

PD-AAZ-537
61995

A.I.D. EVALUATION SUMMARY - PART I

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

IDENTIFICATION DATA

A. Reporting A.I.D. Unit: Mission or AID/W Office: <u>USAID/Indonesia</u> (ES# _____)		B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan? Yes <input checked="" type="checkbox"/> Slipped <input type="checkbox"/> Ad Hoc <input type="checkbox"/> Evaluation Plan Submission Date: FY <u>89</u> Q <u>3</u>		C. Evaluation Timing Interim <input checked="" type="checkbox"/> Final <input type="checkbox"/> Ex Post <input type="checkbox"/> Other <input type="checkbox"/>	
D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report.)					
Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
497-0311	Upland Agriculture and Conservation	84	06/1991	13.900 (L) 5.000 (G)	13.900 (L) 5.000 (G)

ACTIONS

Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
<p>1. Mission will conduct review of field operations, mid-term evaluation recommendations and principal issues. Review will be led by Director and followed by review of principal issues with DG Bangda. Reviews will culminate in decision regarding extension of PACD to June, 1993.</p> <p>2. EXSEC will prepare and implement plan to improve the planning of SUFS units in each province and village. A follow-up report will be issued by June, 1990.</p> <p>3. USAID and IBRD will work closely with EXSEC to find ways of committing donor funds earlier in the fiscal year and facilitating their timely flow to implementation units throughout the year. A new system will be designed by December, 1989 and a status report will be issued in August, 1990.</p> <p>4. USAID and EXSEC will design and implement a program to increase the policy impact of Uplands project. This plan will include completion of project data base and provision for public access, production of a quarterly progress report by EXSEC, a series of impact studies (provided through an amendment to the DAI contract). The EXSEC will take the lead in forming a Central Committee for Watershed Management with guidance from a full-time watershed policy advisor.</p> <p>(Please find attached #5 to 7 as continuation sheet).</p>	DD:LTwentyman PPS:JHradsky ARD:MWinter	July 31, '89
	ARD:GKerr ARD:RNishihara	June 30, '90
	ARD:RNishihara ARD:KDjati	
	ARD:GKerr ARD:RNishihara	Nov. 30, '89 Oct. 30, '89

APPROVALS

(Attach extra sheet if necessary)

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

G. Approvals of Evaluation Summary And Action Decisions:

Name (Typed)	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
	Graham B. Kerr	Ir. Warga Kartadisastra, MA	Edward Greeley	Marcus Winter
Signature	<i>Graham B. Kerr</i>	<i>Warga</i>	<i>Edward Greeley</i>	<i>Marcus Winter</i>
Date	01/7/89	July 10, 1989	7/26/89	7/17/89

A B S T R A C T

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

The project is designed to improve the capacities of Indonesian local government units to improve farming systems and technologies which will increase farmer's incomes, while minimizing soil erosion, in densely populated upland areas of Java. The project is being conducted by the Ministry of Home Affairs and the provinces of Central and East Java, with assistance from the Ministries of Forestry and Agriculture. Funding is provided by the Government of Indonesia, the World Bank, and USAID. The evaluation aimed to assess progress towards achieving project purpose and recommend any mid-course corrections. The team visited all central agencies and all eight of the districts which are implementing the project. Thirty five recommendations were made by the team. Their major findings and recommendations are:

- * Implementation has been steady but slow. As of November, 1988, 45% of funds were committed, but only 21% expended.
- * All project components are functioning. Sustainable Uplands Farming Systems (SUFS) demonstration plots have been established in 75 of 80 planned sites and community access roads (CARS) have been built. The management information system has been installed in both provincial offices, the eight districts and the project secretariat in Home Affairs in Jakarta. The Farming Systems Research (FSR) system is working in both provinces. Local training programs are conducted annually and a long term overseas program has sent students abroad for master's degrees. The Project Innovation Fund is operational and policy studies have begun.
- * Institutional development is clearly visible, particularly in the districts. The eight district offices function well and are learning important lessons.
- * In the SUFS, soil conservation measures have reduced erosion and new cropping systems have increased production, but it is still too early to determine if the treatments will be sustained. The recent trend to vary treatments to better meet local physical and social conditions should be encouraged. Greater involvement of community and farmers in planning SUFS is recommended. Hectarage targets for the SUFS should also be reduced to coincide with the availability of extension workers.
- * The FSR group shows promise of producing significant information relevant to upland agriculture, but major weaknesses still have to be dealt with.
- * The data base and MIS records provide a key resource for long-term assessment of SUFS in more than seventy sites on Java. The experience gained at these sites can be a tremendous asset for planners and implementors of upland development programs.
- * Strengthening the project information system, the policy studies, and planned impact studies should be a focus of the remaining two years of the project and a recommended two year extension, so that the lessons learned in this project can be integrated into the policy dialogue concerning upland agriculture and natural resource management on Java.

C O S T S

1. Evaluation Costs

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
1. Jeffrey D. Brewer	Louis Berger	PDC-5517-I-00-	147,697.44	AID Loan
2. Martha Gaudreau	International	7136-00		497-T-083(L)
3. J. Bruce Glassburner	Inc. and Institute	D.O. No.9		
4. Van K. Haderlie	for Development			
5. Entang Roekasah Adiratma	Anthropology			
6. Loekman Sutrisno				
2. Mission/Office Professional Staff Person-Days (Estimate) <u>65</u>		3. Borrower/Grantee Professional Staff Person-Days (Estimate) <u>120</u>		

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

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

- Purpose of evaluation and methodology used
- Purpose of activity(ies) evaluated
- Findings and conclusions (relate to questions)
- Principal recommendations
- Lessons learned

Mission or Office:

Indonesia

Date This Summary Prepared:

07/06/1989

Title And Date Of Full Evaluation Report:

Mid-Term Evaluation of the Upland Agriculture and Conservation Project, April 1989.

The Midterm Evaluation of the Upland Agriculture and Conservation Project (UACP) (No. 497-0311) conducted in February/March, 1989, assessed project progress and recommended midcourse corrections. The evaluation was made by a team of six persons through a contractor. The team studied relevant documents, visited field sites in participating districts, and interviewed participants in Jakarta and in the field.

The goal of the UACP is "to increase farm production and incomes, while minimizing soil erosion, in densely populated upland areas in Java by improving farming systems and farm technologies and management".

The project purpose is "to expand and improve institutional capacities, primarily at provincial, district and farm levels, to experiment with and apply alternative approaches to upland farming".

The UACP is a complex project including numerous project locations scattered throughout the Jratunseluna and Brantas watersheds in Central and East Java.

The primary component of the project is the development of Sustainable Upland Farming Systems (SUFS) in selected critical lands of the two watersheds. SUFS work includes the development of nurseries to provide seedlings. Supporting components include: Conservation Access Roads, Farming Systems Research, Human Resources Development, Project Innovation Fund, Technical Assistance, Soil Surveys and Policy Studies.

At the national level, the project is jointly managed by the Ministry of Home Affairs, an Executive Secretariat (EXSEC), and USAID. The EXSEC comprises representatives of Ministries of Home Affairs, Forestry, Agriculture, USAID and IBRD. Funds provided by IBRD are managed by USAID. In each province, a Project Coordinating Office has been created, each overseen by a Guidance Team. In each district, a Project Management Unit has been created; each overseen by a Guidance Team.

Implementation of UACP has been steady, but slow. Of the \$41,862,000 budget (revised following devaluation of the rupiah in 1986), 47% has been committed by February, 1989, and 21% of the budget had been reimbursed to November 1988. Only the roads and technical assistance components are proceeding at the expected pace. A major problem has been the inability of the GOI to provide the agreed upon funding. Delays in full project implementation were also caused by delays in contracting for the technical assistance teams.

Institutional development is clearly visible, particularly at the district level. The eight PMUs function well and are learning important lessons. The UACP has helped to place upland crops on the extension agenda and upland areas on the national development agenda. Lessons now being learned in the UACP are expected to be carried over to the Forestry Ministry's regreening program. Organizational changes to improve project management and impact are described in the report. In particular, strengthening the extension services and providing greater community involvement are recommended.

S U M M A R Y (Continued)

The Project Paper emphasizes the development of a management information system to monitor project progress and record and disseminate the lessons learned. The current system remains largely focused on numerical indicators of progress. Its development is discussed in the report and later in this summary.

In the SUFS activities, bench terracing has dominated soil conservation planning, even though there is a wide variety of conditions in the project area. It is now recognized that other approaches should be used under some conditions.

Although intensification of annual crop production was initially emphasized in SUFS, many planners now recognize the greater potential of tree crops, grasses and leguminous trees. Planned cropping systems have become more varied.

Soil conservation measures have succeeded in reducing erosion on the treated lands. However, because there is reason to doubt the sustainability of the new cropping systems, continued maintenance of the terraces and water management systems is open to question. Also, the Project Paper asserts that most erosion in the area is from lands farmed by smallholders; the validity of this assertion is open to question.

The new cropping systems have increased crop production. The sustainability of the increases without the subsidy may be questioned. SUFS lands are "critical" lands; a large majority of SUFS farmers also have better land. Without the subsidy, many farmers prefer to put their resources into more profitable lands.

SUFS planning is not well adapted to environmental conditions and farmer needs. Adoption of a joint farmer-PMU SUFS planning procedure is recommended.

As the SUFS sites expand in area the burden on participating extension agents grows heavier. The likelihood of significantly increasing the number of extension agents available to the project is small. The hectare targets, set in the project paper, should be reviewed and reduced where necessary to be commensurate with the numbers of extension agents available.

The Access Roads have progressed very well and have had strong positive impacts.

From 1984 to 1987, the Farming Systems Research group undertook traditional research and failed to produce useful information. Within the past year and a half, the FSR group has begun to focus its attention on systems issues. Also, the FSR group has begun rather intensive interactions with PMU personnel in both provinces as consultants in SUFS planning.

The FSR group shows promise of producing significant information relevant to upland agriculture problems within the remaining life of the project, particularly in the management of perennial crops and in crop-livestock interactions. However, the group still has major weaknesses. Continued support for FSR is recommended if several changes are made to strengthen its program. Measures to improve FSR capabilities to provide information and advice to SUFS are also recommended.

The Human Resources Development program started slowly, but the farmer training and inservice training components have begun to make progress. Degree training started slowly and was poorly managed, but in-country and overseas programs are now well established. Project targets will be met or exceeded in almost all training programs.

Only recently have proposals to the Project Innovation Fund been funded. Field inspection of PIF activities indicates that they will contribute little to the project. Unexpended PIF funds should be reallocated to other components.

S U M M A R Y (Continued)

Technical Assistance is provided to the UACP under five agreements. The team is of the opinion that the technical assistance teams have been crucial to project progress.

The Soil Surveys have recently been completed. They form a key component of the project data base. Additional work and training is needed to make them fully useful.

The Policy Studies have just begun. The areas selected for study are important to the issues which the project addresses.

Most projects in upland development in Indonesia are planned without adequate knowledge of the effective and sustainable technologies and approaches. The UACP is now working at 78 sites which vary greatly in soils, slopes, microclimates, and farmer resources. The experience gained at these sites can be a tremendous asset for planners and implementors of other projects. Strengthening the management information system to make this experience available to project planners and policy makers at all levels is strongly recommended.

The UACP provides two lessons concerning project design and management. First, the UACP simultaneously addresses two goals, complicating performance and impact analysis. Second, the large number of participants in this project make it difficult to manage; it is important to: a) design ways to place more of the management burden on participating agencies, and b) develop clear, written, guidelines for all participants.

To put the recommended participative planning system and the expanded management information system in place, and to ensure that the relevant experience is recorded, more time will be needed than is currently left in the project life. Therefore, it is recommended that the PACD be extended for an additional two years if the management information system is improved as recommended.

It is too early to plan a Phase II activity. It is suggested that consideration be given to separating the agricultural production and soil conservation goals and attacking them with separate approaches. The lessons learned from the UACP will be of significant value to the GOI and the numerous donors interested in upland and conservation issues. Given the number of other donors, AID may want to consider pioneering other approaches to upland issues.

ATTACHMENTS

K. Attachments (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier; attach studies, surveys, etc., from "on-going" evaluation, if relevant to the evaluation report.)

Final Evaluation Report entitled:
MID TERM EVALUATION OF THE UPLAND AGRICULTURE AND CONSERVATION PROJECT

COMMENTS

L. Comments By Mission, AID/W Office and Borrower/Grantee On Full Report

The evaluation team has produced a very useful report. It addresses the principal issues in all components of the project. The large number of recommendations reflects both the large number of project components, the complexity of the relationships between components--and the size of the evaluation team. Each team member made unique and useful contributions to the data collection, analysis, and reporting. The main report is supported by six substantial appendices which provide the reasoning behind the findings and the recommendations.

Two areas where findings are weaker than expected are in the economic analysis and training. Little effort was made to assemble and analyze the economic data present in the project data base by the two economists on the team. There were no clear assignments for the evaluation of the sizable training activities in the project. The findings reflect the ad hoc assessment of training activities conducted late in the evaluation.

Despite these shortcomings the evaluation has provided a very useful tool for setting the agenda for discussions with the GOI regarding improvement of project implementation and possible extension of the PACD. It was utilized as the core document for a subsequent special Director's Implementation Review (DIR), for which the Acting Director and key staff travelled to East Java and made numerous decisions in the projects.

	<u>Name of Officer Responsible for Action</u>	<u>Date Action to be Com- pleted</u>
<p>5. The loan and grant agreements will be amended using a PII. The financial plan will be renegotiated to reflect more accurately the contributions from the GOI and each donor for the remainder of the project, after a decision has been made regarding PACD extension. If the PACD is extended a PII will be used to record the agreement regarding the program during the two year extension.</p>	<p>ARD:GKerr ARD:RNishihara</p>	<p>Oct. 30, '89</p>
<p>6. In the context of the above planned action, the Farming Systems Research (FSR) component will be the subject of an intensive review to (1) determine an appropriate role under the project; (2) determine the long-term objectives of a farming systems program under the GOI Central Soils Research (CSR) direction; and accordingly, (3) to develop a comprehensive FSR work plan and budget to achieve UACP project and FSR institutional objectives. USAID and selected departments of the Ministry of Agriculture will work jointly to develop and adopt a work plan and budget by December 31, 1989.</p>	<p>ARD:RNishihara</p>	<p>Dec. 31, '89</p>
<p>7. The evaluation report contains 35 separate recommendations. The principal recommendations are dealt with in the above actions. USAID and the EXSEC developed separate, then joint responses to each recommendation. The EXSEC will issue instructions to each project component to implement the responses. A follow-up report assessing the effectiveness of the response to each recommendation will be prepared by the EXSEC and USAID in June, 1990.</p>	<p>ARD:RNishihara</p>	<p>June 30, '90</p>



Midterm Evaluation of the Upland Agriculture and Conservation Project

Prepared by:
**Louis Berger International
Institute for Development Anthropology**

United States Agency for International Development

MIDTERM EVALUATION OF THE
UPLAND AGRICULTURE AND CONSERVATION PROJECT,
INDONESIA

USAID Contract No. PDC-5517-I-00-7136-00
D. O. No. 9

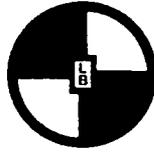
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April 1989

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25 April 1989

Dr. Graham Kerr
UAC Project Officer
ARD/RRM
U. S. Agency for International
Development
Jakarta, Indonesia

Subject: Midterm Evaluation of the Upland Agriculture and
Conservation Project (Project No. 497-0311)

Dear Dr. Kerr:

We are pleased to present the final report for the Midterm
Evaluation of the UACP in fulfillment of Delivery Order No. 9
under our Environment and Natural Resources IQC (PDC-5517-I-00-
7136-00).

We hope to have further opportunities to provide assistance to
USAID/Indonesia in the future.

Sincerely yours,
LOUIS BERGER INTERNATIONAL INC.

A handwritten signature in cursive script that reads "J. D. Brewer".

Jeffrey D. Brewer
Senior Project Coordinator

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT DATA SHEET

1. TRANSACTION CODE
A = Add
C = Change
D = Delete

Amendment Number

DOCUMENT CODE
3

2. COUNTRY/ENTITY
Indonesia

3. PROJECT NUMBER
497-0311

4. BUREAU/OFFICE
Asia Bureau

5. PROJECT TITLE (maximum 40 characters)
Upland Agriculture & Conservation Proj

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)
MM DD YY
06 30 91

7. ESTIMATED DATE OF OBLIGATION
(Under "B" below, enter 1, 2, 3, or 4)
A. Initial FY 84 B. Quarter 3 C. Final FY 86

8. COSTS (\$000 OR EQUIVALENT \$1 =)

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	4,250	2,900	7,150	7,500	11,400	18,900
(Grant)	(1,700)	(0)	(1,700)	(4,500)	(500)	(5,000)
(Loan)	(2,550)	(2,900)	(5,450)	(3,000)	(10,900)	(13,900)
Other						
1. U.S.						
2. Host Country	0	750	750	0	20,000	20,000
Other Donors)	2,300	9,000	11,300	2,300	9,000	11,300
TOTALS	6,550	12,650	19,200	9,500	40,400	50,200

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
EN	140	066	056			5,000	13,900	5,000	13,900
TOTALS						5,000	13,900	5,000	13,900

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)
020 093 070

11. SECONDARY PURPOSE CODE
120

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code B5 BR PART ENV

B. Amount

13. PROJECT PURPOSE (maximum 450 characters)

To expand and improve institutional capacities, primarily at provincial, district and farm levels, to experiment with alternate approaches to upland farming and to apply the alternative approaches.

14. SCHEDULED EVALUATIONS

Interim MM YY 11 86 Final MM YY 06 91

15. SOURCE/ORIGIN OF GOODS AND SERVICES
 000 941 Local Other (Specify)

16. AMENDMENTS; NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment)

17. APPROVED BY

Signature: *[Handwritten Signature]*

Title: Director USAID/Indonesia

Date Signed: MM DD YY 07 10 84

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MM DD YY 11 20

CONTENTS

	<u>Page</u>
Letter of Transmittal	
Project Identification Data Sheet	
Contents	
Abbreviations and Acronyms	i
Executive Summary	iii
Summary of Priority Recommendations	viii
Main Report	
I. Introduction	1
II. Project Description and Overall Progress	1
Overall Project Progress	3
III. The Two Goals of the Project	4
IV. Project Management and Institutional Development	4
Community Participation	5
Management of Extension Services	6
District Level Project Management	8
Provincial Level Project Management	9
National Level Project Management	9
Donor Project Management	11
Funding Procedures	12
Management Informaticn Systems	13
V. Sustainable Upland Farming Systems	15
Soil Conservation Treatments	15
Cropping Systems	16
SUFS Impact	17
Improving SUFS Planning	18
Hectarage Targets	19
Improving Extension Capabilities	20
Improving Soil Conservation Planning Capabilities	21
Nurseries	22
VI. Access Roads	23
VII. Farming Systems Research	24
The Research Agenda and Research Skills	24
The Role of FSR	26
The Future of FSR	27

VIII. Human Resources Development	28
In-country Training	29
Degree Training and Overseas Short Courses	29
Training Needs	30
IX. Project Innovation Fund	31
X. Technical Assistance	32
XI. Impact and Sustainability	34
XII. The Opportunity	35
XIII. Future of the Project	36
Project Extension	36
Funding	36
Phase II	37
XIV. Lessons Learned	38
Appendices	
A. Terms of Reference	A-1
B. Team Members, Study Methodology, Persons and References Consulted	B-1
C. UACP Logical Framework	C-1
D. Sustainable Upland Farming Systems Pilot Projects (SUFS)	D-1
E. Conservation Access Roads	E-1
F. Farming Systems Research	F-1
G. Local and District Level Management and Project Innovation Fund	G-1
H. Project Organization and Management at the National and Provincial Levels	H-1
I. Impact and Sustainability of the Upland Agriculture and Conservation Project	I-1

ABBREVIATIONS AND ACRONYMS

AARD	- Agency for Agricultural Research and Development
AID	- United States Agency for International Development
Bangda	- Direktorat Jendral Pembangunan Daerah (Directorate for Regional Development)
BAPPEDA	- Badan Perencanaan Pembanguana Daerah (Provincial and District Development Planning Boards)
BAPPENAS	- Badan Perencanaan Pembangunan Nasional (National Development Planning Board)
BPP	- Balai Penyuluhan Pedesaan (Rural Extension Center)
BRLKT	- Balai Rehabilitasi Lahan dan Konservasi Tanah (Center for Land Rehabilitation and Soil Conservation)
BTPDAS	- Balai Teknologi Pengelolaan Daerah Aliran Sungai (Watershed Management Center, Solo)
Cabang	- District level branch of the SBRLKT
CDSS	- Country Development Strategy Statement
CSR	- Center for Soil Research
DAI	- Development Alternatives Inc.
dampak	- expansion (impact) area surrounding a demplot
demplot	- demonstration plot
EXSEC	- Executive Secretariat
FSR	- Farming Systems Research
GOI	- Government of Indonesia
HRD	- Human Resources Development
IIE	- Institute for International Education
INPRES	- Instruksi President (Presidential Orders)
JOSS	- Joint Operations Support Staff
KEPAS	- Kelompok Penelitian Agroekosistem (Agro-ecosystem Research Group)
Juklak	- Pentunjuk Pelaksanaan (Implementation Guide)
LKMD	- Lembaga Kemajuan Masyarakat Desa (Institute for Village Progress)
MARIF	- Malang Area Research Institute for Foodcrops
MIS	- management information system
NGO	- nongovernment organization
PACD	- Project Assistance Completion Date
PASA	- Participating Agency Service Agreement
PCO	- Project Coordinating Office (Provincial Level)
PIF	- Project Innovation Fund
PLP	- Pembantu Lapangan Penghijauan (Forestry Extension Worker)
PMU	- Project Management Unit (District Level)
PPL	- Pembantu Penyuluhan Lapangan (Agriculture Extension Worker)
PSC	- Personal Services Contract
REC	- Rural Extension Center

- SBRLKT - Sub Balai Rehabilitasi Lahan dan Konservasi Tanah
(Subcenter for Land Rehabilitation and Soil Conservation)
- SCS - United States Soil Conservation Service
- SP3 - Surat Permohonan Pembayaran Proyek (document to request external project funding)
- SUFS - Sustainable Upland Farming Systems
- TAT - Technical Assistance Team
- UACP - Upland Agriculture and Conservation Project
- USLE - Universal Soil Loss Equation

EXECUTIVE SUMMARY

The Uplands Agriculture and Conservation Project (No. 497-0311) attempts to sustain and enhance the productive capacity of Java's uplands through improved management of soil and water resources. The project agreements were signed in July and October 1984; the PACD is 30 June 1991.

The UACP is a complex project. More than 75 project locations are scattered throughout the Jratunseluna and Brantas watersheds in Central and East Java. Project management involves numerous entities, including eight district governments, two provincial governments, and three central government agencies, and two donors.

Project Description: The Project Paper defines the goal of the UACP as "to increase farm production and incomes, while minimizing soil erosion, in densely populated upland areas in Java by improving farming systems and farm technologies and management." This statement includes two goals: a) increasing farm production, and b) minimizing soil erosion. The specific purpose of the project is "to expand and improve institutional capacities, primarily at provincial, district and farm levels, to experiment with and apply alternative approaches to upland farming."

The basic strategy of the project is the development of Sustainable Upland Farming Systems (SUFS) in selected critical lands of the two watersheds. At each SUFS location, a ten hectare demonstration plot is treated with soil conservation measures combined with a new cropping system. A subsidy is given to the farmers for two years to ensure their participation. Each subsequent year, an expansion area is selected for treatment. SUFS development is assisted by the establishment of nurseries for upland crop.

The UACP has several supporting components, including:

- Conservation Access Roads
- Farming Systems Research
- Human Resources Development
- Project Innovation Fund
- Technical Assistance.
- Soil Surveys of the eight districts and the SUFS sites
- Policy Studies in relevant areas.

To manage the project, a three level structure has been created. At the national level, the project is jointly managed by the Ministry of Home Affairs, an Executive Secretariat (EXSEC), and AID. In each province, a Project Coordinating

Office has been created, each overseen by a Guidance Team chaired by the Ketua BAPPEDA. In each district, a Project Management Unit has been created; each overseen by a Guidance Team chaired by the Ketua BAPPEDA.

Overall Project Progress: Overall progress on the UACP has been slow. Of the \$41,862,000 budget (revised following devaluation of the rupiah in 1986), \$19,837,547 has been committed to February 1989. Reimbursements to November 1988 are 21% of the total budget. Only the roads and technical assistance components are proceeding at the expected pace. A major problem has been the inability of the GOI to provide the agreed upon funding.

Institutional Development: Institutional development is clearly visible, particularly at the district level. The PMUs function well and are learning lessons about both cooperation and the technical problems of upland development. The UACP has helped placed upland crop problems on the extension agenda. Lessons now being learned in the UACP will, we expect, be carried over to the Forestry Ministry's regreening program.

There are, however, several organizational changes that can improve project management. Several of these are detailed in the text. In particular, we recommend strengthening the extension services in several ways detailed in the text, most importantly, by increasing the involvement of the Rural Extension Centers in the management of project activities.

The Project Paper emphasizes the development of a management information system to monitor project progress and record and disseminate the lessons learned. The system defined by the Ministry of Home Affairs at the beginning of the project focused exclusively on indicators of progress, such as numbers of hectares treated, numbers of persons trained, etc. This system has been improved; the consultants have developed additional data collection instruments and have trained persons to store and analyze the data on computers. However, most reports are still confined to the numerical indicators of project progress.

Progress and Impact of SUFS: Bench terracing has dominated soil conservation planning since the beginning of the project. In fact, however, there is a wide variety of soils and other conditions in the project area; no single solution is correct. It has now been recognized that in many places other approaches should be used.

Intensification of annual for crop production was initially emphasized in SUFS planning. Now many planners have come to recognize the greater potential of tree crops, grasses and

leguminous trees; planned cropping systems have become more varied as more attention have been paid to farmer concerns.

We believe that the soil conservation measures have succeeded in reducing erosion on the treated lands. However, because there is reason to doubt the sustainability of the new cropping systems (see below), continued maintenance of the terraces and water management systems is open to question. Also, the Project Paper asserts that most erosion in the area is from lands farmed by smallholders; the validity of this assertion is open to question. Even if soil loss is reduced on the farmed lands, the significance of this reduction is uncertain.

