nutrition and family resources.
- f. Socio-Economic Studies - instruction and graduate research in areas such as population mobility, resource utilization, profitable farming systems, generation of employment opportunities and improved equity.
- g. Agricultural Extension, Education and Communications - instruction, graduate research and technical assistance in improving diffusion of information to rural communities.

Farming Systems Research Centers, developed in Cooperating University Research Institutes, would coordinate graduate research and help to maintain the interdisciplinary focus of instruction programs. The system is diagramed in Figure 1.

The proposed development outreach project would be implemented under the DGHE with financial support from the GOI, USAID and World Bank and in close collaboration with the University of Wisconsin as outlined in the schematic diagram, Figure 2. A brief description of activities which could be carried out under the project is given in the following sections.

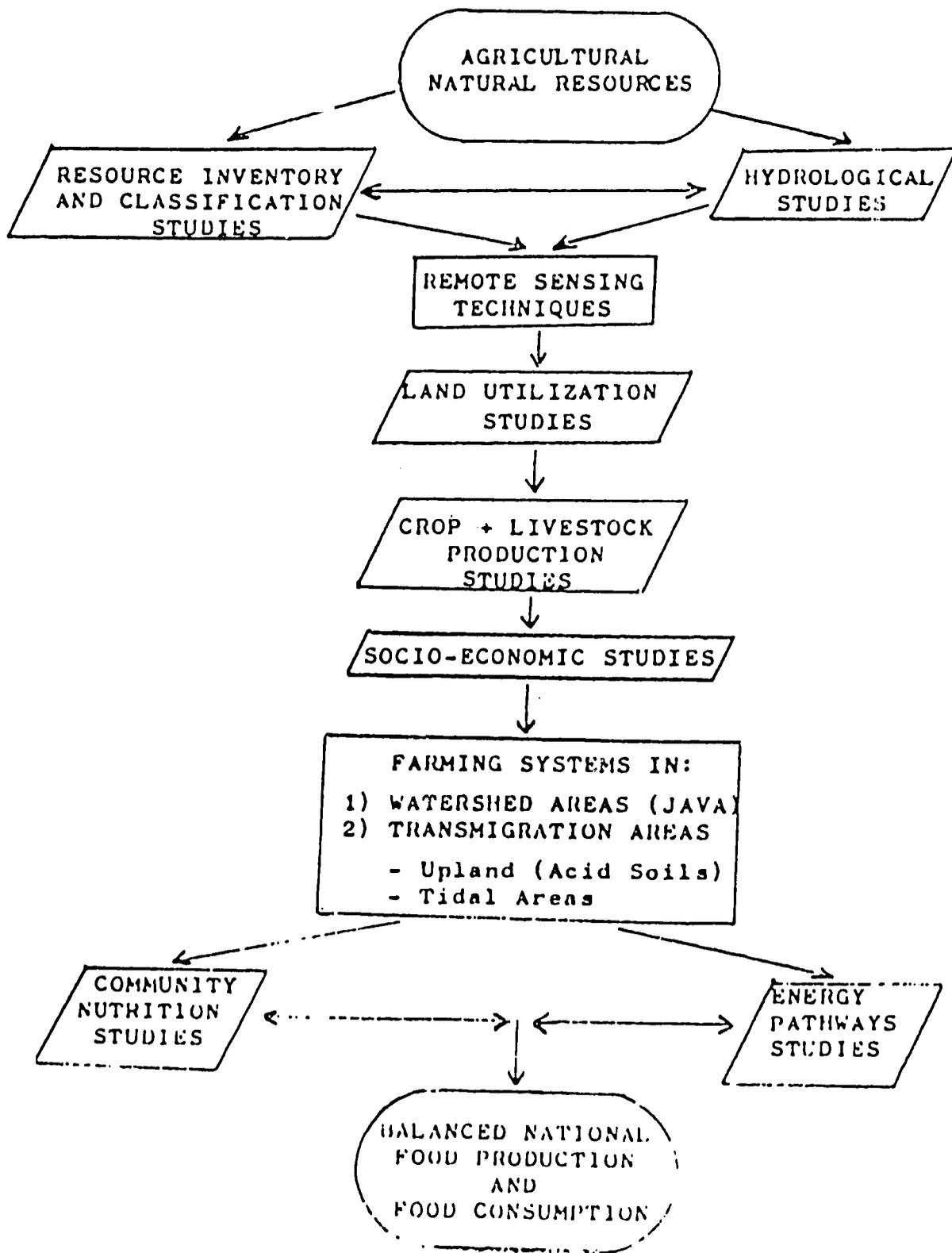
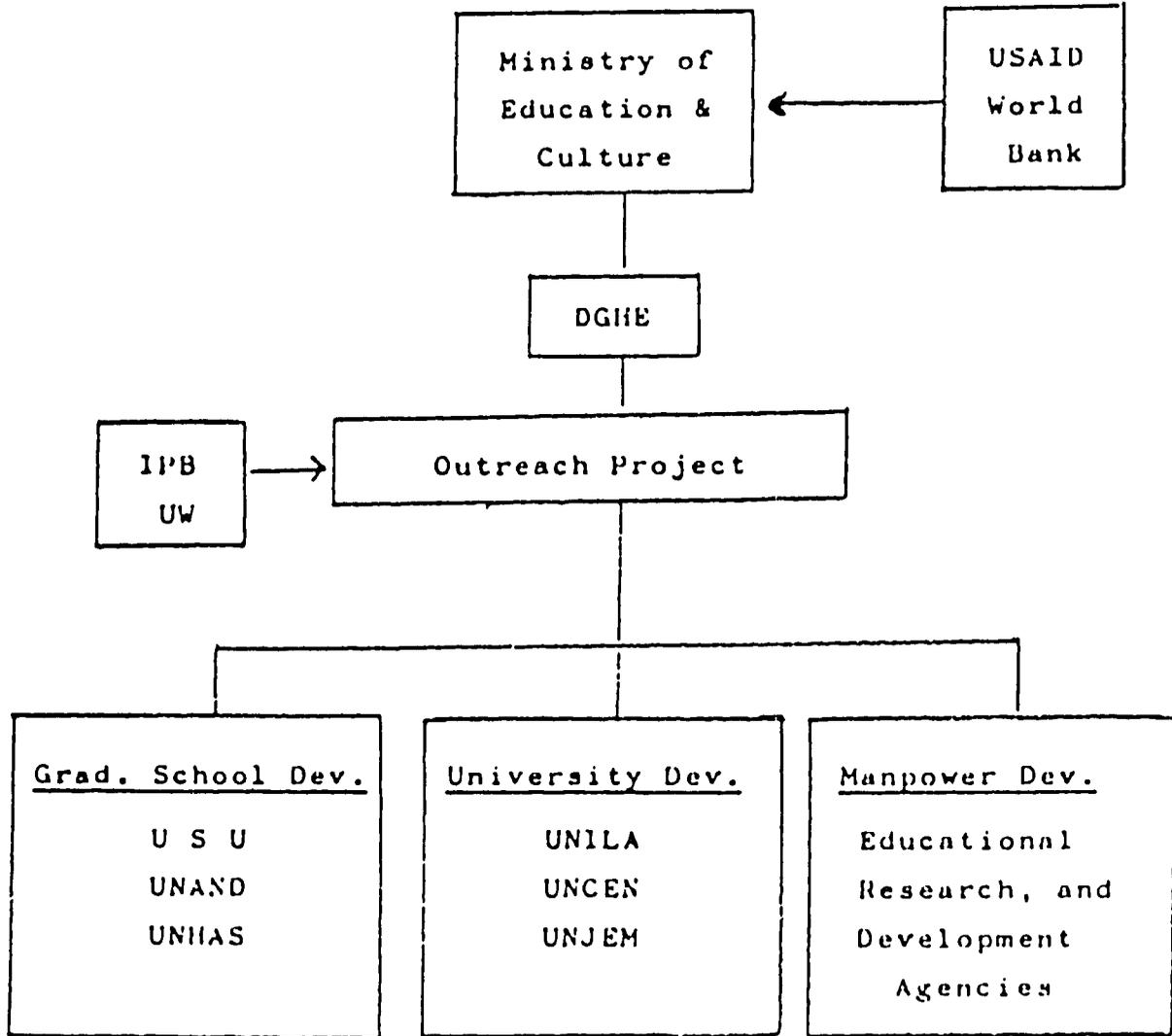


Figure 1. Components of a Farming Systems for Agricultural Natural Resource Development (Joint Instruction and Research Program UW-11B)

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Figure 2. Schematic Diagram of Development Outreach Program



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Development of Graduate Faculties

Plans are being made to develop graduate study programs in agriculture in at least 3 outer island universities, i.e., the University of North Sumatra (USU), Andalas University (UNAND) and Hasanuddin University (UNHAS), during PELITA IV. Under normal circumstances, at least 10 years would be required to prepare staff and facilities for a basic graduate curriculum and to implement programs of graduate instruction and research. However, technical assistance provided in critical areas, could accelerate the process significantly. A project is proposed in which IPB and UW would work with UNHAS, UNAND, and USU to develop priority graduate programs as rapidly as possible. Following is a brief outline of the activities to be used in accelerating Graduate School development.

Strengthening Organization and Management

Perhaps the most critical step in building new graduate programs is the development of a solid foundation for implementation. Programs of graduate study are relatively new in Indonesia, and have requirements which are very different from those of traditional undergraduate programs. IPB has been through this institution building process and has gained experience which should be useful in the rapid development of other universities. A joint IPB/UW team would work with cooperating universities to conduct institutional studies, project program needs, and develop long range plans. Following is a schedule of activities for strengthening the organization and management of graduate studies in cooperating universities.

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Figure 3. Schedule of Activities in Organization and Management

Activity	1985	86	87	88	89	90
1. Institutional Studies						
a. Administrative Analysis	-----	xxxxxxx				
b. Program Analysis	-----	xxxxxxx				
c. Resource Analysis	-----	xxxxxxx				
2. Long Range Master Plan						
a. Projection of Needs		-----	-----			
b. Academic Plan		-----	xxxxxxx			
c. Physical Plan		-----	xxxxxxx			

_____ UNHAS
 ----- UNAND
 xxxxxxxx USU

Program Development and Implementation

During the period of analysis and planning described above, activities would also be initiated to develop academic support functions and primary programs of instruction and research.

Academic Support - Academic support programs are made up of those activities which directly support one or more of the Tri-darma. This would include administration of academic programs, facility development and staff development. The IPB/UW project would work with cooperating universities to develop administrative and management support for graduate instruction and research, construct and/or upgrade facilities including libraries, laboratories, classrooms and field stations and train staff required for the program defined in the long range development plan.

Instruction - The initial step in developing the program of instruction would be to establish curricula for the graduate programs at each university and to plan the phasing of each curriculum as a part of the long range plan. Since staff and facility development may lag the need for initiating certain courses in the curriculum, a program would be established to fill these gaps as follows:

1. If staff and/or facilities needed to teach certain key courses in a curriculum are not available at the cooperating institution, students will be allowed to earn needed credits for these courses in Credit Earning Activities (CEA) at IPB.
2. If teachers are not available for key courses but facilities are adequate, IPB would provide temporary staff to teach these courses at the campus of the cooperating university.
3. If teachers for certain fundamental courses are not available at the cooperating university or at IPB, the UW could provide temporary instructors and/or provide CEA on the Wisconsin Campus.

If this procedure were followed, a graduate program could be offered at the cooperating university before all elements were in place. This would make it possible for the cooperating university to speed up its program and would allow it to utilize its own resources in providing a major portion of the program of instruction on campus. This would greatly increase the potential for graduate training in Indonesia.

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Research - A strong research program is absolutely essential to the development of graduate studies. Staff of the cooperating universities are relatively inexperienced in conducting research, and have even less experience in guiding the research of others. Thus, IPB/UW would provide:

1. Training to the staff of cooperating universities in research methodologies.
2. Assistance in guiding thesis research programs of graduate students.