We believe that the new cropping systems have increased crop production. However, we question the sustainability of the increases. SUFS lands are "critical" lands; a large majority of SUFS farmers have better land also. Without a subsidy, many farmers prefer to put their labor and cash resources into more profitable lands. Consequent reversion to simpler cropping systems was observed in several SUFS sites.

We believe that, although there has been improvement, SUFS planning still not well enough adapted to environmental conditions and farmer needs. Although information about the farmers is collected and used in planning, most planning decisions are made by PMU staff alone. If farmers, PMU personnel, and extension agents develop SUFS plans in joint sessions, the chances are good that the planned cropping systems and conservation measures will be sustainable. We strongly recommend adoption of a joint farmer-PMU SUFS planning procedure.

The Project Paper sets hectare targets for SUFS. However, expansion of SUFS sites has proceeded much more slowly than planned. A major reason has been the lack of extension personnel. As the sites expand, the burden on participating extension agents grows heavier. Although moves are underway to transfer agents from other areas, the likelihood of significantly increasing the number of extension agents available to the project is small. We recommend that hectare targets be reviewed and reduced where necessary to be commensurate with the numbers of extension agents available.

Progress and Impact of Supporting Components:

The Access Roads have progressed very well and have had strong positive impacts.

Farming Systems Research is more problematic. From 1984, when the FSR group was established, until 1987, the group, undertook traditional types of research and failed to produce useful information. Within the past year and a half, however, the FSR

group has begun to focus its attention on systems issues affecting farmers in the uplands, including various relevant crop management issues, crop-livestock interactions, and other relevant matters. Also, the FSR group has begun rather intensive interactions with PMU personnel in both provinces as consultants in SUFS planning.

We believe that the FSR group shows promise of producing significant information relevant to upland agriculture problems within the remaining life of the project, particularly in the management of perennial crops and in crop-livestock interactions. However, the group still has major weaknesses and the place of its activities within the AARD program is not clear. We recommend continued support for FSR if several changes, detailed in the text, are made to strengthen its program and to define its role within the AARD system. We also recommend measures (see main report) to develop FSR capabilities to provide information and advice to SUFS.

The Human Resources Development program started slowly, but the farmer training and inservice training components have begun to make progress. Unfortunately, we have not been able to judge the quality or impact of the training programs without additional data. Management of the degree training and workshop/seminar activity has been weak and these activities have progressed very slowly.

The Project Innovation Fund has been problematic. Only within the last year have proposals been funded. There have been several problems including a difficulty in interpretation of the word "innovation". We recommend that unexpended grant funds allocated to PIF be reallocated to other components.

Technical Assistance is provided to the UACP under five agreements. We are of the opinion that, despite some problems with individuals, the technical assistance teams have been crucial to project progress.

The Soil Surveys have recently been completed. They provide fundamental data much needed for planning treatments. Some training and additional work is needed to make them useful.

The Policy Studies have just begun. The areas selected, including subsidies, land tenure, and others, are important to the issues the project addresses.

The Opportunity: Most projects in upland development in Indonesia are planned without adequate knowledge of the effective and sustainable technologies and approaches. For example, the bench terracing recommended for the UACP had been shown to be effective on sites with deep fertile soils; many UACP sites, however, have shallow sedimentary soils.

The UACP is now working at over 75 sites which vary greatly in soils, slopes, microclimates, and farmer resources. The experience gained at these sites can be, if adequately described, assessed, and related to environmental variables, a tremendous asset for planners and implementors of other projects. Therefore, we strongly recommend strengthening the management information system to make this experience available to project planners and policy makers at all levels.

To assist, we recommend that technical assistance in the analysis and reporting of impact and technical data related to soil conservation and cropping systems be provided to the EXSEC.

Lessons Learned: The technical lessons of the UACP remain to be codified. Important lessons about project design and management include: First, the UACP simultaneously addresses two goals, complicating performance and impact analysis. Second, the large number of participants in this project make it difficult to manage; AID has had to expend much management effort for the UACP. For projects with similar numbers of participants, it is important to a) design ways to turn more of the management burden over to the government agencies, and b) develop clear, written, guidelines for all participants that detail their activities. The PCOs have developed such guidelines, greatly easing project performance. Third, AID management of World Bank funds for this project has been quite successful.

The Future of the Project: To put the recommended participative planning system and the expanded management information system in place, and to ensure that the relevant experience is recorded, more time will be needed than is currently left in the project life. Therefore, we recommend that the PACD be extended for an additional two years if the management information system is improved as recommended.

We believe that it is too early to plan the Phase II activity envisaged in the Project Paper. We suggest consideration be given to separating the agricultural production and soil conservation goals and attacking them with separate approaches.

There are numerous donors concerned with the issues addressed by this project. The lessons learned from the UACP will be of significant value to the GOI and those donors. However, although the UACP directly addresses the agricultural sustainability goals identified in the AID CDSS, given the number of other donors, AID may want to consider pioneering other approaches to the issues of the uplands.

SUMMARY OF PRIORITY RECOMMENDATIONS

For convenience, we list the PRIORITY recommendations here. These include:

1. GREATER EFFORT TO GENERATE FARMER AND COMMUNITY PARTICIPATION IN THE PLANNING AND IMPLEMENTATION OF SUFS SHOULD BE MADE. PROJECT MANAGERS SHOULD VIEW FARMERS GROUPS AS PARTNERS IN PLANNING. FARMERS GROUPS SHOULD BE PRESENT AT DISCUSSIONS IN WHICH SUFS PLANS ARE FINALIZED. VILLAGE HEADS AND CAMATS SHOULD BE INVOLVED IN PROJECT ACTIVITIES. CONSIDERATION SHOULD BE GIVEN TO INVOLVING OTHER VILLAGE ORGANIZATIONS IN ASPECTS OF THE PROJECT.
3. THE ABILITY OF THE RURAL EXTENSION CENTERS TO MANAGE EXTENSION ACTIVITIES SHOULD BE STRENGTHENED. SUGGESTIONS INCLUDE:
 - SHIFTING RESPONSIBILITIES NOW HELD BY THE MANTRI TANI IN EAST JAVA TO THE REC.
 - MAKING THE BIMAS SECRETARY A MEMBER OF THE DISTRICT GUIDANCE TEAM.
 - THE REC HEADS, SUBJECT MATTER SPECIALISTS, AND EXTENSION MANAGERS BE EXPLICITLY INCLUDED IN PROJECT TRAINING AND MANAGEMENT ACTIVITIES.
 - MAKING THE FORESTRY EXTENSION AGENTS (PLPS) EXPLICITLY RESPONSIBLE TO THE REC.
12. THE MANAGEMENT INFORMATION SYSTEM SHOULD BE EXTENDED AND STRENGTHENED TO INCLUDE THE COLLECTION, ANALYSIS, AND REPORTING OF INFORMATION ON TECHNIQUES USED, RESULTS ACHIEVED, AND IMPACTS OF PARTICULAR TREATMENTS IN PARTICULAR SETTINGS. TECHNICAL ASSISTANCE SHOULD BE PROVIDED TO THE EXSEC BEFORE 1990 TO IMPLEMENT THE ANALYSIS, AND REPORTING SYSTEM TO ENSURE THE DISSEMINATION OF LESSONS LEARNED TO POLICYMAKERS AND PROJECT PLANNERS AND IMPLEMENTORS AT ALL LEVELS OF GOVERNMENT.
17. IMPROVE SUFS PLANNING PROCESSES BY CONSIDERING WHOLE FARM MANAGEMENT CONCERNS, BY PLANNING FOR CHANGING CROPPING SYSTEMS, AND BY FLEXIBLE USE OF SUBSIDIES. THE PROCEDURE SHOULD INCLUDE JOINT FARMER-PMU DECISION MAKING.

18. THE HECTARAGE TARGETS NOW SET FOR THE SUFS COMPONENT SHOULD BE REVIEWED. IN PARTICULAR, NO ADDITIONAL SUFS SITES BEYOND THOSE NOW PLANNED SHOULD BE SELECTED. EXPANSION AREAS SHOULD BE LIMITED TO THOSE WHICH CAN BE PROPERLY MANAGED WITH AVAILABLE EXTENSION PERSONNEL ACCORDING TO STANDARDS DEVELOPED BY THE CONSULTANTS AND QUOTED ABOVE.

26. WITH APPROPRIATE CHANGES DESCRIBED BELOW, THE FSR PROGRAM SHOULD BE CONTINUED UNTIL THE PROPOSED PACD BUT PROGRESS SHOULD BE REVIEWED IN TWO YEARS TO CONSIDER FUTURE DIRECTIONS AND FUNDING:
 - AARD MUST CLARIFY THE ROLE AND FUTURE OF THE FSR GROUP WITHIN THE AARD STRUCTURE.

 - FSR SHOULD CONSOLIDATE ACTIVITIES INTO ONE PROVINCE TO PROVIDE OPPORTUNITIES FOR AN IMPROVED PERSONNEL MANAGEMENT SYSTEM AND THE DEVELOPMENT OF A COMPREHENSIVE TRAINING PLAN FOR YOUNGER RESEARCHERS.

 - FSR SHOULD DETERMINE ITS COMPARATIVE ADVANTAGE WITHIN AARD AND, WHILE MAINTAINING A PROBLEM SOLVING PERSPECTIVE, FOCUS FUTURE RESEARCH ACTIVITIES TO FEWER THEMES WHILE INCREASING THE WORK DONE WITH FARMER PARTICIPATION.

27. THE FUTURE ROLE OF FSR WITH THE UACP SHOULD BE AS AN INFORMATION SOURCE. THE FSR GROUP SHOULD DEVELOP PRELIMINARY STATEMENTS ABOUT THE POTENTIALS OF DIFFERENT CROPS IN THE VARIOUS AGRO-ECOLOGICAL ZONES OF THE UPLANDS BASED ON RESEARCH EXPERIENCE AND SECONDARY DATA. THEY SHOULD DEVELOP A MINIMUM DATA SET, INCLUDING BOTH AGRO-ECOLOGICAL AND SOCIO-ECONOMIC, BY WHICH THEIR INFORMATION WILL BE ORGANIZED.

33. THE PACD SHOULD BE EXTENDED UNTIL 30 JUNE 1993 IF THE EXPANSION AND IMPROVEMENTS IN THE MANAGEMENT INFORMATION SYSTEM ARE MADE. TO QUALIFY FOR EXTENSION, THE SYSTEM SHOULD BE IN PLACE AND PRODUCING REPORTS ON TECHNOLOGIES AND PROCEDURES TRIED, THEIR SUCCESS, AND THEIR IMPACTS.

MAIN REPORT

Upland Agriculture and Conservation Project

MIDTERM EVALUATION REPORT

I. INTRODUCTION

This report is a review of the Uplands Agriculture and Conservation Project by a team of outside consultants under contract with AID. Appendix A gives the Evaluation Team's terms of reference. Appendix B identifies the team members, describes the methodology used, and lists persons and references consulted. Appendix C reviews project compliance with the logical framework. Reports from individual team members are attached as additional appendices.

The Uplands Agriculture and Conservation Project (UACP) is funded by the Government of Indonesia, AID, and the World Bank. The project attempts to sustain and enhance the productive capacity of Java's uplands through improved management of soil and water resources. Project locations are scattered throughout portions of the Jratunseluna watershed in Central Java and the Brantas watershed in East Java. The basic agreements for funding the UACP were signed in July and October 1984. The planned completion date is 30 June 1991.

Although the UACP is not a large project, it is a particularly complex project. The project is implemented through eight district governments, two provincial governments, and three agencies of the central government. In addition, the project is now working at over 75 field sites in the eight participating districts.

This evaluation reviews project progress to see whether it is moving towards its goals and to determine how the project might be improved. During the initial briefings, project management, technical and impact issues arose. We have tried to address all of these issues. Unfortunately, there is, as yet, insufficient time series data that can be used to evaluate the impact of the project. Therefore, this evaluation is based primarily on field visits and interviews with project participants supported by the Team's professional experience and best judgement.

II. PROJECT DESCRIPTION AND OVERALL PROGRESS

The Project Paper defines the goal of the UACP as "to increase farm production and incomes, while minimizing soil erosion, in

densely populated upland areas in Java by improving farming systems and farm technologies and management."

The specific purpose of the project is "to expand and improve institutional capacities, primarily at provincial, district and farm levels, to experiment with and apply alternative approaches to upland farming."

The Project Paper states that project management is to be based on four basic concepts:

- management decentralized to appropriate field locations
- management unified in a single line of responsibility
- budgetary systems unified by funding through a single channel
- participation of farm communities in project management and implementation.

The basic strategy of the project is the development of Sustainable Upland Farming Systems (SUFS) in the critical lands of the two watersheds. Project managers select SUFS locations; at each, managers and farmers select a ten hectare "demonstration plot" (demplot) to develop in the first year. Soil conservation measures and a new cropping system are planned for the demplot. To motivate farmers to undertake the conservation measures and adopt the cropping system, a subsidy in the form of seedlings and fertilizer is given for a two year period. Farmers do the work through a farmer's group established for this purpose. The SUFS area is expanded each year to cover all the eligible land in the immediate area. The Project Paper suggests that SUFS be expanded by 85 hectares in the second year and at a higher rate thereafter. This activity is assisted by the development of nurseries for upland crop seedlings.

To support the SUFS activity, the UACP provides several additional components, including:

- a) Conservation Access Roads to the SUFS sites.
- b) Farming Systems Research (FSR) to analyze upland farming systems and contribute new technologies for the solution of particular problems faced by SUFS.
- c) Human Resources Development - training at all levels of the project from top management down to the farmers.
- d) Project Innovation Fund - Grant monies for funding innovative activities undertaken by universities or nongovernment entities.
- e) Technical Assistance to SUFS and the other components.

Two components added since the beginning of the project are:

- f) Soil Surveys - semidetailed surveys of the eight districts and detailed surveys of SUFS sites.
- g) Policy Studies in particular areas that affect project progress.

To manage the project, the following structure has been created:

- a) At the national level, the UACP is overseen by a Steering Committee consisting of representatives of the Ministries of Home Affairs, Agriculture and Forestry, and other agencies. The project is managed by the Directorate-General of Regional Development (Bangda) within the Ministry of Home Affairs. The Executive Secretariat (EXSEC) established for the Citanduy Projects now assists in the management of the UACP. AID is the managing agency for the donors.
- b) Each province has established a Project Coordination Office (PCO) within BAPPEDA. The PCO's work is overseen by a Guidance Team (Tim Pembina) chaired by the Ketua BAPPEDA.
- c) Each district (kabupaten) has established a Project Management Unit consisting of staff from concerned and services (dinas). The leader of the PMU is the head of the Economic Section of the Bupati's staff. PMU activities are overseen by a Guidance Team chaired by the Ketua BAPPEDA.

Planning for SUFS is largely the responsibility of the Cabang SBRLKT (Branch of the Subcenter for Land Rehabilitation and Soil Conservation, Ministry of Forestry), with assistance from the Agriculture Service (Dinas Pertanian Tanaman Pangan). Work with farmers is carried out by Forestry and Agriculture extension workers (PLPs and PPLs). Farmers actually carry out land reshaping and other physical work. Public Works plans and executes roads work.

Overall Project Progress

Overall progress on the UACP has been slow. By February 1989, \$19,837,547 has been committed out of the \$41,862,000 budget (revised following devaluation of the rupiah in 1986). To November 1988, reimbursements come to 21% of the total donor budget. Only the roads and technical assistance components are proceeding at the expected pace.

Progress has been delayed for many reasons. A major reason has been the difficulty of the GOI in funding project activities because of the severe reduction in revenue that followed the fall in oil prices in 1986.

III. THE TWO GOALS OF THE PROJECT

This project goal actually contains two goals: a) increasing farm production and incomes, and b) minimizing soil erosion. Project participants all assert that the goals are of equal importance and can both be satisfied.

The approach taken in the UACP is based on the assumptions that a) upland farmers will continue to farm critical lands, and b) that current farming practices encourage erosion. The project attempts to discover the least damaging way to farm those lands and to encourage adoption of the techniques by finding ones that increase income from the critical lands. Note that even casual observation reveals large fallowed areas on the critical lands. Not enough is known about fallowing practices or the place of the critical lands in the productive resources of upland farmers to be absolutely certain of the validity of these assumptions.

The Evaluation Team sees potential and actual conflicts between the two goals of the project. A program to increase farm production often implies increases in cropping intensity. Increased cropping intensity implies increased soil tillage and, generally, lengthened periods of bare soil, both of which are likely to increase erosion. A few cases were observed where land subject to severe erosion was being brought into production because of the project.

Project participants have generally chosen to increase agricultural production or profits within limits set by the conservation technology chosen. This approach minimizes the conflict.

IV. PROJECT MANAGEMENT AND INSTITUTIONAL DEVELOPMENT

The Team noted clear evidence of institutional development, particularly at the district level. District team members coordinated by the PMUs work together very well and are clearly learning lessons about both cooperation and the technical problems of agricultural development and soil conservation in the uplands. Particularly impressive has been the progress at all levels in using computers to store and analyze management information data. The UACP has also led to significant improvement in the ability of the extension services to deal with upland problems. The project has placed upland crop

problems on the agenda of the Agricultural Extension Service, an agenda previously dominated by irrigated rice. There appears to be great enthusiasm among project participants for the work. We expect that lessons being learned at the district level will be carried over to the Forestry Ministry's greening program when reestablished in the districts after the UACP has been completed.

Community Participation

Community participation is of central importance for the sustainability of project initiatives. Decentralization and community participation are indissolubly linked. It is impossible to get continuing community participation without giving the community power to make its own decisions. Our concern is that for the most part, project management, like the Project Paper, has viewed decentralization as ending at the district government level.

The intention of community participation is to create the capability within the community to plan and carry out conservation and agricultural development activities. In the Team's opinion, one of the biggest weaknesses of project implementation has been insufficient inclusion of farmers and local government in SUFS planning. Although Farmers Groups (Kelompok Tani) manage implementation of SUFS plans well, they were not planning their own SUFS activities either alone or in conjunction with government officers.

Some Farmers Groups have been turned into multipurpose groups that assist members with credit and in other ways. The Evaluation Team believes that PMUs and extension agents should encourage this development.

Community participation requires involvement of the Village Heads (Kepala Desa) in the project. Working closely with the Village Head provides leadership and assistance from the whole village. It also provides a good mechanism to deal with jealousies and other troubles that arise among villagers. The Camat links the district government to the Village Head and thus must also have some involvement in the project. An important benefit of involving the Camat and Village Head in the project is the signal it gives that participation is politically acceptable.

Involving other village institutions, including the LKMD and the village school, can enhance community participation. The LKMD has an important community planning role and the latter could form the basis for a village nursery.

Not enough effort has been made to bring women into project activities. In the upland areas men often work outside the villages for extended periods, leaving their wives in charge of farming activities. The technical and managerial issues of the conservation and cropping plans should be discussed with women. Discussions can be organized through the women's organizations in the villages or by explicitly including wives in extension meetings and training courses for project activities.

The Team thus makes the following PRIORITY recommendation:

1. GREATER EFFORT TO GENERATE FARMER AND COMMUNITY PARTICIPATION IN THE PLANNING AND IMPLEMENTATION OF SUFS SHOULD BE MADE. PROJECT MANAGERS SHOULD VIEW FARMERS GROUPS AS PARTNERS IN PLANNING. FARMERS GROUPS SHOULD BE PRESENT AT DISCUSSIONS IN WHICH SUFS PLANS ARE FINALIZED. VILLAGE HEADS AND CAMATS SHOULD BE INVOLVED IN PROJECT ACTIVITIES. CONSIDERATION SHOULD BE GIVEN TO INVOLVING OTHER VILLAGE ORGANIZATIONS IN ASPECTS OF THE PROJECT.

We also recommend the following:

2. More effort should be made to involve women by including women in training and extension efforts.

Management of Extension Services

The Project Paper asserts that extension efforts for the UACP will be managed by the Rural Extension Centers (RECs).

We observed that in East Java, the management of extension workers and distribution of subsidy inputs is the responsibility of the Mantri Tani, a Kecamatan officer. The Team feels that these responsibilities should belong to the Rural Extension Centers (RECs). There are two reasons. First, the Mantri Tani is rarely trained in agriculture and has no background in extension. Second, the Mantri Tani has no direct authority over the extension staff.

To date, the Rural Extension Centers have not been heavily involved in the project. The Heads of the Centers have rarely been included in project discussions or training activities. Extension field supervisors and subject matter specialists have also been neglected. One reason is that the Rural Extension Service is answerable to the BIMAS Secretary in the District who in turn is answerable to the Provincial Agriculture Office. This line of responsibility bypasses the PMU, the district Agriculture Service, and the Bupati. The upper levels of the extension organization should be explicitly brought into project implementation.

Forestry Extension Workers (PLPs) are nominally responsible to the Rural Extension Centers. However, their pay and guidance come from the Forestry Department through the Cabang SBRLKT. If the Rural Extension Centers are to manage the extension effort, their authority over the PLPs should be strengthened. At the same time inputs from the Cabang SBRLKT to the Rural Extension Centers should be encouraged.

The Team learned from that, as the area treated under the UACP expands, there is a growing shortage of extension personnel. SUFS require intensive extension efforts by both PLPs and PPLs not only during the first two years but also later. The growing area of responsibility for each extension worker can only result in poorer project performance. National policy will probably prevent hiring a significant number of new extension workers in the near future. Therefore, both provinces are shifting extension workers from areas outside the project to project areas. While we applaud this attempt, it will probably not be enough to solve the shortage of extension workers.

It has been suggested that the project could fund the hiring of "spot workers," temporary local persons, to act as additional extension workers. We do not support this idea for two reasons. First, paying a local worker, often a farmer, to do work that the Farmers Group Head is also doing for free can raise resentments. Second, experience elsewhere has shown that such persons clamor for permanent government jobs. Instead we suggest funding and recruiting additional extension agents through a responsible NGO. These extension agents could be trained by the project.

The Evaluation Team makes the following PRIORITY recommendation:

3. THE ABILITY OF THE RURAL EXTENSION CENTERS TO MANAGE EXTENSION ACTIVITIES SHOULD BE STRENGTHENED. SUGGESTIONS INCLUDE:

- SHIFTING RESPONSIBILITIES NOW HELD BY THE MANTRI TANI IN EAST JAVA TO THE REC.
- MAKING THE BIMAS SECRETARY A MEMBER OF THE DISTRICT GUIDANCE TEAM.
- THE REC HEADS, SUBJECT MATTER SPECIALISTS, AND EXTENSION MANAGERS BE EXPLICITLY INCLUDED IN PROJECT TRAINING AND MANAGEMENT ACTIVITIES.
- MAKING THE FORESTRY EXTENSION AGENTS (PLPS) EXPLICITLY RESPONSIBLE TO THE REC.

We also make the following recommendation:

4. Shortages of extension workers for project activities should be met by hiring additional regular extension workers if possible, and by involving responsible nongovernmental organizations.

District Level Project Management

The Cabang SBRLKT, as the district level conservation organization, has a major role to play in the project. However, the Cabang SBRLKT is not answerable to the PMU, the Bupati, or the district Bappeda. It is answerable directly to the Ministry of Forestry through the SBRLKT and the BRLKT. We suggest that the Cabang SBRLKT be given the status of a district service (dinas) and be made answerable to the Bupati. This change would provide structural reasons for cooperation that can be carried over to the reforestation and greening program.

Like the Cabang SBRLKT, the BIMAS Secretary answers directly to the Regional Agriculture Office (Kanwil Pertanian), bypassing the Bupati. We suggest that a solution be found, perhaps moving the BIMAS Secretary into the district agriculture service.

A structural problem exists in the PMU organization itself. The PMU leader is the Head of the Economic Section of the Bupati's staff. However, the Chairman of the Guidance Team is the Chairman of the district BAPPEDA, an organization in its own right although also answerable to the Bupati. This split in responsibilities can, and has, led to conflict between the Economic Section and the BAPPEDA. The PMU is a creation of the UACP and will vanish afterwards, thus removing the mechanism for coordination of inputs from the various agencies. We therefore suggest moving coordination responsibilities from the Economic Section to the district BAPPEDA by naming a senior staff member of the BAPPEDA as the PMU leader. This move will provide a vehicle, the BAPPEDA, for future cooperation among the various services; it will also provide better coordination between the Guidance Team and the PMU.

The Team therefore recommends the following:

5. To enhance cooperation with other agencies, the Cabang SBRLKT should be made answerable to the Bupati and given the status of a Dinas.
6. A senior staff member of the District BAPPEDA should be made Leader of the PMU in order to enhance BAPPEDA's coordination role.

Provincial Level Project Management

We wish to commend the PCOs for the preparation of the Juklaks in each province. These have been of the great help in project management. As long as they are discussed by all concerned and revised annually, the Juklaks are an excellent innovation that should be followed in other projects.

The PCOs have only a few major functions: they review and compile budget and reimbursement requests for transmission to Jakarta, they manage a portion of the training program, they prepare the Juklak for the province, and they compile and disseminate project management information. It is not unexpected therefore that the titular heads of the PCOs play no part in PCO work, and the Guidance Teams very seldom meet.

National Level Project Management

In the opinion of the Evaluation Team, national level project management has two basic functions: processing paperwork for funding purposes, and spreading the lessons learned from the UACP to policy makers in the concerned government agencies. Also, some training must be coordinated at the national level.

The UACP is overseen by a Steering Committee consisting of senior officials in the concerned ministries. However, project management is split between Bangda in the Ministry of Home Affairs, and the EXSEC.

The GOI project manager sits at Bangda. Bangda staff do most of the day to day processing of funding requests. All official letters are addressed to Bangda. The Chairmen of the Steering Committee and of the EXSEC are both officers in Bangda.

Bangda manages the paper processing functions adequately. Most, but not all, of the problems with funding procedures (see below) are problems elsewhere in the system. However, Bangda as an organization has shown little interest in developing the information dissemination links needed for the information transfer function.

The EXSEC was created to serve as a staff for the Project Steering Committee. The EXSEC members are officials from the concerned ministries. The members are part time and are senior enough that they find it difficult to devote time to the project. Hence AID has funded the Joint Operating Support Staff (JOSS) as a staff for the EXSEC. The JOSS consists of a mixture of more junior officers from the ministries and persons hired by AID. The EXSEC and the JOSS are primarily concerned

with information collection and dissemination. In addition, training coordination is located there.

Information transfer has, until recently, been performed very poorly, largely because most of the technical staff of the EXSEC are part time. Without full time persons funded directly by AID, the EXSEC and JOSS have been able to do very little work. Also, the EXSEC has almost completely failed in its training coordination function because of lack of personnel.

Recently, however, with the hiring of a full time expatriate consultant by AID, the JOSS has begun to be more active. One JOSS member, a Bangda employee originally hired by AID, is working almost full time for the JOSS. As a result, the JOSS issued the very first unified progress report for the project this month. The JOSS is also considering assisting the PCOs and PMUs in various ways. All of this activity, however, depends upon persons hired directly by AID. This activity is likely to disappear once the AID employees leave.

As we see it, there are two alternatives:

- The EXSEC could be transformed into a general coordinating body dealing with all problems in a particular sector, either a) watershed management, including lower watersheds, or b) uplands development. A small full time staff would be needed. The EXSEC could then take on all project management responsibilities. The location of the coordinating body would depend upon which sector is chosen; the logical candidate for a watershed body is Forestry and the logical candidate for upland development is Bangda. This option has the advantage of expanding the scope of the body and making it more likely that members would attend. It would also make it more effective as a means of spreading information. The disadvantage is that it would not be as cohesive and administratively effective a body as a functioning bureaucracy like Bangda.
- Bangda could handle all project management functions. This has the advantage of placing things in a coherent and functioning organization. It has the disadvantage of removing personnel from Agriculture and Forestry from positions of importance in the project. This change might reduce interest in the project within those Ministries. It also has the disadvantage of making it far less likely that lessons learned by the project would be effectively distributed to these and other ministries.

The Evaluation Team cannot pick between these two options; we refer consideration of both options to the interested government agencies.

The Evaluation Team recommends the following:

7. Consideration should be given to two alternative modifications of the present national level management structure which may improve performance:
 - The EXSEC be reconstituted as a consultative coordinating body dealing either with all watershed conservation and management projects or with all uplands development projects.
 - All national level management functions be moved to Bangda.

Donor Project Management

UACP funding comes from three sources: the Government of Indonesia (including various agencies as well as provincial level and district level governments), AID (both grant and loan funds), and the World Bank. There is an agreement between AID and the World Bank specifying that AID will manage the project for both donors.

AID project management activities have included: processing annual requests for budget approval of donor funds, processing claims for reimbursement, determination of whether funds are spent as prescribed, negotiation of funding changes to reflect needed budgetary changes, management of some technical assistance arrangements, arranging for the midterm evaluations, and providing technical and managerial guidance to various project participants.

This wide range of activities, together with the diverse set of activities being funded under the UACP, has required a large commitment of AID time and personnel to this project. The Evaluation Team feels that this is an excessive management effort. More of the burden should be carried by the Indonesian project managers in the various agencies. We note, however, that greater reliance is now being placed on the technical assistance teams than in the past.

To avoid negotiating every activity and checking every activity for reimbursement, it is necessary to establish beforehand clear written guidelines for planning and funding SUFS, access roads, research projects, training programs, and other activities. Of course, attempts have been made to establish clear guidelines, but much informal effort has been needed to teach the preferred interpretation. The most successful efforts have been the Juklaks issued by the PCOs. According to informants, funding principles for SUFS and access road activities are now well understood in the field. AID personnel

are no longer carrying out prior inspections for all such activities. Standards for research projects and for some training program activities are still as yet not clearly understood.

The Evaluation Team feels that AID management of joint AID-World Bank funding for the UACP has been successful. Such arrangements should be considered in other projects in the future.

Therefore we make the following recommendations:

8. AID project management should refrain from micromanaging activities as in the past; additional clearly defined responsibility should be given to GOI project managers and to technical assistance teams.
9. The Project Paper and other basic documents do not provide sufficiently clear guidelines for project implementors. Detailed written guidelines establishing what is expected of each person should be provided and discussed thoroughly early in the project life. Workshops and training for managers at all levels should be held to work out details and clear up misunderstandings. Then reimbursement verification can be limited to a small sample of activities.

Funding Procedures

Delayed funding is the most common complaint from the PMUs and other project participants. Funding delays have regularly delayed project implementation.

The funding procedure is complicated. Twelve budgets are prepared, including eight district budgets, two provincial budgets, a central budget, and the Farming Systems Research budget. All donor funded activity except the technical assistance contracts and overseas training are prefinanced by the GOI.

Slow disbursements appear to have several causes. First, the Finance Ministry and AID both require complete documentation describing each project expense and/or each item to be reimbursed. Often the information is missing. It may not have been prepared properly by the agency originating the budget or reimbursement request or it may have been lost by one of the agencies it must pass through. Also, all of these agencies have the usual paper processing delays. The Evaluation Team was told several times that agency officers must personally follow up requests in Jakarta to ensure timely release of funds.

The SP3 form is the single biggest problem for project implementors. Getting an SP3 cleared often requires several trips to Jakarta. This travel is wasteful in both time and money and significantly increases project management costs. Our understanding is that the SP3 procedure was designed for larger sectoral projects with single budgets. The UACP, however, requires many smaller budgets. Removing the difficulties of the SP3 would go a long way toward solving the funding problems of the UACP.

In addition, donors complain that funds are not being expended quickly enough. Although the reimbursement process itself is not excessively complicated, it requires time and effort. Moreover, since activities are prefinanced by the GOI, the PMUs and PCOs have little incentive to issue reimbursement claims. It may help therefore to avoid the reimbursement procedure and allow prefinancing directly by the donors. Such a procedure would, require that the agencies complete documentation of expenditures within the year in order to be granted the following year's funds.

We note that funding delays have been reduced during the past year. All concerned appear to be adjusting to the situation.

We recommend the following:

10. Because of the high costs of preparing the SP3 documents, a simplified procedure should be adopted to document requests for external funding in place of the SP3 procedures.
11. To avoid reimbursement processing delays, AID should prefinance project activities on an annual or quarterly basis based on the approved budget. It will be necessary to devise a procedure by which documentation of expenditures can be checked before disbursement of more funds.

Management Information Systems

The Project Paper lays heavy emphasis on the development of a Management Information System (MIS) to monitor project progress and to record and disseminate the lessons learned. A progress reporting system was defined by the Ministry of Home Affairs at the beginning of the project. However, that system focuses heavily on indicators of progress, such as numbers of hectares treated, numbers of persons trained, etc. The system provides very little information on impacts, and even less on the technical details of the process. Since then, DAI consultants have developed additional data collection instruments and have trained a corps of persons to store and analyze the collected

data on computers. This system has been approved by Bangda. To date, however, little of this data has appeared in reports. With a few exceptions, project reports are still confined largely to indicators of project progress.

Although the PMUs and the PCOs have been regularly producing reports from their sources, only one general report, a Midterm Report, has been compiled for the whole project. We applaud the plans to follow this first report with regular half yearly reports and abbreviated monthly reports. However, the Midterm Report fails to include information on the existing variety of SUFS treatments and cropping systems, on the success and sustainability of treatments, or on the value of training programs. None of the information provides standards for judging project activity beyond the simple ones of hectares treated, meters of roads built, numbers of persons trained, and amount of money spent.

In this decentralized project, almost all of the detailed implementation decisions are made at the district level or below. The results are seen only by those working at that level. Without an effective reporting system, information about what works and what does not is confined to low levels and is not available to provincial and national project managers, policymakers, and planners of new projects. Since the UACP is to provide guidance for other efforts to deal with upland agricultural and soil conservation problems, lessons learned must be transmitted from the district level to the provincial and national levels through the MIS.

Project managers themselves have not appreciated the need for more thorough documentation of project activities. Most have been more concerned with insuring that project activities occur on schedule than with the potential of this project for solving upland problems. For this reason, project managers have not demanded additional data.

We make the following PRIORITY recommendation:

12. THE MANAGEMENT INFORMATION SYSTEM SHOULD BE EXTENDED AND STRENGTHENED TO INCLUDE THE COLLECTION, ANALYSIS, AND REPORTING OF INFORMATION ON TECHNIQUES USED, RESULTS ACHIEVED, AND IMPACTS OF PARTICULAR TREATMENTS IN PARTICULAR SETTINGS. TECHNICAL ASSISTANCE SHOULD BE PROVIDED TO THE EXSEC BEFORE 1990 TO IMPLEMENT THE ANALYSIS, AND REPORTING SYSTEM TO ENSURE THE DISSEMINATION OF LESSONS LEARNED TO POLICYMAKERS AND PROJECT PLANNERS AND IMPLEMENTORS AT ALL LEVELS OF GOVERNMENT.

In addition, we recommend:

13. That an intensive effort be made to have project managers at all levels understand the broad implications of the project and to have them determine how MIS can help them deal with those implications. This effort could include workshops on project information needs and formal training on the uses of MIS.

V. SUSTAINABLE UPLAND FARMING SYSTEMS

The purpose of the SUFS component of the UACP is to "demonstrate and extend to farmers' fields a replicable, cost effective combination of farming and conservation practices that will be economically stable and will keep erosion within acceptable limits." SUFS activities include demonstration farm (demplot) development, expansion area development, nursery development, and seed production and distribution.

Soil Conservation Treatments

The sites selected for SUFS cover a wide range of soils and topographic conditions. This range includes the major country-wide upland soil conservation problems.

The lack of an appropriate soil database early in project implementation has hampered the planning of site specific alternatives. A soil survey (detailed for SUFS and semi-detailed for the 8 districts) has recently been completed, but is not yet being used extensively.

The Project Paper and project implementors originally assumed that the construction of bench terraces was the best solution to the soil conservation problem in the targeted lands. This assumption was based on Citanduy and other experiences in areas of deep and fertile soils. In fact, however, there is a wide variety of soils and other conditions in the project area; no single solution is correct.

Although there is still a tendency to regard bench terracing as the best solution to most problems, many project implementors now recognize that other approaches should be used for some soil and slope conditions. Much of the UACP area has shallow sedimentary soils for which bench terracing may not be the best treatment. In some places, SUFS planners have begun to plan different treatments for different parts of a SUFS area. We were pleased to see a wider range of technologies being applied on the newer demonstration and expansion areas, including reverse sloping terraces, credit terraces, ridge terraces, tree planting in fallow land, and waterways and drop structures

designed to conform to the topography and natural drainage patterns. Despite these changes, there is, in our opinion, still too little flexibility in conservation planning.

The operation and maintenance of conservation structures has not been adequately considered in planning the SUFS sites. Terraces, waterways and drop structures represent a sizeable capital investment. Comparative operation and maintenance requirements should be an overt consideration when planning conservation alternatives. There is a need to collect and analyze data on operation and maintenance to be used in the planning process.

Monitoring and evaluation of conservation practices has not been adequate. A recent innovation has been the development and use of an evaluation form to record observations about bench terraces and erosion. These evaluations are subjective but should be useful for comparisons between sites and between different times at the same site. The forms must be tested to determine their effectiveness as an evaluation tool. Additional forms are needed for other kinds of conservation systems and/or system components. Other procedures for efficiently estimating and reporting the relative value of conservation efforts in preventing soil loss in different locations should be explored.

We recommend the following:

14. Build operations and maintenance considerations into SUFS planning and implementation processes.
15. Improve evaluation of conservation efforts by testing and developing procedures for use of the terrace evaluation form and by exploring other ways to efficiently estimate and report the relative value of conservation efforts in preventing soil loss.

Cropping Systems

In some locations there has been a tendency for planners to encourage food crop production (upland rice, maize-cassava-beans) rather than perennial tree crops. In such areas few tree seedlings have been distributed to SUFS farmers. In other locations, more diversity was observed. For example, in some East Java sites where annual crops (chilies cucumbers, cassava) have a significant cash potential, these are incorporated into the cropping systems. In Malang, farmers choose to cultivate large quantities of fruit trees and estate crops.

At some newer SUFS sites, alternative soil management practices are being tried. In Blora and Grobogan, green manure species

such as Crotalaria are being planted. At several older sites, crop residue was used as mulch along the terrace edge and composted in the enclosed water control ditch. The composted material was to be applied to the terrace surface to protect the soil during the long dry season.

This diversity should be encouraged as an adaptation of cropping systems to farmer's needs and desires. We were pleased to see in some areas a conscious effort by SUFS planners to develop long term strategies for gradually shifting from annual cropping systems to more sustainable perennial system in the project areas. In order to encourage the shift from annual crops to perennials, one could consider eliminating subsidies for food crops and replace them with subsidies for planting soil conservation species, e.g. trees and grasses.

We make the following recommendation:

16. As judged appropriate by farmers, plan for a shift from food crops to perennial cropping systems. Consider restricting subsidies in some cases to perennial crops, conservation plants, and conservation treatments.

SUFS Impact

The impact of SUFS activities has been difficult to determine. No time series data yet exists that allows impact determination. The Evaluation Team has had to rely solely on its own observations and judgement of impact.

We believe that the soil conservation measures have succeeded in reducing erosion on the treated lands. However, we are not sure of the long run sustainability and importance of this observation.

First, there is reason to doubt the sustainability of the new cropping systems (see below). Therefore the maintenance of the new systems is open to question. Observations on Citanduy indicate most terraces are maintained, but soils at Citanduy are deeper and more productive than on many of the UACP sites thus making the sites more valuable to farmers.

Second, according to the Project Paper, "most soil erosion comes from small private land-holdings worked by low income, subsistence farmers." There is no reliable data that pinpoint the amount of erosion from this source; there is also no data on erosion from any of the other possible sources, i.e. roads, villages, stream banks, forests, massive land slides and soil slumping. There is no basis for assuming that controlling erosion on upland farms will in whole or in part solve the erosion problem.

During our field visits, we observed significant soil erosion from the lands managed by P.N. Perhutani. These lands are outside the purview of the project. In some villages, Perhutani lands represent a significant portion of the total land area. Therefore, a mechanism should be devised by which lessons learned in UACP can be applied to Perhutani lands.

There is indication that crop production in SUFS areas has increased during the first two years of project activity. This increase can sometimes be attributed to adding a second or third crop to the annual cycle. Almost all of the new cropping systems require increased inputs in fertilizer, cash, seed, or labor.

On some of the older sites, farmers have reverted to the older cropping patterns or planted sole crop cassava when the subsidies ended. Farmers revert because, without the subsidy, returns to the purchase of seed and fertilizer and to labor on the SUFS land are lower than investment of the same money and labor in other activities, including farming activities on other land.

Improving SUFS Planning

Project managers with the help of the consultants have devised and put into place an innovative SUFS planning and budgeting system. In this system, budget estimates are based on an early survey. Development of the budget requests then proceeds in a parallel fashion with development of the detailed designs and plans. Final plans and amended budgets are married later. This procedure eliminates the need to hold budget requests until final plans are available.

Whole farm management has not been given enough consideration in SUFS planning. For example, farmers generally have several land parcels. Decisions about how to use lands included in the project are partially based on each farmer's needs with regard to his other land and resources. The baseline data provides information on land allocated to different uses for the area. However, there is no information on how individual farmers manage their resources (land, labor, capital). The sustainability of the treatments for each SUFS site is dependent on these decisions.

Planning for SUFS activities should consider existing farmer practices and expressed needs, farm management concerns, and the natural resource constraints of the area. SUFS planning should use a more creative approach to integrating biological and physical alternatives to soil conservation. Planning should be more flexible, with the ideal situation being site

specific systems developed for each farm or each resource management units. These mini-plans would then be combined into a plan large enough to handle water management and structural conservation inputs on a reasonable basis. More flexibility in designing conservation interventions implies a need for more flexibility in the design of subsidies.

There has not been enough farmer involvement in SUFS planning. Information about the farmers, including farmer ideas about what crops to grow, is collected and used in SUFS planning. However, most planning decisions are made by PMU staff alone. If, instead, farmers, PMU personnel and extension agents make joint planning decisions, the chances are that the cropping systems and conservation plans will fit into the farmers' management plans and will be sustained. Joint planning meetings would preferably be chaired by the farmer group leader to ensure farmer involvement.

We make the following PRIORITY recommendation:

17. IMPROVE SUFS PLANNING PROCESSES BY CONSIDERING WHOLE FARM MANAGEMENT CONCERNS, BY PLANNING FOR CHANGING CROPPING SYSTEMS, AND BY FLEXIBLE USE OF SUBSIDIES. THE PROCEDURE SHOULD INCLUDE JOINT FARMER-PMU DECISION MAKING.

Hectarage Targets

The Project Paper sets hectarage targets for SUFS. Hectarage targets for both demonstration farms and expansion areas are not being met. We feel that the targets were too ambitious. They were based on the assumption that the GOI would assign additional extension personnel to the project watersheds. Also, it appears that the targets came from previous experience in other projects or programs where full-time experienced personnel were treating sites that were not as difficult as many in the UACP.

As SUFS sites expand, the burden on the extension agents grows heavier. Currently, Agriculture Extension workers (PPLs) work in more than one village and are often responsible for more than one project. Forestry Extension workers (PLPs) have an area of work ranging from 100-250 hectares apiece. In the opinion of the many persons connected with the project, there should be a PPL assigned exclusively to each village with a demplot, and each PLP's area should be limited to about 50 ha to ensure effective work.

Although project managers recognize the growing shortage of extension agents, the likelihood of significantly increasing the number of extension agents available to the project is small. Even if more extension agents are found, management

problems become more severe. Instead, we recommend that hectare targets be reviewed and reduced where necessary to agree with the numbers of extension agents available.

We make the following PRIORITY recommendation:

18. THAT THE HECTARAGE TARGETS NOW SET FOR THE SUFS COMPONENT SHOULD BE REVIEWED. IN PARTICULAR, NO ADDITIONAL SUFS SITES BEYOND THOSE NOW PLANNED SHOULD BE SELECTED. EXPANSION AREAS SHOULD BE LIMITED TO THOSE WHICH CAN BE PROPERLY MANAGED WITH AVAILABLE EXTENSION PERSONNEL ACCORDING TO STANDARDS DEVELOPED BY THE CONSULTANTS AND QUOTED ABOVE.

Improving Extension Capabilities

The Team noted several encouraging things about the extension personnel working in the UACP. Some extension personnel are very competent and have received recognition at the provincial and national levels. Although most PPLs carry rather heavy off-project workloads as do some PLPs, we found many dedicated people sincerely trying to carry out their assignments. We saw innovative ideas being expressed in the field. We observed that some PLPs and PPLs are women and among the most effective in their work. Generally, communication-coordination linkages between the extension personnel, the farmers and the Cabang SBRLKT are good.

However, we also noted opportunities for improvement in extension capabilities. The effectiveness of existing extension personnel can be improved as described in the recommendation below:

19. The effectiveness of extension personnel, both PLPs and PPLs should be improved in the following ways:
 - Add and improve training programs in the resource management systems approach to SUFS planning, in upland crops, in social dynamics and farmer decision making, and in communications and motivation. That cropping systems are an integral part of soil conservation strategies must be emphasized.
 - Provide each PLP with basic tools including hand level, roll tape, hand compass, and collapsible rod.
 - Prepare and distribute to the PPLs brochures and other training materials in upland crops. This activity should be cofinanced by the donors and the GOI through the project.

- Train PPLs and PLPs in each others' specialties, especially upland crop production, so they can supplement each others' efforts.
- Improve transportation for PPLs and PLPs, preferably by the purchase of a motorcycle for each; purchase of motorcycles should be financed by the project.

Improving Soil Conservation Planning Capabilities

At the Cabang SBRLKT, soil conservation backstopping is inadequate. The Kepala Cabang is the person carrying that responsibility. He also has management and administrative duties that limit his professional input. Either a soil conservation specialist should be assigned at the Cabang level or the Kepala Cabang's duties should be restructured to relieve him of routine administrative responsibilities.

The recently completed soil surveys should be incorporated into SUFS planning processes. To make effective use of this data, it must be presented in lay terms. Also, there must be training and backstopping for potential users. This help could be provided by assigning a soil scientist full time or part time to the SBRLKT staff. The responsibilities would include training, technical inputs to planning, monitoring, and evaluation, and specialist help with special soil problems at particular sites.

Aerial photographs or satellite images would also improve the planning and evaluation capabilities of the SBRLKT and Cabang and help PLPs and PPLs.

We recommend the following:

20. The technical capabilities of the SBRLKT and Cabang SBRLKT be strengthened by:
 - Either adding a specialist in soil conservation to the staff of the Cabang SBRLKT or by restructuring the responsibilities of the Kepala Cabang to allow him to function in the technical capacity of soil conservationist.
 - Providing Indonesian technical assistance in soil science to the SBRLKTs. The duties of the consultants would include: a) providing training in various aspects of soil science including the use of soil surveys, b) providing advice to PLPs and others, and c) reviewing SUFS plans.

21. Purchase of aerial photographs or satellite imagery for use in planning and implementation. This material should be made available to the PLPs and PPLs through the SBRLKT.

Nurseries

The purpose of nursery establishment by the project was to assure adequate supplies of grasses/legumes, food crop seed stocks and tree crop seedlings to the SUFS. Seed supply was viewed as central to achieving both the conservation and production objectives of the project.

Nurseries were initially established at the district level in both Central and East Java. These nurseries developed at different rates. The Boyolali nursery has supplied large amounts of seedlings and grasses to SUFS sites; others have not done as much. However, nurseries have not been able to supply total project demand for planting materials. Therefore, private nurseries have also been given contracts. Because of problems of supply due to late disbursements of project funds, a village nursery program was begun in East Java in 1987-88. The village nurseries have been successful. There is now a plan to establish village level nurseries in Central Java although the district nurseries remain an important project activity.

Although the Project Paper specifically mentions producing quality seed for food crops, district and village nurseries have focussed their efforts on conservation material, i.e. grasses and tree seedlings. The project has bought food crop seed privately. There have been problems with poor quality seed and delays in planting due to the late arrival at the field sites.

The Team believes that the multiplication of conservation species within the project nurseries is appropriate. Elsewhere in this report, we recommend there be more emphasis on the evolution of upland cropping systems to perennial systems.

The village nursery is a potential source of low-cost, good quality seedlings. Farmers in the uplands are often unable to buy seedlings from private nurseries because the nurseries will not advance credit. High value fruit trees represent a significant level of investment. The village nursery can extend credit and accept payment in kind.

The choice of species within some village nurseries has been influenced by farmers. In others, decisions are made at the district level; these locations have been less successful.

In East Java, village nurseries receive an initial subsidy of one million rupiah and are assured of the project market. It appeared that several of the nurseries would, on the sale of one tree species alone, receive enough money to replant the next year. By the end of the project, village nurseries must have generated a local market and be well managed or they will not survive.

The Evaluation Team recommends the following:

22. The village nursery program should be continued. Managers of village nurseries and the PPLs supporting them should be provided with training in all aspects of nursery management, including business management and finance.

VI. ACCESS ROADS

The access road component is proceeding well; road construction is very much on schedule. Both the local people and the Evaluation Team see the access roads as being among the most beneficial components of the UACP.

Most of the roads (estimated 70-80%) are appropriately located and well used. In only one case were we informed that little use was made of the road. Principle uses include 1) improving access for individuals, 2) importing production inputs, 3) exporting production outputs, 4) facilitating assistance from extension agents and other visiting helpers.

Soil conservation considerations have been emphasized in access road planning, design, and construction, especially in 1988. The consultants have prepared and issued a manual (August 1988) incorporating erosion control into the design of several road components. Design for one important condition, subsurface water, is not addressed and should be added to the manual.

Although designs should be closely adhered to during construction, sometimes they are not followed exactly. Therefore, first year maintenance and minor modification should be considered a construction cost and not passed on to the village. There are now routine evaluations of completed roads by technical assistance team members and Public Works staff. These routine evaluations provide an opportunity for observation and discussion about design adequacy, construction quality, operation and maintenance requirements and training needs.

A simple layman's brochure on road maintenance and repair should be developed and given to local village officials responsible for road maintenance.

Land rights acquisition is occasionally a problem in siting roads. Starting land acquisition early would be helpful.

The Evaluation Team recommends the following:

23. The standards set forth in the Road Construction Manual be adhered to in planning and construction. Training in the design concepts and standards embodied in the manual should be continued for design personnel and extended to construction supervision personnel to ensure adherence. The standards should be evaluated and revised periodically. A standard covering situations in which subsurface water is present in must be added to the manual.
24. Operation and maintenance plans must be developed and adhered to. Project funds should be made available for maintenance during the first year of use for correction of design or construction faults. A simplified manual on road maintenance should be developed and distributed to appropriate village officials.
25. Road siting and route locations should be identified as early as possible to allow time to solve problems of right of way so the optimal route can be used.

VII. FARMING SYSTEMS RESEARCH

The Farming Systems Research (FSR) component of the UACP has evolved from typical cropping systems research (1984-1987) to a more integrated client-oriented research approach. This approach identifies research themes from a diagnostic survey of the target area (research plan 1988). This change has resulted in agronomic, horticultural and livestock research that has the potential to provide recommendations appropriate to farmers in the upland areas of Central and East Java.

The Research Agenda and Research Skills

Until 1988, the FSR group's research agenda was controlled by senior researchers from Bogor. The FSR field team, now backstopped by the Winrock Technical Assistance Team, has now become more independent in determining a research plan. Central control of the research agenda, personnel changes (three project leaders since 1984; two individual consultants as research advisors between 1985 and 87), and late implementation of the TA team (Fall 1987) has led to delays in the establishing an accepted and replicable FSR methodology.

While the research agenda is pertinent to the constraints that farmers face in the area, research design and data analysis and

interpretation skills are still weak. In experiments, the replications and sample sizes needed to establish significance have not been adequately considered nor has interaction between factors been accounted for. In reporting research results, some reports fail to indicate the sample size and whether the reported yield is a mean value or for one site.

The FSR researchers are young and inexperienced; until recently, they have relied on senior scientists in Bogor to design field research and analyze results. There is a need for additional training in research methodology with emphasis on the particular problems associated with doing on-farm research. This training should be organized as a structured recurring in-service training program.