It is also important that research associated with the new graduate programs be organized in such a way that it has continuity, and builds a body of knowledge which is useful in the development of the region served by the university. IPB/UW would initiate a program of research under a Farming Systems Center to support integrated development of agricultural resources. This program would be expanded to involve the cooperating universities in a national program of farming systems research. The basic components of such a program are diagrammed in Figure 4. A brief study of this schematic shows the potential for the integration of a wide range of disciplines in a single coordinated system.

IPB/UW staff and students actively involved in research and graduate study would developed collaborative programs to provide research activities for graduate students in training at UW, IPB or the cooperating university. This program would also include opportunities for IPB/UW staff exchange at the post doctoral level. Post doctoral exchange staff would assist in teaching and advising graduate students involved in the program at the campus they are visiting.

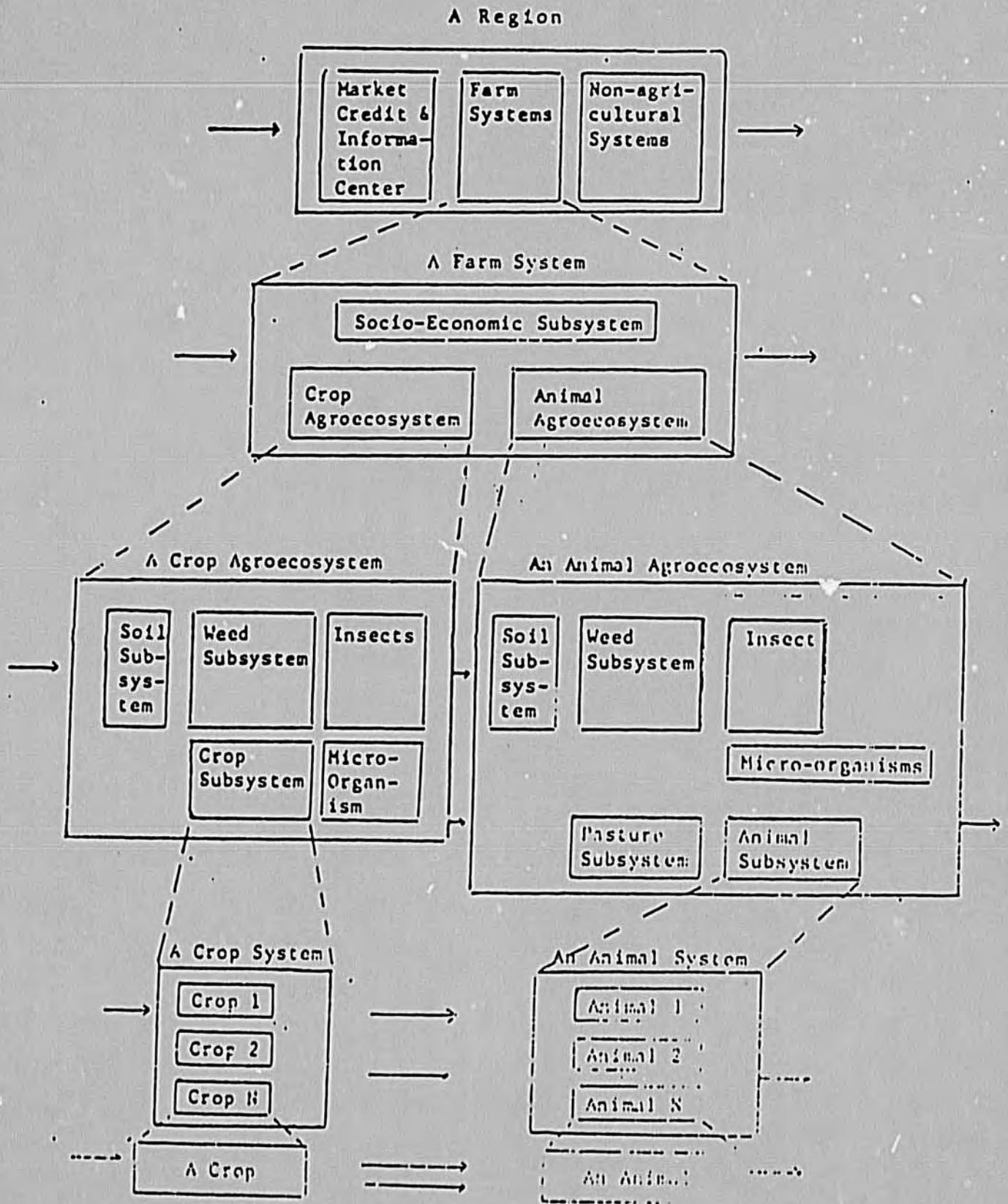


Figure 4. Hierarchical relationship between agricultural systems.