Erosion work is the weakest area of FSR research. Runoff plots are located in the field laboratory at Ungaran and in several sites in East and Central Java. They are either associated with cropping pattern research or with terrace evaluations. The runoff sites are not replicated and there is no way to make comparisons between sites because three physical factors (soil type, slope, soil depth) have been confounded with the changing cropping patterns. Also, the runoff plots are not adequately designed and maintained. In some places, some of the runoff from a plot passes around the collection system and, in other places, runoff from outside the plot is collected.

Additional technical assistance should be provided in the area of soil conservation research. This person should have experience in establishing runoff plots and in designing evaluations of biological and physical conservation practices and their interactions.

The socio-economic group is just starting to collect farm record information. They have also studied the extent of farmer adoption of technologies being tested at the field sites. The socio-economic technical assistance has been responsible for computerizing the data management and has provided computer training to FSR personnel. The socio-economic group is now planning a series of diagnostic surveys to enhance their knowledge of farming systems in the project area.

While these studies will provide useful information, little attention has been given to farm level decision making. Many factors affect resource allocation decisions by farmers. For example, decisions by farmers having access only to upland only are likely to differ significantly from decisions by farmers having access to both irrigated land and upland. Off-farm employment and the availability of cash for potential on-farm investment are other factors.

The evaluation team therefore recommends that additional technical assistance be assigned to help the FSR group respond to these socio-cultural and socio-economic issues. This person would provide leadership in research design and provide training particularly to the young socio-economics researchers but also to the agronomists and field assistants to sensitize them to these issues.

The Role of FSR

FSR researchers have expressed concern that they are playing a dual role in the field: that of researcher and extension agent. The FSR researchers are always doing informal farmer training as part of their work in the field. However, the researchers feel isolated from the extension staff and would prefer to help extension workers contact farmers rather than perform the service directly.

Communication of research results has been a problem for the FSR group. They provide the PCOs with their research reports but recognize that these may not be very useful. The FSR researchers would like to be able to deal directly with the RECs to provide input into training of extension personnel.

Interaction between the SUFS component and FSR has improved recently since FSR researchers team members were identified to liaise with the districts. In Central Java, the FSR team has been participating in the planning of all new demplots. In East Java they have participated in the preliminary surveys in Malang District. However, there is only limited budget resources for this work. Also time spent working with SUFS is time taken away from research.

Although the Evaluation Team recognizes the importance of joint field visits we recommend that SUFS personnel view the FSR component as an information source like other AARD and university research groups. For example, in East Java, the SUFS component has asked for and received technical information from the food crops research institute as well as the branch horticultural station.

To fill this role, the FSR group should conduct an extensive evaluation of their research to date, together with a review of secondary information on uplands problems. This activity will develop preliminary statements about the potentials of different crops in the various agro-ecological zones found within the uplands. As a means of organizing these and future research results, the researchers should define a minimum data set of agro-ecological and socio-economic information which would convey research results and conclusions to potential users.

The Future of FSR

The FSR group is doing innovative work in crop-livestock interactions (the introduction of livestock, choppers, management of grasses), green manure legumes and cover crops, and management of estate crops and horticultural species. This work is not being done in other AARD institutes or programs.

On the other hand, the FSR group in East Java is also acting as a multilocational testing unit for MARIF and the horticulture center for varietal testing. However, MARIF has an on-farm research program. Also, SUFS personnel are in direct contact with these centers. Therefore, the advantage to the UACP of FSR involvement in the varietal testing program is marginal.

Because of the contribution that FSR can make to future upland activities and the long-term benefits to AARD of the farming systems research perspective, the FSR program should be continued until the proposed PACD. However, the changes outlined below are required. Progress should be reviewed in two years to consider future directions and funding.

In our opinion, the level of the personnel assigned to FSR has severely limited its research capability. Additional staff was assigned to the FSR group in January 1989 and further additions have been proposed. It is not clear whether AARD will be able to respond positively to these staffing requests nor is it clear that all those requested are needed. There is, however, a need to provide additional training to younger staff, particularly those who show promise.

We recommend that FSR consolidate its operations into one province, either Central Java or East Java. While there are advantages and disadvantages to both sites, it is our opinion that Central Java would be the preferred location if a facility large enough for all of the personnel, including those from East Java and the technical assistance team, can be found.

Advice to the East Java SUFS component can be supplied by the AARD research institutes near Malang. In particular, on-farm research being conducted by the AARD research institutes in the maize and soybean programs.

In addition to the consolidation of personnel in one location, the FSR group should develop a plan for training their personnel. A more focused research agenda that has fewer research themes but permits more on-farm work should be established. The FSR group should evaluate their strengths and weaknesses and focus their research agenda so it maintains its

problem solving orientation but so there is a more effective use of personnel to produce high quality results.

The Evaluation Team makes the following PRIORITY recommendations:

26. WITH APPROPRIATE CHANGES DESCRIBED BELOW, THE FSR PROGRAM SHOULD BE CONTINUED UNTIL THE PROPOSED PACD BUT PROGRESS SHOULD BE REVIEWED IN TWO YEARS TO CONSIDER FUTURE DIRECTIONS AND FUNDING:
 - AARD MUST CLARIFY THE ROLE AND FUTURE OF THE FSR GROUP WITHIN THE AARD STRUCTURE.
 - FSR SHOULD CONSOLIDATE ACTIVITIES INTO ONE PROVINCE TO PROVIDE OPPORTUNITIES FOR AN IMPROVED PERSONNEL MANAGEMENT SYSTEM AND THE DEVELOPMENT OF A COMPREHENSIVE TRAINING PLAN FOR YOUNGER RESEARCHERS.
 - FSR SHOULD DETERMINE ITS COMPARATIVE ADVANTAGE WITHIN AARD AND, WHILE MAINTAINING A PROBLEM SOLVING PERSPECTIVE, FOCUS FUTURE RESEARCH ACTIVITIES TO FEWER THEMES WHILE INCREASING THE WORK DONE WITH FARMER PARTICIPATION.
27. THE FUTURE ROLE OF FSR WITH THE UACP SHOULD BE AS AN INFORMATION SOURCE. THE FSR GROUP SHOULD DEVELOP PRELIMINARY STATEMENTS ABOUT THE POTENTIALS OF DIFFERENT CROPS IN THE VARIOUS AGRO-ECOLOGICAL ZONES OF THE UPLANDS BASED ON RESEARCH EXPERIENCE AND SECONDARY DATA. THEY SHOULD DEVELOP A MINIMUM DATA SET, INCLUDING BOTH AGRO-ECOLOGICAL AND SOCIO-ECONOMIC, BY WHICH THEIR INFORMATION WILL BE ORGANIZED.

VIII. HUMAN RESOURCES DEVELOPMENT

Early in the project, there was considerable difficulty with the training program, largely because no full time personnel were available to manage it. These difficulties were partly overcome with the arrival of the SCS training consultant, his development of basic planning framework, and the addition of an HRD program manager to each PCO.

Several problems, both substantive and managerial, still exist in the HRD program.

In-country Training

Currently, in-country training programs are generally being conducted as scheduled and the planned numbers of persons are being trained.

In our attempt to review the HRD program, we discovered that there is no adequate data on which to evaluate already conducted programs. Some training program reports include the results of subjective questionnaires given to the trainees at the end of the program. These are inadequate. It is essential that all future programs include an objective evaluation of course impact.

We reviewed a variety of training program reports. We feel that probably all could be improved but we have no way to verify this feeling.

We noted that no attempt has been made to determine the specific training needs of the trainees. The most effective training courses are based on a comparison of the skills and knowledge needed by the trainees and the skills and knowledge they already possess. Determination of these two factors requires investigation into the jobs to be performed by the trainees and into their current capabilities.

The lack of training needs assessment exacerbates the problems encountered with contract training like that going on under the UACP. The contractor generally feels that he is the expert and should determine the content of the training. Very often the contractor's priorities are not those of the project.

The Evaluation Team recommends the following:

28. Every training program should be based on a detailed job and training needs analysis. Also each course should include a mechanism, such as pre and post tests, that will provide an objective evaluation of the training program. In addition, an evaluation of the whole short term training program is needed.

Degree Training and Overseas Short Courses

The degree training program, both in-country and overseas, has been severely delayed by administrative and funding problems. Overseas short courses have been similarly delayed. In our opinion, this delay has contributed to the relative lack of innovation in the various activities of the UACP. Most of the administrative and funding problems appear to be on the verge of being solved. The one remaining problem is that there is still no national level HRD program manager from the GOI.

Currently, the SCS training consultant is taking some program management responsibilities. However, it is difficult for an expatriate to deal with the sensitive issues of who goes abroad for training and who goes for long term training in-country. Until there is a senior GOI person appointed to fill this function, the degree training program will not proceed as smoothly as it should.

Additional problems exist with regard to the degree training program. First, some candidates are reluctant to take the proffered training because of the uncertainty of getting an assignment at an appropriate level upon their return. Second, most candidates come from central government agencies. Yet the innovations that can be expected from overseas trained personnel are most needed in the field. Various reasons are given for this imbalance, among them that provincial candidates do not know enough English and that provincial candidates are not notified of training opportunities.

The Evaluation Team recommends the following:

29. Those who go on long term training should be guaranteed a job at an appropriate level upon their return. Also, special efforts should be made to draw candidates for overseas training from the provinces. These efforts should include notification of the opportunity for training English language training to enable the candidates to go overseas.

Training Needs

The Team has identified some specific training needs; these are listed in the recommendations.

The Evaluation Team recommends the following:

30. The following training programs should be begun or expanded:
 - Training and workshops in the use of MTS and its relation to the long run goals of the project.
 - Training in management techniques for project managers at all levels, including training in communication, time management, and personnel management.
 - Training in village social dynamics, farmer motivation, farm decision making, and communication for extension personnel and others.

- Training in horticultural and upland crops for extension personnel.
- Training in nursery management for PPLs, PLPs, and managers of village nurseries.
- Training for extension personnel and others in the resource management systems approach to planning soil conservation activities.
- Training in the road design standards and their use for access road design and construction.
- A structured inservice training program in research design for FSR personnel.
- Master's degree training for FSR personnel.

IX. PROJECT INNOVATION FUND

Use of the Project Innovation Fund (PIF) has been slow to start. Three years after the project was begun, the Selection Committee has agreed to fund only three proposals. Four other proposals are now under review.

The Team heard many criticisms of the current PIF activities. Alley cropping, a potentially innovative approach to conservation is being tested in both East and Central Java using PIF funds. The Team did not visit the Central Java site. At the two East Java sites, the alleys were not in place and from the supporting documentation presented, it was apparent that the intent was to plant tree crops in lines within terraces. This was already being done more effectively at particular SUFS sites. Nor was enough consideration given to species selection and management. Farmers in East Java have a lot of knowledge about multipurpose legume trees and fruit and estate crops. This knowledge and interest could have been incorporated into a coherent research strategy to evaluate alley cropping as an alternative to terraces for less sloping land.

Some UACP participants have complained that information concerning PIF has not been widely disseminated. Also there are complaints that there is no clear definition in the Project Paper for the word "innovation." What some individuals think is innovative might not meet the qualification of innovation set by the Project. This confusion has discouraged interested persons from writing proposals for funding by PIF.

PIF is funded from AID grant funds. Grant money is an important asset that should not be allowed to remain idle. The

Evaluation Team therefore recommends that the PIF fund be abolished and the remaining funds be used to fund the additional technical assistance that we recommend elsewhere in this report.

We recognize that a major purpose of PIF was to involve NGOs in uplands activities. We recommend that AID consider funding NGO activity through other means.

The Evaluation Team recommends the following:

31. That the unallocated portion of the Project Innovation Fund be reallocated to more urgent needs for grant funding, such as the recommended technical assistance.

X. TECHNICAL ASSISTANCE

In the opinion of the Evaluation Team, technical assistance has proved to be a crucial element in this project. The Project Paper makes it clear that a goal of the project is to develop ways to deal with upland problems; it is an experimental project. However, partly because the details of project design from the Project Paper do not emphasize this experimental nature and partly because of cultural notions about what a "project" is, the experimental nature of the UACP was not properly recognized until the technical assistance teams arrived.

Technical assistance arrangements under the UACP are, in keeping with the project, extremely complex. There are now five technical assistance arrangements for the UACP. These include arrangements with Soil Conservation Service (SCS), Development Alternatives Inc. (DAI), Winrock International, the International Institute of Education, and a personal services contract. Earlier, there were other personal services contractors and additional long term persons from SCS.

Some members of the SCS group have been working directly with the DAI consultants as one team to provide assistance to the SUFS component. These groups have been quite effective, particularly in East Java, where the DAI/SCS team is not only on excellent terms with all project participants, but can also be credited with many of the innovations in the East Java work. In Central Java, the DAI/SCS team has been less effective for several personal, organizational, and ecological reasons, but its influence is visible, particularly in Blora and Grobogan Districts. In our opinion, it is essential that the recently departed conservation specialist from SCS be replaced as quickly as possible. Although the lack of impact data on project activities is still a major problem, we give much of

the credit for the recent improvements in the database about project activities to the DAI/SCS team.

Three members of the SCS team were assigned to work with national level agencies. Two have since left; the remaining one is the training consultant attached to the EXSEC. The major impact of the two consultants who left was the agreement to undertake the soil surveys for the UACP. The soil surveys represent fundamental data that should have been made available right at the beginning of the project.

The Winrock team has helped to redirect the FSR group's program from variety trials and watershed runoff measurements to systems research.

The IIE contract is too new to judge performance. The personal services contractor is having a positive effect on EXSEC operations.

Based on our interviews, we believe that it was a mistake to contract separately with SCS and DAI because of the close field cooperation required. However, the two teams appear to work together very well.

We feel the contribution of the technical assistance teams has been positive. However, some have questioned whether there will be an effective transfer of ideas and approaches to project participants. We believe, however, there will be lasting impact, particularly on the younger persons involved.

As described elsewhere, however, we identify some additional technical assistance needs. These are listed in the recommendation below.

The Evaluation Team recommends the following:

32. In addition to current and planned technical assistance, the following technical assistance should be provided:
 - TECHNICAL ASSISTANCE TO THE EXSEC IN THE ANALYSIS AND REPORTING OF IMPACT AND OTHER DATA TO ASSIST WITH THE EXPANSION OF THE MANAGEMENT INFORMATION TO PROVIDE LESSONS LEARNED TO POLICYMAKERS, PROJECT PLANNERS, AND IMPLEMENTORS (A PRIORITY ITEM).
 - Long term assistance (one consultant) to the SUFS component in social science to a) assist in training extension personnel and others in farmer social dynamics and motivation, and farmer decision making, b) assist in the development of social and economic data collection, analysis, and reporting procedures for the MIS suitable both for planning and for impact

analysis, and c) provide advice to extension workers, other consultants, and others as needed in the areas of social dynamics, farmer motivation, and farmer decision making. The consultant should be an anthropologist or rural sociologist with training and experience in microeconomic analysis.

- Long term or recurring short term assistance to the SUFS component in soil science (one consultant).
- Long term assistance to the FSR component in the social sciences to provide training and advice on research design and research methods in farmer decision making and the relevance of social factors to technological change. The consultant should be an anthropologist or rural sociologist with strong microeconomics analytical skills.
- Recurring short term expatriate assistance to the FSR group in soil erosion and soil management research design. The consultant must be a researcher rather than a specialist in the practice of soil conservation.

XI. IMPACT AND SUSTAINABILITY

The Evaluation Team found it impossible to make an objective judgment concerning either the impact or the sustainability of the UACP because of the lack of sufficient data. As mentioned in a PRIORITY recommendation above, the project urgently needs improvements in the gathering, processing, and dissemination of information. The excellent baseline data developed under the guidance of the DAI/SCS technical assistance team must be developed into a monitoring system with annual or semi-annual reiterations so that consistent time series on major variables can be developed. This data will allow evaluators and planners to assess and adjust plans supported by adequate knowledge.

The team made every effort to gain knowledge of a less systematic sort through field visits and interviews with farmers, extension workers and project officials at all levels. On the basis of this inadequate information base, we offer as our best judgment that the impact of the project as a whole has been positive. In particular, roads have reduced marketing costs and improved rural communication; upland farm incomes have been raised thereby improving distribution of income; there has probably been a reduction in erosion, loss of soil fertility, and reduced siltation of the lower watershed areas. We doubt, however, that these highly desirable benefits are sufficient to generate a positive net social benefit as would be shown by an internal rate of return higher than the social rate of discount.

We also judge it unlikely that a large proportion of participants in the demonstration plots and expansion areas will continue to follow the new cropping systems in the absence of subsidy. We did not find evidence, except at the most favorable sites, that returns to labor time in the project areas have been raised to a level which would induce the majority of farmers to continue. However, where the innovations are particularly appropriate and profitable, e.g. in maintenance of bench terraces and water control structures, partial sustainability appears likely.

Finally, although we do not propose total discontinuation of subsidies under this project, we recommend against subsidization of upland agriculture except where sustainability as defined above is highly probable.

As stated in PRIORITY recommendation no. 12, the Evaluation Team recommends that an intensive effort be begun immediately to collect the data needed to evaluate the impact of the various aspects of the UACP.

XII. THE OPPORTUNITY

Most upland projects in Indonesia have been planned without adequate knowledge of the technologies and approaches that are sustainable and effective over a wide variety of conditions. For example, the UACP began with a recommendation for bench terracing developed from Citanduy before the impact at Citanduy was known. Citanduy, in turn, took the technique from earlier projects. Both Citanduy and the earlier projects, however, used bench terraces on deep, relatively fertile soils. Many of the UACP sites, however, have shallow sedimentary soils for which bench terracing appears to be much less appropriate.

UACP is now working on 60 different sites (the total will be 78 in 1989-1990). Although all the sites fit the criteria for selection, offer a great deal of variation in soils, slopes, microclimates, and farmer resources. The experience already gained in these sites is tremendous. That experience, however, exists largely at the PMU level and among the extension agents. It is not yet available to policy makers and project planners. Some information is being collected by the updated MIS but, as noted earlier, is not being reported. This experience, if adequately described, assessed, and related to environmental variables, will go a very long way toward solving the problems of lack of information for effective project and program planning. If, as recommended above, a procedure of participative planning is adopted, we expect that appropriate solutions to many of the socio-technical-ecological problems of

the uplands will be found. At the least, procedures will be developed to solve such problems.

If the management information system is strengthened as recommended, this promise can be fulfilled.

XIII. FUTURE OF THE PROJECT

Project Extension

Despite the project's slow start and despite our pessimistic guess at the sustainability of the introduced cropping patterns, we see positive benefits to the UACP. Of greatest importance will be the lessons learned for improving, on the one hand, soil conservation in upper watersheds, and, on the other hand, agricultural development on sloping lands in the uplands.

However, identifying and documenting those lessons will require: a) immediate intensification of efforts to collect impact and other data as recommended earlier, and b) more time to collect the data. More time will also be needed to put into the place and evaluate the impacts of the changes in SUFS planning recommended above. Moreover, the first tree was planted by the project only in 1986, therefore the first chance to get income from the trees planted under this project comes only in 1991. Hence more time is required for determining the impact of the project. Therefore, we recommend the extension of the project for an additional two years.

We make the following PRIORITY recommendation:

33. THE PACD SHOULD BE EXTENDED UNTIL 30 JUNE 1993 IF THE EXPANSION AND IMPROVEMENTS IN THE MANAGEMENT INFORMATION SYSTEM ARE MADE. TO QUALIFY FOR EXTENSION, THE SYSTEM SHOULD BE IN PLACE AND PRODUCING REPORTS ON TECHNOLOGIES AND PROCEDURES TRIED, THEIR SUCCESS, AND THEIR IMPACTS.

Funding

The slow progress of the project implies that adequate funds are available. We believe there is no need for additional funding. Indeed, it may well be possible to deobligate some funds, but because we lack both data and time to calculate a revised budget, we have not been able to estimate the amount that could be deobligated.

The sole budgetary difficulty foreseen is that funds allocated for technical assistance will be expended by June 1991. We have recommended additional technical assistance above. To

fund the additional technical assistance we have recommended above will require that funds be taken from another line item. Also, we are not certain whether any or all of the existing technical assistance personnel should be extended beyond June 1991. We suggest that the need for continuing the technical assistance be reviewed before January 1991. Funding for such an extension will also have to come from another line item.

Because we believe the access roads to have the greatest benefit to the upland population of any of the components of the UACP, we support diverting funds from components that will not reach targets to the roads so that some of the newly built roads can be extended to make them more useful.

Above we suggest that funds be diverted to producing extension materials on upland crops. In order to encourage continuation of this effort through use of GOI funds after the project has ended, we suggest that funds be provided for this activity on a matching basis.

We have also suggested that additional funds be allocated to the purchase of motorcycles for extension personnel.

We recommend the following:

34. Consideration be given to transferring a portion of the funds allocated to the SUFS or other component to the roads component; another portion be used on a matching basis for the production of extension materials for upland crops, and another portion for motorcycles for extension agents. Consideration should also be given to using PIF funds or other funds for the additional technical assistance recommended above.

Phase II

The Project Paper identifies the current UACP as the first phase of a 17 year effort. In the absence of impact data, the Evaluation Team cannot give any clear opinion about what the second phase activity should look like or even whether it should be undertaken.

However, in the light of the above discussion, we suggest that any follow on activity should divorce the two goals of this project from one another. These two goals are derived from two sources, a concern for watershed management on one hand, and a concern for solving problems of uplands on the other. The project, however, is a compromise because it neither a) deals with watersheds as wholes, nor b) deals directly with the economic problems of uplands in their entirety.

For soil conservation, consideration should be given to attacking issues directly by a) discovering and publicizing the ways in which soil conservation benefits farmers, and b) providing incentives for farmers to stop farming critical lands rather than to farm them more intensively. In the latter case, the costs must be viewed as public benefit costs and must be weighed against the external benefits of reducing erosion.

For upland agricultural development, studies should be made to determine where the most productive investments are and consideration should be given to dealing with such investments. It may be more productive to attempt to deal with the economic and legal environment of upland agriculture since the profitability of agriculture is fundamentally determined by that environment. It may be equally important to consider investments in infrastructure. Our short investigations indicate that the best returns from the UACP will come from the access roads.

The recommended two year extension will provide both data and time to allow for these alternatives and others to be considered. We suggest that a potential follow on activity should be reconsidered in 1991.

Finally, although the UACP directly addresses the agricultural sustainability goal described in the AID CDSS, the above discussion expresses some doubts about the value of the approach taken by this project. Since there are many other donors dealing with these issues, including the World Bank, the Dutch government, and others, AID may wish to reconsider the need for a follow on project.

The Evaluation Team recommends the following:

35. For future projects, consideration should be given to delinking the soil conservation and agricultural production goals. Soil conservation could instead be pursued either as a benefit for individual farmers in its own right through public relations campaigns, or as a public duty because it confers public benefits. Agricultural production goals could be pursued by looking to the economic environment of agriculture in the uplands rather than by putting major investments into "critical lands" which are by definition among the poorer lands.

XIV. LESSONS LEARNED

As described above, the most important technical lessons remain to be learned. Strengthening the MIS and modifying the planning processes as recommended above should make those lessons available.

The UACP experience calls into doubt the wisdom of designing a project with two goals, unless the possibly conflicting nature of those goals is explicitly dealt with.

Also, the large number of participants in this project make it difficult to manage; AID and other agencies have had to expend much management effort for the UACP. It is possible to ease the burden by:

- Increased decentralization. More responsibility can be turned over to the implementing agencies. This can include prefinancing by the the donors so as to lessen central government work as well as other measures to spread the management burden as widely as possible.
- Improved guidelines. It took a long time for many of the participants to come to understand the technical and administrative requirements of the project. The project management burden has decreased as participants have learned. This funding suggests that significantly greater effort to get understanding of the project is required at the beginning of the project. This effort should include workshops and meetings for project participants. However, the publication, discussion, and periodic revision after further discussion of clear, written guidelines for implementation is the best way to spread the necessary knowledge.

Finally, the UACP shows clearly that AID management of World Bank funds can be quite successful in Indonesia. Similar cooperative agreements should be considered in the future.

APPENDIX A

TERMS OF REFERENCE

Appendix A

Terms of Reference

Mid-term Evaluation of the
Upland Agriculture and Conservation Project

Revised by DAI 23 September 1988
Revised by USAID 8 November 1988
Revised by USAID 22 November 1988

#8321P:11/8/88-11/22/88

69

Terms of Reference

Mid-term Evaluation of the
Upland Agriculture and Conservation Project

ACTIVITY TO BE EVALUATED

Upland Agriculture and Conservation Project

Authorization Number : 497-0311

A.I.D. Loan Number : 497-T-083

P.A.C.D. : June 30, 1991

Financial Plan Levels:	Government of Indonesia:	\$11,622,000
	World Bank loan:	11,300,000
	A.I.D. loan:	13,900,000
	A.ID. grant:	<u>5,000,000</u>
		\$41,822,000

GENERAL PURPOSE OF THE EVALUATION

The broad purpose of this evaluation is to provide information to the GOI, USAID, and the World Bank managers about the progress and performance of UACP and to recommend conceptual and strategic adjustments for the future. It represents a timely reappraisal of the project's rationale, management arrangements, funding, and activities in the light of implementation to date.

BACKGROUND

UACP was designed with the goal of increasing farm production and incomes, while minimizing soil erosion, in densely populated upland areas of Central and East Java. Project strategy focuses on improving farming systems as well as farm technologies and management. The project's stated purpose is to expand and improve provincial, district, and farm level capabilities to experiment with and apply alternative approaches to upland farming. It thus intends to serve as a field laboratory for design of the government's upland agriculture program by presenting cost-effective options expandable to additional areas with similar agro-ecological conditions.

UACP is located within the Jratunseluna watershed in Central Java and the Brantas watershed in East Java. Four districts (Kabupaten) in each watershed are included in the project's initial seven-year phase. Within this project area, UACP implementation consists of six major components:

- o institutional development to strengthen the capacity of the national, provincial, and district governments to experiment with and apply alternative approaches that will increase farm production and incomes, while minimizing soil erosion. One major emphasis in institutional development is a "learning by doing" approach. Sub-components include the National Executive Secretariat, Provincial Planning and Management, District Planning and Management, Soil Survey, Policy Study, Impact Evaluation Studies;
- o applied research (Farming Systems Research or PSR) to develop technologies that will increase farm production and incomes while promoting soil conservation;
- o sustainable upland farming systems pilot projects (SUFS) to improve on-farm trials and diffusion of new technologies and management relevant to upland areas;
- o human resources development (HRD) through a) long-term overseas training, b) long-term in-country training, and c) short-term in-country training. The short-term training includes workshops, intensive technical courses, newsletters, study tours, demonstration visits, and handbooks for extension workers, farmers, community leaders, and technical and managerial staff;
- o conservation access roads (CAR) to construct or upgrade roads that will facilitate a) the movement of materials into demonstration farms and expansion areas, b) the movement of farm production from these areas to markets, and c) demonstration of introduced technologies; and
- o the Project Innovation Fund (PIF) to provide NGOs, Universities, and private organizations, a flexible source of financing for studies, small pilot projects, field tests, or other relevant initiatives not otherwise funded under the project.

PROJECT MANAGEMENT AND ORGANIZATION

National Level

The lead GOI agency for project management is the Ministry of Home Affairs (MHA). The Ministries of Agriculture (MOA) and of Forestry (MOF) are primary supporting agencies, providing technical, administrative, and policy support. Principal tasks at the national level are to establish the overall policy framework of the project, review annual progress, and approve annual project plans and budgets. Project management is supported by an Executive Secretariat (EXSEC) consisting of officials from MHA, MOA, and MOF.

Provincial Level

Provincial program management and fund disbursement are managed by a Project Coordinating office (PCO) in each of the two provinces. The PCO is responsible for planning, monitoring, evaluation and financial management. Designated line agency staff work with the PCOs to support coordinated project planning and implementation.

District Level

At the district level, designated Project Managers, supported by a Project Management Unit (PMU), are responsible for local project implementation under the direction of the District Chief (Bupati). For most project components, line agency sub-project managers report to the respective District Project Managers. This PMU arrangement was intended as a prototype for the eventual establishment of a permanent mechanism for district-level coordination of upland development and conservation activities.

A District Forum for Coordination of Agricultural Extension (FKPP), reports to the Bupati. The PMU is responsible for coordinating the SUFS component of the project and they report to the Bupati. Management responsibility for implementation of conservation access roads and SUFS pilot projects rests with the concerned technical agencies—Public Works, Agriculture, and Forestry. The extension of project-related services to farmers is managed through a unified extension system centered at the GOI's network of Rural Extension Centers (RECs) in the project area. The Agency for Agricultural Research and Development (AARD), MOA has responsibility for formulating and coordinating project agricultural research with the MHA and other agencies, especially the MOA and MOF. Chart 1, drawn from the PP, portrays this complex UACP administrative arrangement.

Technical Assistance

Technical assistance is provided to UACP under four separate TA contracts. A Participating Agency Service Agreement (PASA) with the USDA Soil Conservation Service provides technical services for soil conservation at the local level (Institutional Development, SUFS) plus policy and training at the central level. A contract with DAI provides field technical assistance to the local government in Central and East Java for the Institutional Development, SUFS, and CAR components. A contract with Winrock International/PT Gondwana provides support for farming systems research (FSR) in Salatiga, Central Java in collaboration with the Agency for Agriculture Research and Development (AARD). A contract with the Institute of International Education (IIE) provides assistance in international training. Additionally, PSC personnel have supplemented direct USAID project support in agroforestry research, soil surveys, and project management. These TA arrangements are illustrated in Chart 2.

The Upland Agriculture and Conservation project was designed for two phases. Phase I, to be implemented over a 7-year period, is to establish

the decentralized institutional base and initial field program. Phase II, to be implemented over the following 10 years, could focus on a Java-wide expansion program building on the AID-supported Citanduy and World Bank-supported Jogjakarta upland agriculture programs.

The project supports combined GOI, AID, and World Bank interests in upland agriculture and conservation and represents a significant example of donor cooperation in support of a major experimental project addressing a shared development priority.

Details of the project background and history are contained in the Project Paper and other reports and documents that will be provided to the evaluation team.

STATEMENT OF WORK

The statement of work for this evaluation is organized under (4.1) purpose of the evaluation, (4.2) primary tasks which the team will need to undertake, (4.3) terms of reference for individual team members, (4.4) methods and procedures, (4.5) Reporting Requirements, and (4.6) Schedule.

Attachment 1 contains a set of illustrative questions to be used by evaluators to focus their inquiry. The clustered set of illustrative questions are organized according to the project components.

4.1 PURPOSE

Specifically, as an interim evaluation, this review will have the following objectives (adapted from the A.I.D. Evaluation Handbook (1987))

- o to resolve issues identified in the project design process but which required a period of implementation experience for resolution;
- o to identify and find solutions to persistent problems affecting implementation;
- o to compare planned and actual progress toward the project's outputs, purpose, and goal;
- o to review the project design rationale and key assumptions to determine their continued validity;
- o to inform future GOI and donor decisions regarding design modification, revisions to the financial plan, or possible extension of the PACD;
- o to facilitate and promote continuing dialogue with Indonesian officials regarding natural resource management concerns, especially upland agriculture and conservation issues;

- o to ~~examine~~ the efficiency of project activities in comparison to possible alternative approaches to achieving the same objectives; and
- o to assess the sustainability and replicability of the UACP approach to upland agriculture and conservation.

4.2 MAJOR TOPICS AND TEAM TASKS

The primary responsibilities of the evaluation team contract will be:

- Task 1. The contractor will evaluate and document whether there has been sufficient progress in achieving the project's primary goals, and objectives. This task is considered to be crucial given the multiple goals and objectives of the UACP, combining production and socio-economic impact objectives with resource conservation and institutional capacity-building objectives. The contractor will review project analysis and other sources to summarize whether the project is properly treating the primary source of erosion in upland areas. The contractor will summarize the reasons for current expenditure patterns and make recommendations to improve expenditures if this is technically warranted or necessary.
- Task 2. The contractor will evaluate and document whether the overall project scope and content are feasible and sustainable. The contractor will make recommendations on whether the project should have a narrower focus for project objectives and activities. If a more restricted approach is recommended, the contractor will identify areas which should be reduced in scope or eliminated. This assessment will also include an emphasis on the management burden for USAID. The contractor will document current efforts to simplify project management burden, and identify any alternatives which could reduce management burden.
- Task 3. The contractor will evaluate how effectively UACP has applied its four design concepts and how well they have worked:
- o decentralized management: Particular attention will be paid to whether a decentralized management structure that places responsibility and authority at lower levels of provincial and local government is an effective way of planning and managing development and conservation interventions.
 - o unified management: The contractor will review the strengths and weaknesses of the project's management system.
 - o unified budgetary systems: The contractor will assess whether the ability to develop and allocate the budget is a key factor in the capacity of local governments to unify the delivery of services by respective line ministries.

- o community participation: The contractor will assess whether community leadership that mobilizes local participation in making decisions about upland development and conservation is a critical element in project success.

The contractor will assess the perception and perspective of project implementors concerning these design concepts at the national, provincial and district level.

- Task 4. The contractor will identify and assess what new administrative and technical approaches have been tested and verified by the UACP. This will include an assessment of whether these alternative approaches are replicable or sustainable, either institutionally or on-farm. The contractor will evaluate whether these approaches have widespread applicability to the GOI's program to increase the productivity of upland areas and stabilize the upland environment.
- Task 5. The contractor will describe and evaluate the achievements, strengths and weaknesses of the SUFS component of the project. The contractor will evaluate whether production increases generated by UACP initiatives will lead to sustainable income gains for project farmers (i.e. benefits will exceed costs for SUFS farmers and the SUFS technologies will be economically sustainable).
- Task 6. The contractor will evaluate whether FSR will meet the original objectives set out in the project paper, identify the likely outputs of the FSR, assess whether FSR will provide any valuable, new research results that will assist the GOI to address upper watershed land management and soil conservation in Java. This analysis will include specific recommendations concerning whether this component should be considerably redesigned.
- Task 7. The contractor will evaluate the quality and progress of the Human Resources Development component of the project. The evaluation will include a review of the type of training conducted and planned for the life of the project. This analysis will include specific recommendations concerning whether this component should be considerably redesigned.
- Task 8. The contract will identify the major factors affecting project impact in local areas. This analysis will identify whether there are significant differences between sites, the key administrative, technical, financial, and other constraints; and evidence on whether field experience and insights have influenced central project direction.
- Task 9. The contractor will review the sustainability of the project from the perspective of the use of subsidies and the possible uses of credit.

Task 10. The contractor will make recommendations about what changes should be made in project components, organization, and/or management procedures to achieve its purpose (end-of-project-status). The contractor will make specific recommendations whether the project should be extended or not. If the team recommends an extension, then they will make specific recommendations for project emphasis and use of technical assistance.

4.3 Evaluation Team Composition and Terms of References

A mix of disciplines and expertise is required among members of the evaluation team as follows:

- o management (and information systems);
- o project evaluation;
- o watershed planner;
- o soil conservation;
- o institutional analysis and public administration, particularly relating to Indonesian government systems;
- o extension;
- o agronomy;
- o soil science;
- o research management;
- o economic analysis;
- o rural sociology/community development; and
- o rapid rural appraisal.

A six-person team is anticipated, covering the above mix of skills as indicated below. The contractor may propose alternative staffing and personnel to meet the general needs of the evaluation to better match the skills and background of proposed team members. While all components of the project should be reviewed, the contractor or the Team Leader can make assignments among team members to prepare a brief summary of minor areas of the evaluation. The contractor must provide a rationale for any change in team composition and these changes must be approved by the GOI and USAID.

- o **Team Leader:**

The primary responsibilities of the Team Leader will be to coordinate and manage the team and the evaluation. The team leader will be required to prepare an analysis of the project's success in meeting overall project goals (Task 1), evaluate whether the project scope is feasible and what additional changes in USAID management would be most effective (Task 2), assess GOI project management strengths and weaknesses (Tasks 3 & 5), evaluate the results of the over seas and long-term training (Task 7), and in conjunction with other team members, prepare recommendations for mid-course management corrections (Task 10). The team leader will be responsible for assuring that the expertise of individual team members is applied to the

appropriate areas of inquiry based on the actual qualifications of the evaluation team that is assembled. In addition, the Team Leader will review USAID/ARD's portfolio to in order to determine any possible linkages or reorganizations that might fit with the rest of the Mission's portfolio.

Qualifications: The Team Leader must have a minimum of 7 years experience in project management and institutional analysis, previous experience in project evaluation and natural resources management or watershed management, and previous experience as a team leader. The Team Leader should have previous experience in Indonesia, with USAID, and should speak Bahasa Indonesia.

Government Specialist:

The primary responsibilities of the Government Specialist will be to evaluate the effectiveness of the national and local government to develop and apply alternative resource conservation approaches (Tasks 1 and 4); the quality and value of current information and reporting systems to monitor technical, financial, production, and conservation practices in the project (Task 3); the quality and effectiveness of the national and local government's efforts to implement the project's design concepts (decentralized management, unified management, and unified budgetary systems) (Task 3); the flow of information, guidance, and finances between the EXSEC and the PCOs, the PCOs and PMUs, and the donors and the GOI; and in conjunction with other team members, prepare recommendations for mid-course corrections in project management within the constraints of existing regulations (Task 10). The Government Specialist should not make specific recommendations for changed project management that cannot be implemented because of donor and/or GOI regulations which prohibit these changes.

Qualifications: The Government Specialist must have an advanced degree in public administration, political science, or related social sciences; 5 to 10 years experience in government and or institutional analysis, previous experience in project management and evaluation. The Government Specialist must be an Indonesian, be able to participate effectively as a team member, and be able to write effectively in English.

Conservation Specialist:

The primary responsibilities of the Watershed Management Advisor (WMA) will be to provide a technical assessment of the range of type of alternative technologies that have been introduced by the project. The WMA will be required to assist the Team Leader to prepare an analysis of the project's success in meeting overall project goals (Task 1), assess whether the project has identified and tried new administrative and technical approaches to soil conservation and increasing farmers incomes and evaluate

whether the project is treating the primary source of erosion in the watershed (Task 4), evaluate the strengths and weaknesses of the SUFS component (Task 5), and in conjunction with other team members, make recommendations for mid-course corrections (Task 10).

Qualifications: The WMA must be a watershed management expert with 5 to 10 years experience in upland agriculture and soil conservation, previous experience with project evaluation, and a proven ability to work effectively as a team member. The WMA should have previous Indonesian work and language experience.

o **Economist:**

The primary responsibilities of the Economist will be to summarize information available concerning the economic impacts of the project, specifically focusing on increased farm production and income. The Economist will identify whether project field activities are economically sustainable. The Economist will assist the Team Leader prepare an analysis of the project's success in meeting overall project goals (Task 1), summarize the reasons for current financial plans and make recommendations to improve financial management and expenditures, if this is technically warranted or necessary, and identify possible excess funding (Task 1), assess whether the SUFS component is economically sustainable (Task 5), assist in identifying the major factors which appear to be affecting project effects (Task 8), review the advantages and disadvantages of the current subsidy program and proposed credit efforts (Task 9), and in conjunction with other team members, prepare recommendations for mid-course management corrections (Task 10).

Qualifications: The Economist must have a doctorate in Economics, Agriculture Economics, or Natural Resources Economics, minimum of 5 years experience broadly based in natural resource management, be capable of analyzing both project specific and external but related economic costs and benefits, and a proven ability to work effectively as a team member. The Economist should have previous Indonesian experience.

o **Agriculture Sciences, Research and Extension Specialist:**

The primary responsibilities of the Agriculture Sciences, Research and Extension Specialist (ASRE) will be to evaluate the agricultural research and extension aspects of the project. The ASRE will evaluate whether alternative approaches have been tested in the project which have widespread application (Task 4), evaluate the strengths and weaknesses of the SUFS component (Task 5), evaluate the FSR component of the project and make suggestions if it should be deleted from the project or

redesigned (Task 6), assist in identifying the major factors which appear to be affecting project effects (Task 8), and in conjunction with other team members, prepare recommendations for mid-course management corrections (Task 10).

Qualifications: The ASRE must have an advanced degree in agriculture, 5 to 10 years experience with systems research management and field extension, and previous experience with evaluations. The ASRE should have previous Indonesian experience.

o Rural Sociology and Community Development Expert:

The primary responsibilities of the Rural Sociology and Community Development Expert (RSCDE) will be to evaluate the degree of community participation by gender, quantify project beneficiaries by men and women, and evaluate the training component of the project. The RSCDE will evaluate whether the concept of community participation is being met by the project with particular attention to women in development issues (Task 3), assist in the analysis of whether new administrative approaches have been tested in the project which have widespread application (Task 4), evaluate the quality and progress of the Human Resources Development component, assist in identifying the major factors which appear to be affecting project effects (Task 8), and in conjunction with other team members, prepare recommendations for mid-course management corrections (Task 10).

Qualifications: The RSCDE must be Indonesian, have an advanced degree in the social sciences, be able to participate effectively as a team member, and have 5 to 10 years experience in project evaluations or management. The RSCDE must be able to write effectively in English.

ROLE OF USAID, IBRD AND GOI STAFF

Intensive participation of responsible donor and GOI officials with the evaluation team is recommended. Close collaboration of project staff with outside evaluators is especially important for interim evaluations. Project staff can benefit from the objective and fresh perspective outsiders can bring to the evaluation and can often gain useful perspectives from the exercise. At the same time, they can help bring the outsiders up-to-speed quickly. The Contractor will report to a team of project representative from the Ministry of Home Affairs, Agriculture, Forestry, BAPPENAS, USAID and IBRD.

4.4 METHODS AND PROCEDURES

The evaluation team will address all of the tasks indicated above. It is not expected that the evaluation team will provide specific answers to each question in the extensive list in attachment 1. However, the tasks, questions and hypotheses point to lines of inquiry that are important to USAID, the World Bank, and the GOI.

The evaluation should present clear, empirical findings in response to these issues. From these findings it should draw conclusions (interpretations and judgments) and then frame recommendations based on the results of the entire evaluation exercise. Lessons learned that emerge from the analysis should be specified. The evaluation should analyze stated or implied linkages in the project design. Among these linkages are the Logframe relationships between inputs and outputs, outputs and purpose, and purpose and goal. Design assumptions also should be tested.

The basic logic of the inquiry should proceed as follows:

- Findings:** Given the goals and purposes specified in the project design, what is progress toward them?
- Conclusions:** What are the constraints and problems hindering achievement of these goals and objectives?
- Recommendations:** What adjustments in project strategy and implementation should be made?
- Lessons Learned:** What has been learned about the productive management of fragile upland areas in Indonesia?

Data gathering methods during the limited time available to the evaluation team will include:

- o interviews with key informants at all levels of project decision making and implementation including GOI officials, technical assistance advisory personnel, and beneficiaries;
- o review of available project documentation, including monthly and quarterly reports, memos, field activity records, letters, and cables, etc.;
- o discussion with AID and World Bank officers;
- o discussions with persons knowledgeable about other similar projects, especially Citanduy II and Kali Konto
- o field visits to project field offices and observation of implementation sites; and
- o investigation of information contained in project MIS records and reports.

To reduce the time needed for data gathering by the project team during the primary evaluation, two person months of services of an Indonesian information and logistics specialist can be approved to collect background information and assist in logistics support. This assistant can work for no more than four weeks prior to the arrival of the core team.

4.5 REPORTING REQUIREMENTS

AID's recommended format for evaluation reports as defined in the A.I.D. Evaluation Handbook is as follows:

- o Executive Summary
- o Project Identification Data Sheet (See Appendix A)
- o Table of Contents
- o Body of the Report
- o Appendixes

The Executive Summary states the development objectives of the activity evaluated; purpose of the evaluation; study method; findings, conclusions, and recommendations; and lessons learned about the design and implementation of this kind of development activity.

The body of the report should include a discussion of:

- (1) the project background and goals (brief summary);
- (2) the purpose and key questions of the evaluation;
- (3) the project's economic, political, and social context;
- (4) evaluation team composition and study/analysis methods;
- (5) evidence/findings in response to the statement of work;
- (6) conclusions drawn from the findings;
- (7) recommendations based on the findings and conclusions, stated as actions to be taken to improve project performance; and
- (8) lessons learned of broader application to AID development projects and programs.

The body of the report should be limited to 50 pages.

Appendices should include a copy of the evaluation scope of work, the project logical framework, a list of documents consulted, and individuals and agencies contacted. Additional appendixes may address study methodology and relevant technical topics if necessary.

Verbal debriefing to project donors and senior GOI management will be required after submission of a draft report. A one-day workshop, to be held after the briefing but before departure of the team from Indonesia, shall be organized by the project to provide ample opportunity for dissemination of evaluation findings and exchange of ideas and information with GOI officials involved in the project.

100 copies of the final report must be presented to the donors and the Government of Indonesia. Copies of the report must be translated in both English and Indonesian. USAID and the GOI will distribute the reports.

4.6 SCHEDULE

The whole evaluation team will spend six weeks in county. The team leader will arrive one week earlier to handle logistics, collect background documentation and clarify any outstanding issues in the TOR. A draft report will be submitted to USAID, World Bank, and GOI officials at the end of the 5th week and an intensive debriefing held two or three days later. The final report will be submitted in the field at the end of the evaluation and distributed as the basis for the one-day workshop. The evaluation team must arrive in Indonesia no later than January 4, 1989 for an overview briefing by the departing project officer.

A tentative schedule is as follows:

- Week 1 Orientation meetings:
 - GOI and donors
 - GOI
 - USAID
 - IBRD
 - Individual meetings

- Week 2 Central Java:
 - PCO/Contractor
 - Kabupaten
 - Field Visits

- Week 3 Central Java:
 - Discussion of preliminary findings in Central JavaEast Java: same as Central Java

- Week 4 East Java:
 - Discussion of preliminary findings in East Java

- Week 5 Draft Report and Presentation

- Week 6 Final Presentation Report

ATTACHMENT 1: MAJOR ILLUSTRATIVE QUESTIONS

This attachment contains a list of questions relevant to the evaluation of the progress of the project. The questions are organized according to the different components of the project and are in order of priority within each section. It is not the intention of this contract to address all of these questions, however, major questions need to be incorporated in the evaluation.

1. Institutional Development

The contractor should consider the following questions:

- a. How effective is project management:
 - by managers of each component;
 - by District Project Management Units;
 - by Provincial Project Coordination Offices;
 - by MHA (BANGDA);
 - by EXSEC;
 - by other involved GOI agencies;
 - by USAID.
- b. What is the impact of the project on institutional performance at various GOI levels? Are stated or implied project assumptions about the absorptive capacity of GOI agencies to utilize funding, TA, and other inputs valid. Is the EXSEC effectively staffed and able to devote adequate attention to UACP management and guidance? Is an effective decentralized interagency planning, programming, and budgeting system in place utilizing a single INPRES system? Are interagency district guidance teams and PMUs providing effective planning and management to the project? Do they have enough authority to direct local line ministry activities? Are interagency extension forces effectively planning and executing integrated field programs in targeted sub-watersheds?
- c. What is the quality of the technical assistance provided to UACP? How has TA contributed to the project purpose of expanding and improving provincial, district, and farm-level institutional capacities? What impact has there been on research capacity related to upland farming conditions in Java? Has the mechanism of using four different TA mechanisms proven viable? What problems of coordination are evident and how can they be addressed? Is TA needed at the EXSEC?
- d. Has the project MIS supported the central operation concept of the project, "learning-by-doing?" Does routine monitoring provide project decision makers the information they need to assess UACP performance, evaluate the results of experiments, modify approaches, and determine the feasibility of expansion of the project to new districts? Is there an appropriate balance between production, impact, and resourcemanagement criteria?

- e. Are budgets approved and funds released in a timely fashion? What is the status of release and utilization of available funds? Are donor and GOI mechanisms and timing for scheduled fund disbursements coordinated? What is the impact of funding mechanisms for the project on incentives to achieve project objectives? What simplifications in financial documentation are possible?
- f. How effective is donor project management? Are field perceptions of excess donor "micro-management" valid? What is the appropriate management role for the donors?

2. Applied Research

- a. How has project-sponsored applied research served the objectives of defining existing cropping patterns, improving the productivity of existing cropping patterns, increasing and stabilizing farm incomes, and designing soil and water conservation practices appropriate for different agro-ecological zones within target areas?
- b. Has the FSR component provided relevant research information for UACP needs? Are FSR research findings communicated and used by implementors, especially for SUFS planning and extension? Does AARD's commodity and sectoral orientation fit the UACP objective of fitting agricultural technologies to different agro-ecological conditions? Does central control of FSR serve UACP's decentralized decision making? Should a research agenda (and supportive TA) be added to the SUFS component of the project to improve research-extension coordination?
- c. Has the research effort successfully demonstrated "alternative approaches" to conserving soil and water and evaluated different crop, forage, and tree species for effectiveness in controlling soil and water losses? Specifically, what alternatives to bench terracing have been explored for shallow and unstable soils such as in limestone areas of Blitar and Boyolali?
- d. Do field technical staff from different disciplines (agronomy, horticulture, soil science, forestry, etc.) have reliable mechanisms to conduct information gathering in a coordinated manner? Do they have opportunities to communicate the results of alternate field treatments to relevant authorities?

3. Sustainable Upland Farming Systems Pilot Projects

- a. What is the status of the SUFS that are in place? Have the SUFS managers introduced new innovative approaches to soil conservation? Is there a viable watershed development plan for each? What is the status of nurseries, seed distribution, demonstration farms, and tested pilot approaches to community management of upland resources? Are the technology approaches flexible? Appropriate?

- b. Has the project identified appropriately varied sites for demonstration farms and expansion areas? Do these sites provide an adequate testing ground for both the production and the conservation goals of UACP? Do they cover all agro-ecological zones?
- c. What has been the effectiveness of the experimental management and coordinating mechanisms for the SUPS component involving decentralized management by District PMUs, integrated extension by RECs, and new subsidy policies allowing discretion to District Project Managers based on local conditions, the technology involved, and farmer requirements?
- d. What evidence is there of technology diffusion to farmers through this project component? What is the source of technologies used for extension through SUPS activities? How is information disseminated to farmers?
- e. What is the level of extension coverage and quality? How can extension be strengthened? Are more extension agents needed to optimize the benefits of SUPS activities? How well does technical information flow between farmers, extension agents, and researchers?
- f. What are farmer perceptions of project activity? Is there evidence of spontaneous (unsubsidized) expansion within or beyond the DAMPAK areas? What incentives beyond or in place of subsidies would be appropriate (e.g. secure land title)?
- g. What is the project's impact on local institutional systems for integrated extension management, planting material and livestock development and distribution, credit distribution, and farmer participation?
- h. What has been learned about the optimal upland technology package for different local conditions? Are subsidy levels based on optimal cost-benefit considerations?
- i. Is additional information, such as aerial photography, needed for effective watershed management?

4. Human Resources Development

- a. How many persons at what levels of project management and implementation have received training? What type of training has been conducted? Given the current status of the long-term overseas and in-country training program, will this long-term training be completed by the end of the project? Is the present system for managing the training adequate for project implementation?

- b. What evidence is there that this training is increasing the capacity of the trainees to apply needed skills to the production and conservation problems addressed by UACP?
- c. What other training needs can be identified?

5. Conservation Access Roads

- a. How many kilometers of road have been constructed? Upgraded? How are these roads used? How does the cost of construction compare with the PP estimate of Rp.9,200,000/km? Do the increased costs appear to be reasonable from a project benefits perspective?
- b. What arrangements have been made for financing and carrying out future road maintenance? To what degree will operations and maintenance depend on donor funding?
- c. Are soil erosion control and bank stabilization given adequate consideration in road design?
- d. What evidence exists that access roads reduce input costs to farmers and/or increase revenues from production?
- e. Have access roads led to increased accessibility for extension personnel? Has improved accessibility led to improved extension service delivery to farmers?

6. Project Innovation Fund

- a. Has the PIF accomplished its purpose of providing financing for experimental pilot projects, field tests, or other initiatives that contribute to the project purpose? What institutions have utilized PIF funds? Have clear criteria for selecting PIF initiatives been established by the GOI and USAID? Should this component be continued?