for training professional agriculturists to meet regional and national needs and would improve its capacity to serve as an effective center for agricultural development and growth. UNCEN (Manokwari) is the only agro-complex serving the vast area of Irian Jaya and surrounding islands. In spite of the large area to be served and the potential for agricultural development in the region, the agro-complex of UNCEN at Manokwari has not been able to develop as rapidly as needed. Distances between the agro-complex campus and the main campus of UNCEN and its distance from other educational centers hamper its development. However, its potential for growth is good and the need is overwhelming. UNJEM, on the other hand, is located on Java and serves the islands east of Java. It is one of the lesser developed universities on Java but has excellent potential for growth.

The extension of cooperation between IPB and UW would permit effective use of their institution building experience to promote the rapid development of one or more of the universities mentioned above. Such a program would seek to strengthen the capacity of the universities to develop institutionally, and to expand primary and supporting programs.

Institutional Development

The IPB/UW Development Outreach Project would work with cooperating universities to conduct institutional studies and to develop detailed long range academic and physical development plans. These activities would provide the foundation for determining resource and program development needs. A brief schedule of activities follows:

Figure 6. Schedule of Institutional Development Activities

Activity	1985	86	87	88	89	90
1. Institutional Studies						
a. Administrative Analysis						
b. Program Analysis						
c. Resource Analysis						
2. Long Range Master Plan						
a. Projection of Needs						
b. Academic Plan						
c. Physical Plan						

The basic procedures for conducting these studies and for developing detailed long range academic and physical plans have been established by the Planning Board at IPB.

Expansion of Programs

The Project would concentrate on the further development of primary and secondary programs to expand the capacity of the universities to provide S_0 and S_1 training and to strengthen research and public service appropriate to the needs of the region served by the university. A brief outline of program areas to be developed is given in the following schedule.

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Figure 7. Schedule of Program Development

Activity	1985	86	87	88	89	90
A. Primary Programs						
1. Instruction						
2. Research						
3. Public Service						
B. Support Functions						
1. Academic Support						
2. Student Services						
3. Institutional Adm.						
4. Buildings and Ground						

The mechanisms of providing technical assistance and staff training would be very similar to those described under the Graduate Faculty Development above. However, consideration would be given to the use of graduate student to fill gaps in teaching programs as a part of their graduate training activity.

The exact method to be used in this program will vary depending on the institutions selected to cooperate in the program. For example, the close proximity of UNILA to IPB would facilitate staff exchange for implementing activities, whereas, the distances involved between UNCEN and IPB would make it necessary to give careful consideration to the use of distance teaching methodologies such as video and satellite teaching techniques.

Manpower Development

This component of the project is already well developed at IPB. It involves the training of agricultural professionals at S₀, S₁, S₂ and S₃ levels. At the present time IPB educates approximately 20% of the nation's undergraduates and 80% of the nation's graduate students. However, there is a need to give greater attention to the specific requirements of major national development programs. The IPB/UW project would strengthen coordination of graduate training and research programs with specific program needs. IPB could develop curricula and supporting research programs to train staff for GOI/AID-World Bank programs such as:

1. Agricultural Research
2. Secondary Crop Production
3. Upland Watershed Development
4. National Extension
5. Transmigration
6. Eastern and Western University Cooperation

The work on projects such as these would be supported through training contracts from the projects needing this support.

CONCLUDING STATEMENT

The preceding is a brief outline of concepts and ideas for continuing cooperation between IPB and UW. If these ideas find support among agencies concerned, IPB and Wisconsin staff are prepared to provide greater detail for the execution of such a project including the inputs required and expected project output.