GLOSSARY OF ABBREVIATIONS USED

AARD	-	Agency for Agricultural Research and Development
BANGDA	-	Direktorat Jendral Pembangunan Daerah (Directorate for Regional Development of the Ministry of Home Affairs)
BAPPEDA-	-	Badan Perencanaan Pembangunan Daerah (Provincial and District Development Planning Boards)
BRLKT	-	Balai Rehabilitasi Lahan dan Konservasi Tanah
BTPDAS	-	Balai Technology Pengelolaan DAS (Watershed Management Technology Center, Solo)
CDSS	-	Country Development Strategy Statement
CSR	-	Center for Soils Research
DAI	-	Development Alternatives, Inc.
DAMPAK	-	Impact (expansion) area surrounding DEMPLOT
DEMPLOT-	-	Demonstration Plot
FAR	-	Fixed Amount Reimbursement
FKPP	-	Forum for Coordination of Agricultural Extension
FSR	-	Farming Systems Research
GOI	-	Government of Indonesia
HRD	-	Human Resources Development
INFRES	-	Presidential instruction re rural development programs
IPB	-	Institut Pertanian Bogor (Bogor Agriculture Institute)
JOSS	-	Joint Operations Support Staff
KEPAS	-	Kelompok Penelitian Agroekosistem (Agro-ecosystem research group)
MOA	-	Ministry of Agriculture
MOF	-	Ministry of Forestry
MHA	-	Ministry of Home Affairs
PACD	-	Project Assistance Completion Date
PASA	-	Participating Agency Service Agreement
PCO	-	Project Coordinating Office (Provincial level)
PIF	-	Project Innovation Fund
PMU	-	Project Management Unit (District level)
PP	-	Project Paper
PSC	-	Personal Services Contractor
REC	-	Rural extension center
SUFS	-	Sustainable Upland Farming Systems (demonstration farms and expansion areas under UACP)
TAT	-	Technical Assistance Team
UACP	-	Upland Agriculture and Conservation Project
UNIBRAW-	-	Brawijawa University (Malang)
USAID	-	United States Agency for International Development

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APPENDIX B

TEAMS MEMBERS, STUDY METHODOLOGY, PERSONS
AND REFERENCES CONSULTED

Appendix B

TEAM MEMBERS, STUDY METHODOLOGY, PERSONS AND REFERENCES CONSULTED

Introduction

This appendix gives short descriptions of the members of the Evaluation Team, describes the methodology used in preparing this report, summarizes activities during the study, and gives partial lists of persons and references consulted. Full lists of persons are not given because many anonymous farmers and low level officers were interviewed and because it is not possible for every member of the team to remember every person he talked with. The number of persons with direct or indirect involvement with the UACP is very large. The full list of references is not given for the same reasons. The number of papers and other references relevant to the UACP, like the number of persons, is very large.

Team Members

1. Jeffrey D. Brewer - Team Leader

Dr. Brewer is a cultural anthropologist with almost 20 years experience studying agriculture related issues in a variety of countries, including a study of the social and cognitive organization of agriculture in Nusa Tenggara Barat, and a review for USAID/Indonesia, of candidate sites for the Small Scale Irrigation Management Project. Dr. Brewer has also been Team Leader or Project Manager of several projects, including the large Irrigation Management and Training Project for USAID/India. Dr. Brewer is currently Senior Social Scientist for Louis Berger International Inc. Dr. Brewer speaks Bahasa Indonesia.

As Team Leader, Dr. Brewer's responsibilities included not only organizing the work of the team, but also coordinating the inputs of the various team members, preparing the report, and writing specific sections on training, technical assistance, the future of the project.

2. Martha Gaudreau - Agronomist and Farming Systems Research Specialist

Dr. Gaudreau is an agronomist and soil physicist with over 10 years experience in a variety of African countries. She also has worked in farming systems research for a number of years and is a member of the Technical Advisory Committee for the Farming Systems Support Project.

Dr. Gaudreau's responsibilities were to review the Farming Systems Research component of the project and to review agronomic aspects of the SUFS component.

3. J. Bruce Glassburner - Economist

Dr. Glassburner is an economist with over over 35 years experience in research, teaching, and advising on a variety of problems in several countries of the world. Dr. Glassburner's experience in Indonesia began in the 1950's and includes three stints teaching in Indonesian universities as well as numerous consulting and advisory activities. Dr. Glassburner is currently Emeritus Professor of Economics at the University of California, Davis. Dr. Glassburner speaks Bahasa Indonesia.

Dr. Glassburner's responsibility on the team was to look into the economic impact and sustainability of the project, including reviewing the data needs and current availability.

4. Van K. Haderlie - Soil Conservation Specialist

Mr. Haderlie worked with the Soil Conservation Service of the United States for 35 years as a soil scientist, soil conservationist, and program administrator. He has also taken short term assignments in Bolivia and Indonesia and spent over two years working with USAID/Indonesia on soil conservation.

Mr. Haderlie's responsibility was to review the soil conservation aspects of the SUFS component and to review aspects of the Access Roads Component.

5. Entang Roekasah Adiratma - Government Specialist

Dr. Roekasah is an agricultural economist with many years experience working with BAPPENAS and with other government organizations concerned with agriculture. He is also a faculty member at the Institute Pertanian Bogor.

Dr. Roekasah's responsibilities were twofold: to review the provincial and national project organization, including funding procedures, and to assist Dr. Glassburner with the analysis of project impact.

6. Loekman Sutrisno - Rural Sociology and Community Development Specialist

Dr. Loekman Sutrisno is Professor of Rural Sociology at Gadjah Mada University. He has worked closely with many development projects, including the Yogyakarta Integrated

Development Project which bears many resemblances to the UACP.

Dr. Sutrisno's responsibilities were to review farmer involvement in the project and to review the local and district government role in the project.

Study Methodology

The Evaluation Team arrived in Jakarta on 24 and 25 January 1989. Initial meetings were held with USAID, Bangda, Ministry of Forestry, World Bank, AARD, the EXSEC and JOSS and others to get oriented to the project and to the needs of the evaluation. Simultaneously, the Team reviewed portions of the voluminous literature on the project collected by USAID. A plan for the field visits was prepared and arrangements made.

The Team left Jakarta on 2 February for Salatiga, Central Java, accompanied by Dr. Graham Kerr and Mr. Ketut Jati from USAID. The first visit was to the Farming Systems Research group in Salatiga. This was followed by a visit to the Unggaran field laboratory before proceeding to Semarang to meet with the Central Java PCO. Following an interview with the PCO on 6 February, the Team split into two groups; one visited Blora and Grobogan Districts, the other visited Semarang and Boyolali Districts. In each district, the Team met with the PMU head and members, then went to two-four SUFS sites to see progress and discuss with farmers and field officers. On several of the visits, the Team was accompanied by consultants from DAI, Winrock, and SCS as well as by Dr. Kerr. After a week of visits, the Team spent two days in Solo to discuss and digest the Central Java situation before proceeding to East Java. While in Solo the Team also visited the Badan Teknologi Pengeloloan Daerah Aliran Sungai to learn about their research programs and to discuss possible work with the project.

On 13 February, most of the Team traveled to Tulung Agung District in East Java to continue field investigations. Dr. Brewer and Dr. Kerr went to Surabaya to meet with the East Java PCO, then joined the Team in Tulung Agung the next day. The Team then visited Trenggalek, Blitar, and Malang Districts. In each place, the Team first met with the PMU and district officials then split into two groups to visit several SUFS sites. The Team also visited three of the East Java FSR sites as well as two sites of an experimental program being supported by the Project Innovation Fund. As in Central Java, the Team was usually accompanied by one or more of the consultants, as well as by USAID and GOI officers. In Malang, the Team also met with the FSR group, the Sub Balai, and with the Kali Konto Project consultant group. After the field visits, the Team spent two days in Batu to reach conclusions on the East Java sites.

During these field visits, Team members talked with individual farmers or officers. Generally Team members worked alone or in pairs in order to maximize the amount of contacts possible in a limited time. Given the very short time, it was not possible to systematically collect quantitative data; however, the field visits provided illustrations of various happenings and effects and prompted considerable discussion as well as searches into the written material supplied by USAID, the GOI, and the consultants. The Team managed to visit approximately 25 of the 75 SUFS sites as well as almost all of the FSR sites.

On 20 February, the Team met with the East Java PCO, many of the other East Java project participants, and others, at a meeting in Surabaya where the Team presented its initial conclusions. There was considerable discussion. A similar meeting was held in Semarang on 21 February. The Team returned to Jakarta the same day.

Once in Jakarta, the Team reviewed additional written matter and prepared individual reports on specific topics. Meetings were held with selected individuals to answer particular questions. Discussions were also held in Malang and in Jakarta with a World Bank team looking into watershed issues. The Team prepared an first draft of the report and discussed it with participants in meetings with World Bank, USAID, and the GOI. These meetings were held on 1 and 2 March.

Comments received during the meetings were incorporated into the draft report dated 4 March that was sent to USAID for distribution and further comments. Some additional comments have been incorporated into this final report.

Persons Interviewed

The following list includes many of the persons interviewed by one or more members of the Team. Many others have not been included, mostly because their names were not recorded at the time. For some, we have not included their full titles. We apologize for any errors in this list.

1. Central Government

Mr. Warga - Director, Bangda
Mr. Syahmardan Kamili - Project Manager, Bangda
Mr. Dwiatmo - Director, Soil Conservation, Ministry of Forestry
Mr. Hadi Pasaribu - Ministry of Forestry
Mr. Engkah - Ministry of Forestry
Mr. Nyoman Ardha - Ministry of Agriculture
Mr. T. A. Salim - BAPPENAS

2. Agency for Agricultural Research and Development

Mr. Soetatwo - Director-General
Mr. Soedjadi - Director, CSR
Mr. Soleh Sukmana - Head, FSR Group, Salatiga
Almost all members of the FSR Group in Salatiga
Almost all members of the FSR Group in Malang

3. USAID

Mr. David Merrill - Director, USAID/Indonesia
Mr. Marcus Winter - Chief, ARD, USAID
Mr. William Douglass - Chief, ARD/RRM, USAID
Mr. Graham Kerr - Project Officer, USAID
Mr. Ronald Greenberg - Former Project Officer, USAID
Mr. I. Ketut Djati - Assistant Project Officer, UACP
Mr. Sebastianus Hadianto - Assistant Project Officer
Mr. David McCauley - Environmental Specialist, USAID

4. World Bank

Mr. Osman Farouk
Mr. Wiranto
Mr. A. Sahulata

5. Central Java

Mr. Aris Budiono - Deputy Head, Central Java PCO
Mr. Sumiyawanto - Head, SBRLKT, Salatiga
Mr. G. Soentoro - Head, Extension, Central Java Provincial
Agriculture Office
Members and staff of the PCO
Pimpro and members of the PMU, Semarang District
Pimpro and members of the PMU, Boyolali District
Pimpro and members of the PMU, Grobogan District
Pimpro and members of the PMU, Blora District
Numerous farmers, extension workers, and others

6. East Java

Mr. Danu Wijaya - Deputy Head, East Java PCO
Mr. Soetino Wibowo - Head, SBRLKT, Malang
Mr. Hadipurnomo - Head, BRLKT, Malang
Members and staff of the PCO
Members and staff of the SBRLKT
Pimpro and members of the PMU, Tulung Agung District
Pimpro and members of the PMU, Blitar District
Pimpro and members of the PMU, Malang District
Pimpro and members of the PMU, Trenggalek District
Numerous farmers, extension workers, and others

7. Consultants

Mr. Bruce Harker - DAI Team Leader
Mr. Soesiladi - Facilitator, DAI Central Java
Mr. Joel Levine - Extension Specialist, DAI Central Java
Mr. Richard Gnagey - MIS Specialist, DAI
Mr. Deane Manbeck - East Java Team Leader, DAI
Mr. Soewadji - Facilitator, DAI East Java
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APPENDIX C

UACP LOGICAL FRAMEWORK

Appendix C

UACP LOGICAL FRAMEWORK

Jeffrey D. Brewer

10 April 1989

This appendix analyzes the performance of the UACP as compared to the Logical Framework (logframe) given in the Project Paper. This analysis can be viewed as a short and incomplete synopsis of our main report.

The logframe specifies Objectively Verifiable Indicators for three years into the project and for six years into the project. The Midterm Evaluation, however, took place four years into the project. Therefore, the three year indicators are used to evaluate the project. The six year indicators are also discussed succinctly.

Because the logframe was prepared before the project was expanded from four to eight districts, some of the indicators refer only to four districts.

A. Program Goal

The logframe specifies that some percentage of the uplands will be in sustainable productive use as verified by land capability and use statistics and measurement of sedimentation rates. Not only is the data lacking to determine impact, but also there has not been enough time to establish sustainable systems.

B. Project Purpose

The logframe identifies two parts to the project purpose. The assumptions that apply to both include:

- "That Government will utilize the management system described in the Project Paper."
- "The Government will provide the necessary manpower."

The GOI has used the management system defined in the Project Paper but various portions of the system have not worked as expected. Also, the GOI has provided sufficient manpower for the project to progress but there are several areas of shortage.

Purpose 1: The first project purpose is "To expand and improve institutional capacities, primarily at provincial, district and farm levels to experiment with alternative approaches to upland farming and to apply these approaches."

The indicators include:

- a. Indicator: "Decentralized interagency planning system in place and functioning with annual plans produced for project years 1-3 and comprehensive plan produced for years 4-6."

This system is in place and functioning. A comprehensive plan for five years has been produced as well as annual plans for all of the years. There is continuous experimentation and improvement of the planning process. The Team believes, however, that the planning system should be modified to provide for more farmer and community involvement.

- b. Indicator: "Unified budget system in place and routinely functioning utilizing only a single INPRES system."

A unified project budget system is in place and operating through the INPRES Dati I channel.

- c. Indicator: "Interagency district guidance teams and Project Management Units routinely planning and managing project."

The PMUs and district guidance teams are routinely planning and managing the project.

- d. Indicator: "BPP and interagency extension force effectively planning and executing comprehensive field programs in targeted sub-watersheds."

Neither the BPPs for the FKPPs are involved in project execution except in the most minimal way. Further involvement of the BPPs is one of our priority recommendations.

- e. Indicator: "Farmer groups organized and dynamically functioning."

Farmer groups are organized and are managing implementation of conservation efforts and new cropping systems well. However, they are not sufficiently involved in planning. Greater involvement in planning is one of our priority recommendations.

- f. Indicator: "Pattern established involving project management hiring private contractors, universities and foundations to provide supporting services, research, etc, on a routine basis to project and participating communities."

No such pattern has been established. The only involvement of private contractors has been to supply seedlings. In addition, only within the past year have research activities been started by universities or foundations under the project.

- g. Indicator: "Evidence that program has created public consciousness concerning upland productivity and conservation issues and corrective action."

We believe that such consciousness has been created, both in the participating communities and within the participating government agencies.

- h. Indicator: "Project Management Information Systems in place and functioning as planned."

As described in detail in the main report, an MIS is in place but it is, in our opinion, not adequate. Improvement of the MIS is one of our priority recommendations.

The six year indicators for Purpose 1 are basically concerned with institutionalizing these changes to make possible a broader Phase II of the project. For the most part, the six year indicators have not been reached. Several specific items need to be strengthened, including farmer participation in planning, BPP involvement in project management, and the MIS.

Purpose 2: The second project purpose is "Increase GOI technical capacity and research processes which systematically, and on a continuous basis, improve the biological and socio-economic foundation related to upland farming conditions on Java."

The three year indicator for this purpose is "Farming system field laboratory and outreach sites in place and functioning and initial results coming 'on-stream'." The six year indicator is "Research program has established a diversified range of profitable, but ecologically stable, technologies for upland communities including initial results on tree crop/silvipasture technology."

The FSR group is established and functioning. However, it has several weaknesses and has not yet produced useful results. Initially there were some misconceptions about how the FSR program should function. The FSR group and the Evaluation Team

assert that effective FSR requires on-farm research rather than research in field laboratories. Following some changes in program, the FSR program shows promise of producing useful results, including results in the area of tree crops and silvipasture. However, we have made some priority recommendations about changes to be made in the program.

C. Project Outputs

The logframe defines four project outputs.

Output 1: The first output is "Management Systems: A decentralized and unified management and budgetary system in place and functioning which provides the institutional framework and management processes for effectively extending to upland communities information, technology, and inputs required for the diffusion and sustained application of ecologically stable upland farming systems technology."

The assumptions include:

- "Adequate delegations of authority to the provincial and district governments."
- "Support from relevant Ministries."
- "Acceptance of responsibility and authority by the provinces and districts."

Generally there has been adequate delegation and support. The main report points out some specific points where improvements can be made.

Indicators include:

- a. Indicator: "Policy guidance and regulations in place which authorize and define the structure and process of decentralized and unified management at the provincial, district, and field levels."

The policy guidance and regulations are generally in place for the management of project activities. As noted above, we have some recommendations for modifications of the management system, some of which will require changes in the policies and regulations.

- b. Indicator: "A unified budgetary system in place and functioning under the control and management of district governments."

The system is in place and functioning. We recommend, however, consideration of using the INPRES Dati II channel instead of using INPRES Dati I in order to promote district control.

- c. Indicator: "Interagency district Guidance Teams and Project Management Units established and functioning in four districts, evidenced by: preparation of annual project plans and budgets, preparation of medium term development plan for project years 4-6, integration of P3RPDAS program and P2TP program into overall project management structure and systems."

The Guidance Teams and PMUs have been established in eight districts. They are all preparing annual project plans and budgets and have all participated in the preparation of medium term plans. Integration with the greening programs has been achieved by stopping all greening activities in the participating districts and devoting those personnel and resources to the UACP.

- d. Indicator: "Staff of 22 participating BPP/REC have received appropriate training in planning and managing the SUFS Pilot Projects."

Although all of the extension workers have received or will receive some training, we believe more should be done and have made some specific recommendations. Also, the RECs are not closely involved in the project; we have recommended strengthening their role.

The six year indicators all refer to the internalization of the management and budgetary systems into regular government systems. No such internalization has yet occurred. We believe that conditions favorable for internalization of some of the management processes are being created. However, we also believe some changes are needed. These are recommended in the main report.

Output 2: The second output is "Applied Farming Systems Research: Execution of a comprehensive program of upland farming systems applied research designed to improve existing and develop new technologies."

The assumptions include:

- "Sufficient and able staff and financing to carry out the program."
- "Methodology that moves results to farmers' fields within PACD."

- "Institutionalization of farming systems research by AARD."

These assumptions have not been fully met. Staffing, in particular, has been a problem. Until recently the numbers of staff have been inadequate and there are still major weaknesses in the training and experience of the staff. Since the FSR program has not produced any major results yet, the system to move results to farmers' fields has not yet been tested. AARD is still deciding how to institutionalize farming systems research into their structure.

Indicators include:

- a. Indicator: "One field laboratory and 8 outreach sites developing and field testing farming systems technology including components focussed on soil/water conservation and management, cropping systems, livestock, tree crops and silvipasture, and socio-economic evaluation."

A field laboratory has been established along with at least 8 other sites. However, the emphasis of the program has shifted from working on a field laboratory and outreach sites to on-farm research. The Evaluation Team is in full agreement with this shift in emphasis. Work has begun in all of the listed areas; however, we feel that the work on tree crops and livestock/crop interactions has the most promise. We have made some specific recommendations for strengthening the program.

- b. Indicator: "The acceptance of recommendations developed by the research."

Although the FSR group has not produced any major findings to be accepted or rejected, they are now providing specific technical assistance to the SUFS planners. The FSR group and the Evaluation Team both feel that the goal of this effort is not to develop technology packages to be applied under certain conditions, but rather to develop ways to plan a unique package for each particular circumstance. Acceptance of recommendations becomes less meaningful when FSR is viewed in this way. Success is measured by a general increase of knowledge resources available to SUFS planners and farmers.

The six year indicator is "An effective farming system research capacity existing and routinely developing improved technologies for field application." We are of the opinion that the FSR component is still far from this point but because of recent changes, may reach this point within or soon after FADC.

Output 3: The third output is "Sustainable Upland Farming Systems Pilot Projects: Management/delivery systems established for the diffusion of farming systems technology to upland communities."

Assumptions include:

- "That better technology is available or can be developed according to the project plan."
- "That farmers will accept the better technology."
- "That the required inputs will be available as planned."
- "Sufficient and able staff and financing to carry out the program."
- "Timely prefinancing by GOI."
- "Farmers adopting the improved practices will be in contiguous groups."

There is a conceptual problem with the first two assumptions. First, what standard is to be used when judging whether a technology is "better" than one being used by farmers now. The second assumption implies that the new technology is not necessarily judged "better" by the farmers according to their standards, because if a technology is judged better than existing technologies by the farmers, they will adopt it. It is clear that techniques can be used to a) decrease soil loss, or b) increase agricultural production on the critical lands. It may or may not be possible to do both simultaneously. Our finding is, however, that from the farmers' point of view, some such technologies are not "better" than existing ones. Therefore, we believe that the sustainability of some of the measures undertaken are questionable.

There have also been problems satisfying the other assumptions. Not all the planned staff has been made available, nor has the GOI been able to provide all of the financing planned. In general, however, these have been minor problems.

Indicators include:

- a. The first indicator has several parts; each is discussed separately below.

Indicator: "Up to three BPP based mini watershed sustainable farming system pilot projects in place in each of the participating districts which include:"

- * "a watershed development plan and program,"

Each district has several SUFS pilot projects in place. For each, watershed conservation plans and programs have been developed.

- * "irrigated nurseries established or upgraded and properly distributed among the participating districts which produce sufficient grass/legume production to meet demand estimated at 700 hectares per district,"

Irrigated nurseries were established in some but not all districts. They have varied considerably in output; some have been very successful while others have not produced well. Production has not been sufficient to meet demand and seed, including grass and legume seed, has been purchased from private producers. An innovation, the village nursery program, is being developed as a means to increase seed production.

- * "a program in place and functioning which produces 'good' seed for distribution under the program estimated at 700 hectares per district,"

Despite the shortages from project nurseries, the project has been able to obtain and distribute the seed required. We were not able to judge the quality of the seed.

- * "up to five strategically located demonstration farms of approximately 10 hectares each in each watershed,"

Ten hectare demonstration farms have been established as recommended by the Project Paper.

- * "pilot approaches to community management of upland resources executed in selected districts which utilize a range of institutions (e.g. conservation groups, village councils, religious institutions) and which utilize local institutions (e.g. NGOs and universities) to provide backstopping to upland communities."

There has been little experimentation with community management. Almost all work has been done using a single approach. We have made two priority recommendations for improving farmer and community involvement in this project. Also, until very recently there has been no involvement of NGOs or universities.

The six year indicators focus on a program in place that has treated some 23,000 hectares and which provides for an interactive decision making process involving both local

communities and government agencies. It is the opinion of the Evaluation Team that the project neither can nor should reach the 23,000 hectare target; instead we suggest that the targets be lowered and that lessons from this experience be incorporated into other programs. Also, we recommend that community involvement in project decision making be strengthened.

- b. Indicator: "Human Resources Development: Execution of a field training program in upland agriculture, conservation practices and community management for extension workers, farmers and community leaders and local government decision makers."

The program has been developed and is underway.

The six year indicators for the HRD component include specific numbers of persons trained. We did not try to measure progress against these quantities. We notice, however, that farmer training is proceeding well but that the overseas and degree training are proceeding very slowly. No progress has been made on the specified information program.

- c. Indicator: "Access Roads: Access roads established as required in sustainable upland pilot project areas; approximately 90 kilometers by end of year three."

The access roads are being built. At the end of the third year over 130 kilometers had been constructed and at the end of the fourth year over 190 kilometers had been constructed.

The six year indicator gives a figure of approximately 475 kilometers. This target is likely to be reached.

- d. Indicator: "Project Innovation Fund systems established and each participating district extending grants in response to proposals from local institutions and communities."

No district program has been established. A centralized program has recently begun to function. There have been great difficulties in interpreting the purpose of the fund. We have recommended that the PIF be abolished and the grant funds be used for other purposes.

Output 4: The fourth output is "Evaluation, Planning, and Project Appraisal for Phase II: Periodic monitoring and evaluation of component activities; MIS in place and producing management useful results." Indicators are given in the statement of the output. The logframe specifies annual

evaluation with major evaluations at the end of the third and fifth years.

There was a review of the project in 1986 aimed at determining whether the project should be expanded from four to eight districts. The current evaluation is the second "major" evaluation and is occurring after four years of implementation.

Although the MIS is in place, we suggest that it is not yet producing the desired results. We have recommended greatly strengthening the MIS for this project.

PROJECT DESIGN SUMMARY
 03/02/81 09:47/54

Project Title: Upland Agriculture and Conservation Project - Phase I

NARRATIVE CONTEXT	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Program or Sector Goals: The objectives to which this project contributes (A-1)</u></p> <p>To sustain and enhance the productive capacity of Java's uplands through improved management of soil and water resources.</p>	<p><u>Measures of Goal Achievement (A-2)</u></p> <p>Percent of uplands in sustainable productive use (forest, silvopasture, estate crops or privately profitable, but ecologically stable, annual cropping systems).</p>	<p><u>(A-3)</u></p> <p>Land capability and use statistics. Measurements of sedimentation rates.</p>	<p><u>Assumptions for achieving goal (A-4)</u></p> <p>That other development policies and activities of the GOI relevant to this area (e.g., population control, transmigration, off-farm employment generation) will be effectively carried out.</p>
<p><u>Project Purpose (B-1)</u></p> <p>1. To expand and improve institutional capacities, primarily at provincial, district and farm levels to experiment with alternative approaches to upland farming and to apply these approaches;</p>	<p><u>Conditions that will indicate purpose has been achieved:</u></p> <p>By end of Phase 1.a. (36 months from satisfaction of major CPs)</p> <p>1.a. decentralized, inter-agency planning system in place and functioning with annual plans produced for project years I-III and comprehensive plan produced for years IV-VI;</p> <p>1.b. unified budget system in place and routinely functioning utilizing only a single INWANS system;</p> <p>1.c. interagency district guidance teams and Project Management Units (PMU) routinely planning and managing projects;</p>	<p><u>(B-3)</u></p> <p>- Annual assessments. - Project evaluation.</p>	<p><u>Assumptions for achieving purpose (B-4)</u></p> <p>- That Government will utilize the management system described in the Project Paper. - That Government will provide the necessary manpower.</p>

C-11

108
 157

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	<p>1.d. STP and interagency extension force effectively planning and executing conservation field program in targeted sub-watersheds;</p> <p>1.e. Farmer groups organized and dynamically functioning;</p> <p>1.f. Pattern established involving project management hiring private contractors, universities and foundations to provide supporting services, research, etc., on a routine basis to project and participating communities;</p> <p>1.g. Evidence that program has created public consensus concerning upland productivity and conservation issues and corrective action;</p>	<p>1.d. STP and poly-sector extension program has proven effective in disseminating improved technology through productive interaction with farmer conservation groups;</p> <p>1.e. Methodologies for actively engaging farm communities in interactive process of development in conjunction with local government have proven effective and institutional framework and process exists on both farmer/community side and local government to move into expanded phase II program;</p> <p>1.f. Proven performance record of private contractors, universities, and foundations in collaboration with local communities or firms in providing services to warrant judgment that such collaborative action can be substantially expanded during Phase II;</p> <p>1.g. Public information programs/campaigns routinely informing public on upland agriculture and soil and water conservation measures;</p>	

C-12

109

154

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPURTANT ASSUMPTIONS
<p>2. Increase GOU technical capacity and research processes which systematically, and on a continuing basis, improve the biological and socio-economic foundation related to upland farming conditions on Java.</p>	<p>1.h. Project Inngement Information System in place and functioning as planned.</p> <p>2. Farming system field laboratory and outreach sites in place and functioning and initial results coming "on stream".</p>	<p>1.h. A strong capacity for for execution and management of evaluation research exists at project and province level and evidence generated through this effort has established basis in part for proceeding phase II.</p> <p>2. Research program has established a diversified range of profitable, but ecologically sensitive technologies for upland communities including initial results on tree crops/silviculture technology.</p>	
<p><u>Project Output (C-1)</u></p> <p>1. Management Systemat A decentralized and unified management and budgetary systems in place and functioning which provides the institutional framework and management processes for effectively extending to upland communities information, technology & inputs required for the diffusion & sustained application of ecologically sensitive upland farming systems technology.</p>	<p><u>Magnitude of Output (C-2)</u> By end of Phase 1a (36 months from starting year CP4)</p> <p>1a. Policy guidance and regulations in place which authorize and define the structure and processes of decentralized and unified management at the provincial, district and field levels;</p> <p>1b. A unified budgetary system in place and functioning under the control and management of district government;</p>	<p><u>(C-3)</u></p> <p>By end of Phase 1b (year 6)</p> <p>1a. Management system internalized into provincial management systems and routinely applied in all districts province wide;</p> <p>1b. Budgetary system internalized into overall budgeting process and routinely applied in all districts, province wide;</p>	<p><u>Assumptions for achieving output (C-4)</u></p> <ul style="list-style-type: none"> - Adequate delegations of authority to the provincial and district governments. - Support from relevant Ministries. - Acceptance of responsibility and authority by the provinces and districts.

C-13

156
110

NARRATIVE SUMMARY	OBJECTIVELY MEASURABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>2. <u>Applied Farming Systems Research</u> Execution of a comprehensive program of upland farming systems applied research designed to improve existing and develop new technologies.</p>	<p>1c. Interagency District Guidance Teams (IGT) and Project Management Units (PMU) established and functioning in four districts, evidenced by:</p> <ul style="list-style-type: none"> - preparation of annual project plans and budgets; - preparation of medium term development plan for project years IV-VI; - integration of FWRPAS program and PTF program into overall project management structure & systems; <p>1d. Staff of 22 participating BPP/REU have received appropriate training and planning and managing of the SUS Pilot Projects;</p> <p>2a. One field laboratory & 8 outreach sites developing and field testing farming systems technology including components focused on soil/water conservation and management; cropping systems; livestock, tree crops and silvopasture and socio-economic evaluation.</p> <p>2b. The acceptance of recommendations developed by the research.</p>	<p>1c. Management system internalized into provincial management systems and routinely applied in all districts (province wide)</p> <p>Annual assessments, Project Evaluation.</p>	<ul style="list-style-type: none"> - Sufficient and able staff and financing to carry out the program. - Methodology that moves results to farmers fields within D/CD. - Institutionalization of farming systems research by AAD.

Best Available Document

C-14

111
156

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS		MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>3. Sustainable Upland Farming Systems Pilot Project</u></p> <p>Management delivery systems established for the diffusion of farming systems technology to upland communities.</p>	<p><u>3. Sustainable Upland Farming Systems Pilot Project</u></p> <p>a. Up to three (3) BPP based watershed sustainable farming system pilot projects in place in each of the (5) four participating districts which includes:</p> <ul style="list-style-type: none"> • a watershed development plan and program; • 4 irrigated nurseries established or upgraded and properly distributed among 8 participating districts which produce sufficient grass/legume production to meet demand estimated at 700 Ha. per district or 2,800 hectares overall; • a program in place and functioning which produces "good" seed for distribution under the program sufficient to meet demand estimated at 700 Ha. per district or 2,800 hectares overall; • up to five strategically located demonstration farms of + 10 ha. each in each watershed; 	<p><u>3. Sustainable Upland Farming Systems Pilot Project</u></p> <p>a. An established program and process in place which has introduced project supported conservation and productivity increasing technology on approximately 13,000 ha., equally divided between the provinces of Central and East Java;</p>	<p>Annual assessments. Project evaluations.</p>	<ul style="list-style-type: none"> - That better technology available can be developed according to the project plan. - That farmers will accept the better technology. - That the required inputs will be available as planned. - Sufficient and able staff and financing to carry out the program. - Timely participation by CGI. - Farmers adopting the improved practices will be in contiguous groups.

C-15

157

112

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	<p>a. Pilot approaches to community management of upland resources executed in selected districts which utilize a range of institutions (e.g., conservation groups, village councils, religious institutions) and which utilize local institutions (e.g., NGOs and universities) to provide technical backstopping to upland communities;</p> <p>b. Human Resources Develop. Execution of a field training program in upland agriculture, conservation practices and community management for extension workers, farmers and community leaders and local government decision makers.</p> <p>c. Access Roads: Access roads established as required in sustainable upland pilot project areas. + 90 km by end of year three;</p>	<p>a. Institutionalized process in place of interactive decision-making between upland communities and local government which result in efficient application of resources and sustainable upland development and conservation;</p> <p>b. Human Resources Develop. c.1. 250 local government decision-makers, technicians extension workers, and farmer and community leaders trained in upland agriculture. c.2. M.A. level training for 36 professionals through U.S. Land Grant University/USDA/Soil Conservation Service work/study program. c.3. An information program of newsletters slide shows & movies will be brought to the villages.</p> <p>c. Access Roads: 475 km of low grade village access road constructed and/or upgraded in sustainable upland farming systems pilot project areas;</p> <p>- Project training and financial records. - Annual assessments. - Project evaluation.</p> <p>Physical verification. Project budget and records.</p>	<p>- Adequate institutional/curricular resources/standards. - Adequate English language capability on part of appropriate staff. - Personnel management that identifies suitable trainees and provides time for training.</p> <p>- Adequate local capacity/person-power exists to carry out the construction activities. - Effective working relationship between Tenaga Berja and P.U.</p>

C-16

115
15.1

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	<p>4. <u>Project Innovation Fund</u> system established and each participating district extending grants in response to proposal from local institution and communities.</p> <p>4. <u>Evaluation, Planning and Project Appraisal for Phase III</u> Periodic monitoring and evaluation of component activities; MIS in place and producing management useful results.</p>	<p>4. <u>Project Innovation Fund</u> system established and each participating district extending grants in response to proposals from local institution & communities.</p> <p>4. Evaluations conducted annually; with major evaluation at end of third and fifth years;</p>	

C-17

154

APPENDIX D

SUSTAINABLE UPLAND FARMING SYSTEMS PILOT PROJECT (SUFS)

Appendix D

SUSTAINABLE UPLAND FARMING SYSTEMS PILOT PROJECT (SUFS)

Van Haderlie and Martha Gaudreau

4 March 1989

Introduction

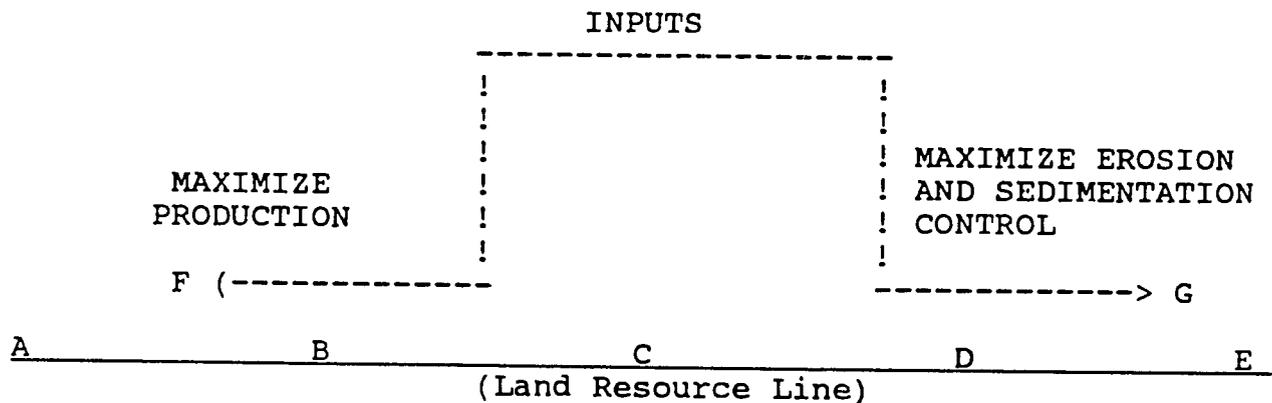
The Sustainable Upland Farming Systems Pilot Project (SUFS) component of the Upland Agriculture and Conservation Project (UACP) is an "effort to improve on-farm trials and diffusion of improved technologies and management relevant to upland areas". Its purpose is "to demonstrate and extend to farmers' fields a replicable, cost effective combination of farming and conservation practices that will be economically stable and will keep erosion within acceptable limits". The SUFS component includes support for the demonstration farms, expansion areas and subsidies as well as nursery development and food-crop seed production and distribution.

In order to implement the SUFS, a soil conservation component was included in the UACP for the purpose of improving and/or sustaining the long term productive capability of the land as well as reducing erosion and sedimentation. The project paper states that the focus will be on "curative" rather than "preventive" approaches. It targets lands where erosion has already, or if not controlled, will soon reduce productive capacity. Certain topographic, edaphic, and geographic parameters have been developed to further define the target areas. During our field visits, we saw demonstration farms and expansion areas representing the full range of these conditions.

In discussions with various people and groups we observed a perceived conflict between the "production" and "protection" objectives of the project. Indeed if we want to allocate limited resources to maximize production we would target the most productive lands (see diagram below). When production objectives are emphasized, the tendency is to focus inputs on the "A" end of the line (F arrow). The highest marginal returns to management inputs come here. If we were to maximize "protection", or erosion and sedimentation reduction, we would target the least productive lands, the "E" end. The UACP has given priority to the area that can be represented by the B-C section of the land resource line with secondary concern for C-D.

The closer we operate to the "A" end of the line, the greater the options in terms of treatments, land uses, and crops that are "appropriate". Also, the more soil disturbance (bench terracing, for example) can be tolerated. As we operate toward the "E" end, options are fewer. Treatments such as alley cropping, furrows, and agroforestry are in order. The apparent conflict between the two project objectives can be resolved by optimizing crop production given the resources (soil, water & climate) and state-of-the-art technology available for specific site conditions. This, in effect, puts a limit on production. It could limit the varieties used and the yields expected.

A SIMPLISTIC SCHEMATIC OF "PRODUCTION" AND "PROTECTION" OBJECTIVES



"BEST LAND"

LEVEL TO GENTLE SLOPES

MOD. DEEP TO DEEP
COARSE STABLE SOILS

HIGH INHERENT
FERTILITY

QUICK RESPONSE TO
MANAGEMENT INPUTS

"POOREST LAND"

STEEP SLOPES

VERY SHALLOW OR
TEXTURED SOILS

RELATIVELY INFERTILE

SLOW RESPONSE TO
MANAGEMENT INPUTS

117-

We can also approach this perceived problem from an allowable soil loss perspective (T value in Universal Soils Loss Equation terminology). If we set allowable soil loss limits below the point where soil loss exceeds soil formation, we can then establish conservation treatments that are not competitive with production objectives. Soil protection is supportive and even essential to the sustainability of agricultural production. We can push erosion control to the point of not only competing with production but also in the extreme eliminating it. An example of limiting, at least in terms of food crops, would be to convert to perennial crop production (grasses, trees, and shrubs). Carried to the extreme, we could cover the soil with plastic or asphalt reducing soil loss to "0". If we let production pressures drive us to the point where soil loss is greater than soil formation, there is conflict between production and protection goals.

Correctly implemented conservation treatments reduce the conflict between production and protection objectives, but with agricultural use there is still some erosion and sedimentation. The project paper may be perpetuating a myth regarding the extent of this. From the project paper we read "most soil erosion comes from small, private land-holdings worked by low income, subsistence farmers". There are serious erosion and sedimentation problems in Indonesia and our reading and observations support this. It seems to have been easy to say that agricultural land use (particularly the uplands) is the major contributor to this condition. However, on a given watershed, or subwatershed, there is a reasonable question as to just how much the erosion and sedimentation coming from upland agriculture contributes to the whole. Surely erosion from roads, villages, stream banks, forests and massive land slides and soil slumping is also present. We do not find reliable data which pinpoints the source and amount of erosion. Any presumption that controlling erosion on upland farms will, in the whole or even in part, solve the problem is suspect. Further it may cloud the global issues relating to erosion and sedimentation, and have a deleterious effect on efforts to address the problem.

The argument could be made that soil conservation is so beneficial that rational people only need to be exposed to it and they will apply and adopt appropriate conservation practices spontaneously. There are, however, economic, social and technical constraints to timely planning and implementation of a soil conservation program.

There are both on-site and off-site benefits that accrue to soil conservation. The former occur both on-site or very nearby. The latter are often far removed geographically. To the extent that part of the beneficiaries feel they benefit to

a lesser degree, or they are carrying too much of the input load, this can be a problem.

The benefits from conservation are typically deferred over a lengthy period of time. Costs of waiting, as expressed in high rural interest rates, are very high in the uplands. Tenant perspectives are often quite different from those of land owners especially when we look at investment costs versus long-term or deferred benefits. A land user with creditors hounding him or hungry children to feed is not inclined to buy into such an investment. Landowners, however, may have a certain commitment to moral or social values regarding the environment that can be a subtle or major force motivating them. They also have a longer term perspective in making management decisions.

Closely related to this is the fact that the scarcity of capital makes the internalized costs of capital-intensive conservation measures prohibitive. However, benefits external to the area where conservation measures are practiced may be very great; hence the frequently made assertion that "Conservation doesn't cost-it pays."

Not only can the scarcity of capital affect the internalized costs of conservation, but also the scarcity of labor. In the uplands, there are competing income opportunities. We saw many situations where soil conservation implementation, and in fact even farming, was impacted because available labor was directed to other interests (either to other farmland such as "sawah" or to off-farm employment).

Social relations between neighbors and friends (peer pressure) can be both a positive and a negative factor in applying soil conservation measures. This underlines the importance of establishing a conservation mentality within a community.

The natural resource base determines the productive capabilities of the land. The soil or water resources available may not be economically responsive to soil conservation inputs under the management strategy employed by the farmer. In some cases from a natural resource perspective, the best uses of land for production with protection are not in the best interest of the user and/or owner so conservation needs are ignored or not adequately met. It may also be that treatment alternatives have not been developed for the particular resources and landowner's desires. Even when appropriate alternatives exist, conservation implementation may be hampered because qualified people are just not available to carry the story of "why to", "where to" and "how to".

The UACP was affected by these constraints in implementing the SUFS component. This part of the evaluation report will focus

on the natural resources of the project area, the technologies that were available and utilized and the planning and implementation of SUFS activities.

Natural Resources

The criteria for demonstration farm and expansion area selection were established in terms of soils and topography. During our field trip we observed that there are SUFS located across the range of these conditions. The most challenging from a soil perspective are in Blora, Grobogan, Blitar and Malang. The general range of soil variability found in the SUFS sites is from shallow soils on siltstone (Blora, Grobogan and part of Boyolali) or limestone (Blitar and Malang) to coarse textured volcanics (Blora) to medium and fine texture volcanics (Trenggalek & Tulungagung). Slopes range from 15% to over 50% with a variance down to 10% allowed in Blora and Grobogan for special conditions. This range of soil and slope conditions seems quite adequate to apply and evaluate varying treatments that would be appropriate on most of the uplands of Java.

Most of the SUFS sites the team observed in Central Java are on the poor end of the project soil conditions. In East Java the sites observed were on the better end for soil conditions. This could be the reason for some of the differences we observed in the two provinces. It is interesting to note that site selection procedures incorporated local input so the selection of difficult sites was at least in part a local decision.

The lack of an appropriate database early in project implementation has hampered the planning of site specific conservation plans. It is essential to have current information about the soils, their distribution and aerial extent and characteristics if there is any concern about site-specific planning.

A major objective of the UACP is to develop, install, and evaluate an array of alternative conservation practices that are site specific. Therefore, some kind of data base is needed. The soil survey (detailed for SUFS and semi-detailed for eight Kabupatens) fills this need. Unfortunately, it is only now being completed and available to planners. The user training for the soil survey information is scheduled for May-June and is extremely important. To be effective in positively impacting the users (PCO, PMU, Cabang, SBRLKT, REC. PLP and PPL) it must be presented in lay terms and focused on interpretations that are useful and understandable. Discussions of taxonomy, classification, soil genesis and morphology should be left for a different audience. Information covered in the training session should include:

- The soil maps, how to use them to locate boundaries and determine the aerial extent of the mapping units.
- A general discussion of mapping unit descriptions so the characteristics and main physical properties can be determined.
- The interpretive data (tables and narrative) which would include a discussion of the key properties used to develop the interpretations.

Aerial photography or imagery is available in Indonesia. This can be a valuable tool in both planning and implementation. It should be obtained and, after training in photo interpretation is given to develop the skills of users, routinely used.

Technology

The principal physical structure used as a conservation measure during the early years of project implementation is the bench terrace. Nearly all project targeted lands have had some kind of terrace on them, and terraces in some form are visible from most any location in the project area.

There is some concern, expressed from several sources, that the "technology package" offered by the project was too rigid with bench terracing being used on a wider range of soil and slope conditions than was prudent. While we agree with this in part we are encouraged to see this is less true now than in earlier years of the project.

There are understandable reasons for the bench terrace emphasis. The project paper itself suggests that "On lands with slopes below 50% and soil depth of at least 50 cm, bench terraces with grasses planted on the lips and on the risers will be established to stabilize soil". It then offers other treatment alternatives for the steep more fragile lands and suggests that alternatives for the moderately deep soils with less than 50% slopes be developed.

The Ministry of Forestry, the agency responsible for planning and implementing soil conservation inputs in the SUFS, has promoted bench terraces over other types of terraces because of their success in the Regreening Program. This success dates back to the FAO Solo Project in 1978 and the Citanduy Project where bench terraces were adopted and were successful on some sites. The Regreening Program has not historically treated land with soil conditions as severe as some of those being treated within the UACP Project thus explaining the promotion of bench terraces over alternative terrace structures.

Given the range of soil and slope conditions and the variations within the farming systems of the UACP area, there is a need for different kinds of terraces and physical conservation structures. While the use of bench terraces has been overextended, we were encouraged to see a wider range of technologies being applied on the newer demonstration farms and expansion areas, including reverse sloping terraces, "credit" terraces, ridge terraces, tree planting in fallow land, waterways and drop structures designed to conform to the topography and natural drainage patterns.

In some cases where there was some alternative to bench terraces planned, the alternative itself was then rigidly applied over relatively large areas.

The operation and maintenance of conservation structures has not been adequately considered in selecting the appropriate technologies for the SUFS sites. Terraces, waterways and drop structures represent a sizeable capital investment. Comparative operation and maintenance requirements should be an overt consideration in selecting technology options. There is a need to collect and analyze data on operation and maintenance that can be used in planning.

At some of the older sites but more often at the newer sites, alternative soil management practices are also being tried. Crop residue is being used as mulch along the terrace edge (Sumberkember) and composted in the enclosed water control ditch (Patok Picis and Sumberjo). The composted material was to be applied to the terrace surface to protect the soil during the long dry season. In Blora and Grobogan, green manure species such as *Crotalaria* are being planted. There is increasing use of grasses, tree crops, and timber crops on the shallow soils. We consider this shift to more flexibility in planning and implementation to be good.

The ideal would be to have site specific systems planned and applied. This concept is being used and promoted by the PASA soil conservationist and others in East Java through a current training activity. Under this system, soil conservation planning begins at a very low level i.e. the farm or farms covered by a resource management unit. These mini plans are then consolidated into a larger plan, as for a demplot or similar area, that is large enough to handle water management and structural conservation inputs on a reasonable basis.

Technology selection for the SUFS and the ultimate adoption and sustainability of the conservation practices is also linked to management decisions of farmers. On several sites, we observed that the before-project use of the land included fallow. While the project has collected baseline information on the amount of land allocated to different uses in the area as a whole, the

crop-fallow rotation by farm needs to be evaluated. If land routinely goes in and out of cultivation, targeting that land for project activity is appropriate but if lands are expected to remain fallow for an indefinite period, and they are of a fragile nature, consideration should be given to leaving them alone.

There is some indication that crop production in the project areas has increased during the first two years of demonstration farm activity. On some of the more difficult sites such as Nampu, the effects of the project are readily apparent. The increase in productivity on some sites can be attributed, in part, to the inclusion of a second and/or third crop that was not produced on the land prior to project activities. In one area, the traditional cropping pattern was maize-cassava intercrop followed by peanuts-maize. Now a third crop, cowpeas, has been added to the system.

On some of the older sites, farmers have reverted to the old cropping patterns or just planted sole crop cassava when subsidies have ended. This is essentially a management decision based on the fact that, without the incentive of a subsidy, returns to the purchase of seed and fertilizer and to the use of labor on land are much lower than investment of the same money and time in other activities.

In Central Java, there has been a tendency for planners to encourage food crop production (upland rice in Semarang, maize, cassava and beans in Boyolali) rather than perennial tree crops. Only small numbers of trees have been distributed in the SUFS. However, on the newer sites, more perennial crops are being introduced and the choice of species for inclusion in the village nurseries is highly influenced by people in estate crops.

In East Java, there is some diversity in cropping patterns. For example, where annual crops represent a significant cash potential, (chillies, cucumbers, cassava), these are incorporated into the cropping system. Some farmers in East Java are cultivating perennial fruit and estate crops and seedlings are distributed through the UACP.

Nurseries were developed as part of the project to provide the SUFS with planting materials. In Central Java, the nurseries are located and managed at the Kabupaten level but there is a plan to establish village nurseries next year. Semarang has already abandoned its Kabupaten nurseries and established some village nurseries.

Each Kabupaten nursery has several locations with grasses cultivated separately from perennial crops. In some of the nurseries, the availability of water during the dry season may

pose a problem. While for the most part the nurseries are well managed, in several, there are trees that are ready to be transplanted but will be kept through the dry season. There may be substantial losses at those sites where water is limiting.

Distribution of planting materials has been in effect since 1986 but as yet none of the trees have borne fruit.

In East Java, the initiative for village nurseries came as a result of delays in release of funds to buy seedlings for the demplots. The choice of species and management for all the nurseries except those in Blitar rest at the village level. The nurseries in Blitar are the most poorly managed because the Tingkat II officials have not allowed desa officials to manage them thus preventing local authorities from manipulating funds to make purchases in a timely manner despite slowness in disbursements.

There was a training course for 28 of the 31 PPL's who are providing advise to the village nurseries but the training was late and this year the nurseries were already planted. The new techniques learned will be utilized for grafting fruit trees.

In Srimulyo, the village nursery is divided into a demonstration nursery and a production nursery. Some local farmers have begun their own private nurseries with a capacity of 800 trees. They benefited particularly from the spacing and bedding techniques used in the village nursery.

The nursery at Patok Picis has been visited by the horticultural research institute. They expect to provide this nursery with improved varieties of citrus and varieties not currently grown in the area (rambutan, apples, etc) to determine their potential.

Village nurseries provide low-cost, relatively good quality seedlings to farmers. There is an effort to select good seed stock from the farmers and other nurseries to plant in the nurseries and at distribution the trees that are growing poorly are selected out. While the criterion for selection is the absence of visual symptoms, there is an attempt at selection.

The project paper talks of the production and distribution of good quality seed for food crops by the project nurseries. There has never been food crop seed production within the project. The decision to focus on conservation species production (grasses and trees) within the project is appropriate particularly since there should be more emphasis on the evolution of upland cropping systems from annual food crops to perennials on the marginal soils of the upland. Also, it is

unclear that these species are produced on a large scale by private nurseries.

Farmers in the uplands often cannot purchase good quality trees from private nurseries because of high prices. Private nurseries do not provide credit while village nurseries can provide credit and accept payment in kind. Also private nurseries are more interested in producing high value tree crops. The village nurseries provide not only high value tree crops but a variety of conservation species (both trees and grasses). By growing planting material locally, there is less damage to the seedlings in transport and the trees are better suited to the agro-ecological conditions where they will be planted.

The village nurseries receive an initial subsidy of one million rupiahs and are assured a market--the project. It appeared that several of the nurseries would, on the sale of one tree species alone, receive enough money to replant the next year. The subsidy to the nurseries is finite in that at project completion there would no longer be an assured market. The nurseries will have to have generated a local market and be well managed or they will not survive.

The village nursery program should be continued in East Java. As noted above the planned program of expansion in Central Java should be encouraged as in Semarang where some village nurseries have been established.

Managers of village nurseries and the PPLs supporting them need training in all aspects of nursery management including planning, management, and finance.

There is a potential role for the BPP in supplying good quality stock to both village and private nurseries. Some evaluation team members feel that there would be the possibility for a government agency to enter into direct competition with either private or village nurseries since to establish such an activity the BPP would likely be subsidized for an indefinite period. It would be necessary to require the BPP nurseries and sell only to nurseries not individuals.

There is evidence of demplot techniques expanding to surrounding areas outside the targeted expansion area or "dampak". No data are available to evaluate the quantity or quality of the "swadayah". We were told it happens mainly in three ways: (1) Either a Demplot or Dampak farmer has other land where he takes it on himself to extend the concepts. (2) A farmer passes by the Demplot, observes the activity and tries to copy it. (3) The extension worker, in the course of carrying out non-project assignments extends the Demplot concepts.

In any of the three examples, it is most likely the spontaneous adopter will select only parts of the total "package". A note of caution must be sounded here. It is possible that a non-project adopter will select a practice and try to use it under conditions that are inappropriate. We saw an example of this where a farmer saw bench terraces on a demplot and took it on himself to construct them on his land. The problem was he had only a few centimeters of soil to work with at best and ended up in a quarry operation. This is an extreme case but a point can be made. The already overworked PLP or PPL has a role outside of the project to discourage inappropriate application of practices as well as encourage those that are appropriate. Another note of concern is that as spontaneous adaption occurs the PLP needs to provide particular attention that water management systems are correctly applied.

Monitoring and evaluation of conservation practices has not been sufficiently addressed in the SUFS. Recently, an evaluation form to record observations about conditions of bench terraces and about erosion has been developed and is currently being used. It is based on information that is easily observed in the field and easily recorded. It is subjective but should be useful to make relative comparisons between sites and between different time periods at the same site. Commonly accepted comparative values for the crop (C) and practice (P) factors from the ISLE are used along with seasonal rainfall values. We raise the question if soil (K) factors could also be used since the soil survey is now available. This assumes that very well designed training in the use of the survey (user training now scheduled for May - June) has been done and that it was effective.

In any event, the use of these evaluations is seen as a positive step but the forms must be tested to determine their effectiveness as an evaluation tool. Additional forms should be developed to include other kinds of conservation systems and/or system components. The use of these evaluations goes beyond simple and rough estimates of relative conditions. They become a most useful tool for extension since the form focuses attention on the most important factors causing erosion at the specific location being evaluated.

From what we've seen and heard there is no evidence that within the lifetime of this project, or even for several years after, there will be a capacity to accurately measure erosion rates or sources, and make meaningful evaluation on anything but a very and/or small scale. The methodology is not in place and after it is in place, data collection over many years is needed for statistical reliability.

Personnel

We met with and interviewed, many people at all project levels, i.e. central, provincial, district, sub-district, and village, as well as the technical assistance team (DAI), and researchers (AARD/FSR and CSR and BPT Das). From the soil conservation perspective, those of most interest were people from the research agencies; the sub-balai and sub-balai branches; the extension workers from MOF, Rural Extension Centers, and MOA; and village heads and farmers. All were very helpful and each provided useful information to evaluate planning and implementation.

We had the opportunity to visit with many people in these positions, most of the time at field locations. One would expect to find variations among personnel based on experience, training, perception of the purpose of our visit, personalities, and we did. Our comments here will mostly be generalizations with a few specifics thrown in.

Hectare targets for expansion are not being met. We feel they were excessively ambitious to begin with. The targets came from project and program experience in other areas. They seem to be based on using full time, experienced people, where activities are in motion and on sites not as difficult to treat as many in the UACP.

The GOI stated during project design its intention to reassign or recruit new personnel in order to meet the expected personnel levels of one extension supervisor and five extension agents per expansion area. While there have been extension personnel reassigned, the levels are not sufficient to meet target goals. There are many new people not yet fully trained. They are unable to work effectively on as large an area as the more experienced extension agents can. Most PPLS carry rather heavy off-project workloads, as do some PLPs but to a lesser extent.

All these reasons aside, production targets are certainly in part a function of the number, effectiveness and efficiency of the extension workers. To maintain the proposed targets, there has been a tradeoff between quality and quantity of land treatment. The level of extension support after the establishment of the demplots is necessarily not sufficient to maintain the structures and to develop a conservation mentality in the community.

The head of the Cabang SBRLKT and his staff have responsibility for soil conservation planning at the demplots and dampaks. The technical staff is assigned to either planning or monitoring and evaluation duties. They prepare plans for each demplot. We saw some but not all. We observed evident standardization

of the conservation plans. There is enough variation locally in soils, cropping systems, slope, production potential and farmer desires that we would have expected to see more variation from plan to plan. While we saw some variation in type of terraces planned, there was a heavy bias toward bench terraces. Although in the field we heard good support for such features as crop residue management, operation and maintenance considerations, the conservation impact from different cropping systems, we didn't find this expressed explicitly in the plan itself. In addition, our sense is that the plan is not used extensively as a field tool at all sites.

Planning has largely been an exercise in which the planners collect physical data about the site and then in isolation develop the plan. We suggest a modification of this process. Planners collect the data concerning the natural resources available in site specific or resource management unit terms. They then sit as "partners" with the individual farmers or groups of farmers to determine and discuss their interests, capabilities, and non natural resource limitations and opportunities. From this information and looking at farmer objectives, alternative production and protection options are developed. After considering the consequences, positive and negative of implementing each set of alternatives, farmers and planners select an alternative that becomes the basis for the plan.

We see a major problem in the monitoring and evaluation activity at the Cabang. The monitoring seems to be understood. The evaluation part is poorly defined and seems ignored because there is little understanding of "what to do" and "How to do it" and "why they should do it at all".

The following are some topics that could be monitored and evaluated to determine the effectiveness of the planning and implementation of conservation practices on the SUFS:

- Relative rates of erosion. This must be subjective now and can be done using accepted values for soil cover, practices, and rainfall, the erosion variables found in the ISLE. This has begun with the use of the evaluation forms for bench terraces, fields and roads. This concept could expand to other systems.
- The life expectancy of conservation systems or system components. Why do some stay on the land and others disappear? Are there technical and socio-political considerations?
- Changes in condition of water management structures over time. What kind of changes occur and why do they occur?

- What are the relative operation and maintenance variations between practices under various conditions.
- Why are some extension agents more successful than others? Are they using different communication skills? How do they motivate farmers? What are the group dynamic techniques they are using?

The argument could be made that some of this is research and some more appropriately done by discipline specialists outside the Cabang. Since this information would impact the planning and implementation activities of the Cabang, it is a legitimate concern for the monitoring and evaluation component of that organization.

This list is not exhaustive. It only gives examples. The SBRLKT and Cabang professionals should be given license to, and be rewarded for, developing and implementing monitoring and evaluation proposals. The fact that hard scientific data are not available is restrictive but should not prevent a real professional from forming, documenting and testing ideas. This is an effective way to build on experience. Nor should the lack of a totally clean "control" stop people from looking critically and constructively at what they can.

The PLP or PPL (the extension worker) is the implementor of project activities. The technical, political, and administrative pressures for product delivery from within the agency are focussed here as are the demand pressures from outside the agency. We generally found dedicated people sincerely trying to carry out their assignments. We observed that some extension agents are women and among the most effective in their work.

There are generally good communication - coordination linkages both horizontally (farmer-PLP-PPL) and vertically (PLP-Cabang SBRLKT; PPL-REC). We observed only limited project involvement, however, at the REC both as to project field work and in terms of coordination with the Cabang BRLKT. The PPLs have good communication with the REC because of non-project activities but they are getting little backstopping for their work in the uplands.

There are innovative ideas being expressed in the field by some extension workers. We feel we should cite one who received the KALPATARU prize at the provincial level. When asked what should be done on a farmed hillside we were looking at, his response was "modify the terrace design to accommodate some obvious fingers of shallow soil, modify the waterways by building small ponds or basins to catch and hold water, and devise a way to release it under control onto the terraces. Then form a stream corridor along the large drainageway at the

bottom of the hill, restrict farming to an area back from the bank a distance and plant perennial vegetation in this "limited area". We feel good training, a positive influence by the TAT and a penchant for innovative ideas were being expressed.

Field level extension workers should be rewarded routinely for developing and implementing innovative ideas in their work-- either technical innovations or in the ways they work with farmer groups. At the least, they should not be penalized for being creative in their jobs.

As stated earlier, the extension workers have other job responsibilities outside UACP. There are several ways to "extend" extension activities with the project: (1) add more staff; (2) provide more training; (3) provide more field equipment and transportation; and (4) train PLP and PPL to act for each other in at least a limited way.

The Project is currently working with the provincial administration to reassign extension personnel from Kabupatens outside the targeted watersheds. When considering training, there are two aspects: add training in fields not currently being addressed in the existing training plans, and give similar training to the PLPs and PPLs so that they can function as upland extension agents. Technical training of the kind given in the soil conservation courses as well as training in communication, farmer motivation, group dynamic and community organization skills are needed. The extension agents (both PPL and PLP) should also receive training in livestock management and its interaction with conservation practices as well as horticulture, upland crop production and farm-level decision making so that they can use this information in making appropriate site specific conservation plans.

To be effective in their work, the extension workers need to have some basic tools including a hand level, roll tape, hand compass, and collapsible rod. To maintain their professional quality, they need extension materials on upland agriculture. Since the areas covered by each PLP and PPL is very extensive, they need a means of transportation.

With the recent addition of the soil survey data, there is need for continuing expertise in this field to maximize its usefulness. This might well be provided by assigning a soil scientist full time (preferred) or part time to the SBRLKT staff. The responsibilities would include training, technical inputs to planning monitoring and evaluation and specialist help with particularly challenging soil problems in conservation planning and implementation.

The soil conservationist backstopping at the Cabang is inadequate. The Kepala Cabang is the person carrying that

responsibility but is loaded with management and administrative duties which demand most or all of his time. Either the addition of a soil conservation specialist (PSP) or a restructuring of the Kepala Cabang duties to hand off a large part of his administrative duties to another person (assume even here a "new hire") would be a much needed enhancement. The incumbent could not only provide a valuable input to planning and implementation but also bring a much needed dimension to monitoring and evaluation.

Operation and maintenance (O&M) is or should be a consideration in any capital investment. This is true for the structural components of soil conservation systems. In the UACP research and SUFS planning and implementation activities, O&M is treated as an incidental concern. When sustainability or adoption is considered, O&M costs may be as important or even more important, than the installation costs. More attention is needed to insure O&M is intensified in the thinking process and treated and documented in planning and implementation.

Conclusions

Critical path events (data collection & evaluation, planning, implementation, research (including field testing), monitoring and project evaluation did not occur in logical sequence nor in a timely manner. This, coupled with poor or nonexistent soils baseline data, makes it impossible to do a respectable job of evaluation. The MIS now coming on line is promising but late. The capability of generating reliable raw data to drive the MIS is generally weak.

From data the team has seen, we cannot make judgments as to how much erosion has been reduced; where, in soil specific terms, it has changed and by how much. We cannot determine how erosion and sediment production varies between farming systems, between alternative structural measures, with variation from average climatic conditions and topography. We cannot with assurance say which soil conservation systems or system components, are most acceptable to the land user and why. We cannot determine what part of increased production is a result of soil conservation as opposed to other project inputs. However, in response to questions about whether or not there have been increases in agricultural production as a result of project activities, nearly all farmers responded positively.

Research, for whatever reasons (late start, isolation from the main flow of project activities, voids in personnel capability such as scientific research design and the long term time requirements of much research) has had minimal impact on the project. This is especially true from a soil conservation perspective on the more "difficult" sites. Most of the soil

conservation technology we saw was transfused from other projects (Citanduy) or programs (regreening) or was already in place pre-project.

We were hopeful of seeing some real innovation at the PIF sites but were disappointed. This feature of the project seems to have broad licence to be creative but we did not see that. We see opportunity within the SBRLKT and Cabang to make a greater commitment to soil conservation. Any real effort in this direction will require strong endorsement and support from the Central government level.

From the rather pessimistic tone of the forgoing let us make some more optimistic observations. These are very subjective and come from years of experience in the field.

We saw and visited with many people who have a dedication to their profession and would like to succeed. We saw some respectable progress being made in spite of limited data bases and proven new technology alternatives. In the main they are doing what they know how to do. We saw some cropping system alternatives (grass, tree and timber crop, legume innovations) that have found favor with the farmer.

We note some "rough" assessments of the effectiveness of conservation structures are now being made and observe that this has utility for a data base and as an extension tool.

The detailed and semidetailed soil surveys are nearing completion. This belated data base provides the most site specific information of this kind we have seen. It will be useful in future expansion of and from SUFS. It must be understood if full use is to be made of it. The planned user training is extremely important. That training activity needs to be carefully thought out and executed.

On the lands treated by the project, we would have to say that, overall, that the effects have been more positive than negative. We are encouraged by the move toward more flexibility in planning conservation strategies. The trend toward planning from an annual food crop system to a perennial crop system on the marginal soils of the uplands is encouraging. It is hoped that there will be a continued trend to more flexible planning that will also become more holistic and creative.

Recommendations

The recommendations of the team with respect to the SUFS component are:

1. Improve the effectiveness of extension personnel both PLPs and PPLs by:
 - Adding and improving training programs in the Resource Management Systems (RMS) approach to planning, in upland crops (food crops and perennial crops), in livestock management, in social dynamics, and in farmer decision making.
 - Providing each PPL with basic tools including hand level, roll tape, hand compass, and collapsible rod.
 - Preparing and distributing to the PPLs brochures and other training materials in upland agriculture. This activity should be partly funded by the project.
 - Training PPLs and PLPs in each others' specialties, especially upland agriculture, so that they can supplement each others' efforts.
 - Improving transportation for PPLs and PLPs preferably by the purchase of a motorcycle for each, financed by the project.
2. Strengthening the technical capabilities of the SBRLKT and Cabang SBRLKT by:
 - Either adding a specialist in soil conservation to the staff of the Cabang SBRLKT or by restructuring the responsibilities of the Kepala Cabang to allow him to function in the technical capacity of soil conservationist.
 - Providing long-term Indonesian technical assistance in soil science to both of the SBRLKTs. The duties of the consultant for long-term technical assistance would include: a) providing training in various aspects of soil science including the use of soil surveys; b) providing advice to PLPs and others; and c) reviewing SUFS plans, structural designs, and standards from a soil science perspective.
3. Building operations and maintenance considerations into all aspects of conservation planning, implementation and monitoring.
4. Improving evaluation of conservation efforts by testing and developing procedures for use of the terrace evaluation form and by exploring other ways to efficiently estimate and report the relative value of conservation efforts.

5. Improving the cropping system planning processes by more closely involving farmers, considering farm management concerns, planning for changing cropping systems over time, and by flexible use of subsidies.
6. Continuing the village nursery program in East Java and expanding it in Central Java. Providing training for nursery managers and PPLs supporting them in all aspects of nursery management. This training would result in both the PLP and PPL functioning as upland agriculture extension agents.

APPENDIX E

CONSERVATION ACCESS ROADS

Appendix E

CONSERVATION ACCESS ROADS

Van Haderlie

2 March 1989

The access road component of the UACP is often seen locally as among the most useful activities. We agree. Of the roads observed during the field trip, an estimated 70-80% were appropriately located both as to their utility in serving their intended purpose and also from a soil and topographic perspective. Local village people see the roads as (1) providing easy access for residents and visitors to and from the village, (2) increasing availability and timeliness of delivery of production inputs (seeds, seedlings, fertilizer, etc.), (3) increasing capacity to move products to market, and (4) increasing the amount and timeliness of technical assistance to the village (PLP, PPL and others).

PU staff at the Kabupaten level are becoming increasingly aware of the need to "internalize" soil conservation considerations in planning and constructing roads. The Road Construction Manual released in August 1988 is a valuable document to support and assist in implementing this concept. During the field trip the evaluation team had the opportunity to review, with PU staff and the TAT, the use of the manual in access road planning and construction. Standards for the following features are noted as particularly useful:

1. Cross section designs calling for a "crown" in the road surface.
2. Minimum distance from established waterways.
3. Minimal side slopes with vegetative and sub-terrace stabilization features as well as those using masonry or rocks.
4. Waterways and drop structures.
5. The use of "Selokan Melintang Jalan" to move water across roadways where it can then be directed to established drainageways.
6. Roadside erosion control features that include conservation vegetation.

One issue that is not clear to us is the identification and treatment of internal soil drainage. We observed some areas where subterranean water appears to be causing soil slumping. This might be an issue needing further attention.

We also noted the development and use of a form designed to

provide a systematic recording of soil conservation aspects of road construction. The use of this form is considered to be beneficial to planning and to evaluating impacts of road construction.

While we see good design criteria, we saw cases where the standards were not adhered to during construction. A couple of examples: (1) surfaces with no crown, and in fact, a concave configuration causing water ponding; (2) Selokan Melintang Jalan that were not set at the proper road grade, did not have the correct drop, and outletted up-stream on the discharge end and/or downstream at the intake end.

Joint evaluations of newly constructed roads with PU personnel and appropriate TAT members, as has been done in some instances (See Demean trip report to Manbeck 29, 1988) are very useful in fine tuning design criteria and identifying construction deficiencies. In the interest of soil and water conservation and good public relations, any adverse impacts from road building should be mitigated to the extent possible. There are instances where road building worsened or even created serious erosion problems. These issues should be met head on and corrective design and construction inputs allocated to address them.

Proper operation and maintenance is very cost effective and should be continually emphasized. Sediment settling in culverts and "Selokan Melintang Jalan" should be routinely removed. Concave surfaces should be reshaped. Small gullies should be healed and cracked masonry repaired promptly.

The principle of "recognize and repair or replace while the problem is small" is fundamental to good O&M. Maintenance in the months soon after construction is completed is especially critical. Differential settling, subsurface shifting and similar conditions are usually existent soon after construction. A certain amount of this cannot be predicted and addressed in design (planning). It seems appropriate that construction activity be considered to extend for a period covering the early months of actual road use. Thus design and construction deficiencies expressed in the near term would be addressed using project funds and not passed on to the Kepala Desa to worry about.

It would be useful if a simple O & M brochure be available for local (Desa) use. This could review problem identification and offer alternative solutions. Training in its use would be assigned to Kabupaten PU staff.

We observed instances where road location was determined more from land rights acquisition considerations than from

topographic, drainage pattern or soil condition. Where near term construction goals are emphasized this will commonly occur.

The following is a chart of road accomplishments versus targets:

ROAD ACCOMPLISHMENTS VS. TARGETS

Kabupaten	Kilometers of Road Construction				Total
	85/86	86/87	87/88	88/89	
Semarang	11.800	10.700	7.450	5.850	35.800
Boyolali	5.200	14.000	5.250	6.200	30.650
Grobogan			6.000	8.100	14.100
Blora			6.981	13.970	20.951
Malang	6.100	10.400	8.700	4.100	29.300
Blitar	7.275	17.230	5.500	5.550	35.555
Tulungagung			4.000	7.220	11.220
Trenggalek			3.810	8.700	12.510
Yearly accomplishments	30.375	52.330	47.691	59.690	190.086
Cumulative	30.375	82.705	130.396	190.086	
Budget annex targets	5.000	42.000	66.000	109.000	222.000
Cumulative	5.000	47.000	113.000	222.000	

Recommendations

1. The standards set forth in the Road Construction Manual be adhered to in planning and construction.
2. Training in the concepts and design standards in the manual be continued so all personnel involved in road planning understand and use them. This training should also be given to appropriate people involved in construction so they also have an understanding of what is needed.
3. The standards should continually be evaluated and modified as appropriate.
4. A standard be developed covering conditions where subterranean (or sub-surface) water is a problem.
5. Access road project funds be used in the first year after construction to correct deficiencies that are identified.
6. Operation and maintenance programs appropriate to site specific conditions be developed and continually used.

17

7. Road siting or route locations be identified as early as possible to allow time for land rights problems to be arbitrated to the extent possible before construction plans are developed.

APPENDIX F

FARMING SYSTEMS RESEARCH

Appendix F

FARMING SYSTEMS RESEARCH

Martha Gaudreau

4 March 1989

Methodology of FSR

The FSR component of the UACP project has evolved from a typical cropping systems perspective (research activities from 1984-1987) to a more integrated client-oriented research approach identifying research topics from a diagnostic survey of the target area (Research Plan 1988). (For discussion of the evolution of FSR in Indonesia see McIntosh 1984, 1986; and for discussion of cropping systems research in Indonesia see McIntosh, 1984; and Siwi et. al. 1986.) This has resulted in agronomic, horticultural and livestock research that will provide recommendations that will be appropriate to farmers in the upland areas of Central and East Java, particularly in the areas of perennial crop management, green manure species, and grass management for conservation and fodder.

This evolution has been positively affected by the activities of KEPAS, the agro-ecosystems research group that has been active in the uplands of East Java since 1984. Agro-ecosystems analysis training in 1987 provided the FSR researchers with rapid rural appraisal skills that are essentially the same as those used in the diagnostic phase of farming systems research. With the arrival of the Winrock technical assistance team, and the additional rapid rural appraisal training in association with the diagnostic surveys, the FSR researchers established a 1988-1989 research plan based on problems identified in the field. The in-service training was reinforced by the participation of several FSR researchers in short-term training at the University of Hawaii. This has led to enthusiasm for an integrated, problem solving, client-oriented approach to agricultural research and development among the younger researchers of FSR. In discussions with the group as a whole, however, one still hears references to the original approach of developing whole land use technological packages involving land use management, food and industrial crops and livestock ("Pola A to D") which dominated the research efforts from 1984-1987.

Beginning with the research plan for 1987-1988, there has been increased emphasis on testing component technologies, establishing research sites adjacent to the SUFS, and moving toward more farmer-managed research. The research programs for the two new sites Gunung Sari in Central Java and Kates in East

Java resulted from an analysis of constraints at the field level, and an ex ante analysis of potential solutions, a method used by the researchers at CIMMYT and CIAT. The proposed interventions include research in agronomy, livestock, horticulture, estate crops, and farm management.

To further facilitate interdisciplinary research activities, FSR has established two multidisciplinary units, one working in East Java and the other in Central Java. These researchers along with field assistants plan and manage the research program locally with advice from the technical assistance team. Until 1988, the research agenda was controlled by senior researchers from Bogor and data analysis and interpretation was performed centrally. Over time the FSR researchers have become more independent in determining their research plan.

There have been administrative problems that have hampered the development of an effective applied research unit associated with the UACP Project. Since the beginning of the project in 1984, there have been two project leaders. The technical assistance provided under the project has been delayed with two independent PSC's brought in as research advisors prior to the arrival of the Winrock team. The Winrock team can only now be considered complete with the arrival of the agronomist late in 1988. These administrative problems have contributed to the delay in establishing a FSR methodology that is replicable and accepted by the FSR group.

The development of the 1988-1989 research plan demonstrates that FSR has evolved over the life of the project and is in a position to provide limited research results by PACD. There could, however, be long term benefits to the uplands as a result of their efforts and to AARD in terms of enhancing the capacity of the institution to do Farming Systems Research.

Research

Agronomic research from 1984 to 1987 focused on the evaluation of cropping patterns with some component technology testing (varieties, fertilizers). The research was conducted on farmers' fields but was researcher managed. While the number of experiments conducted was large, there was limited replication within sites and each experiment was conducted on a small number of sites. The researchers attempted to have experiments located in each of the UACP Kabupatens. In Central Java Province, there has been research conducted in 11 villages distributed among the 4 participating Kabupaten. In East Java in there has been research conducted in 4 villages among the 4 participating Kabupatens.

With the establishment of the 1988-89 research program, more emphasis is being placed on farmer-managed trials. The number of sites was reduced with a large proportion of the research effort oriented to more detailed data collection from the two new sites to gain better insight into local farming practices.

While the research agenda is pertinent to the constraints that farmers face in the uplands, the research design, data analysis and interpretation skills of the researchers are still weak. Multifactorial experiments are being designed but little emphasis has been placed on the following: replication within site versus between sites, sample size to establish significance, and interaction between factors. These design considerations become more important in on-farm research when there is more farmer involvement.

In reporting the data, for some of the work there is no indication what the sample size was and whether or not the yield reported is a mean value or for one site. Agronomic experimentation should be conducted for multiple years or over multiple sites to represent the climatic and edaphic variability present in the system. Increased yield versus yield stability is an issue particularly in regions that have a dry season with considerable variability from year to year.

The FSR researchers in the field are young and inexperienced. They have until recently been relying on senior scientists in Bogor to design the field research and analyze the results. While they have become more involved in identifying research issues, there is a need for additional training, both short-term and long term, in research methodology including design, analysis, and interpretation of research with emphasis on the particular problems associated with doing on-farm research.

The Ungaran Field laboratory (research station) was established in Central Java in 1987-1988. It is being used to test component technologies, for example, banana propagation techniques, shading effects of seedlings, cover crops and residue management, and cropping patterns as well as to estimate soil erosion under different systems of management. The field lab is approximately 10 ha., most of which is already opened and allocated to some function. The site will also be used to evaluate new germplasm of tree crops (both estate and horticultural) and fodder. And finally it will be used as a teaching laboratory for extension agents and farmer groups.

During the construction of terraces at Ungaran, the topsoil was stockpiled and later replaced. In general, the replacement of topsoil during construction is a positive factor both in production and in erosion control. This is impractical in the farmers' world due to prohibitive labor costs. The results of

research on these terraces may not be representative of on-farm yields since terrace construction differs significantly from that of farmers. The increased cost of constructing this type of terrace and the operation and maintenance of terraces in general, have not been included in the economic evaluations of the research results thereby increasing the economic returns of these researcher managed trials.

Much of the component technology is tested within the cropping pattern models. Since the treatments are continually changing, it may no longer be possible to evaluate the sustainability of the models (if that was the original intention). Residual effects particularly in the case of fertilizers (both organic and inorganic) will not be able to be evaluated unless there is a longer term research plan established for the plots.

Farmer training has already begun at Ungaran. Farmers have practiced constructing terraces on part of the land. Since the site will be used increasingly for training, Ungaran should be managed to demonstrate good soil conservation practices and land use management. There was evidence of poor water management and erosion control on some of the research plots. Some of the experiments on sloping land leave the soil open to erosion until adequate ground cover is established. Researchers should select research plots for potentially erosive crops on the flatter parts of the station. They should conduct more experimentation on minimum tillage systems, crop residue management and cover crops.

Soil conservation research, testing, and analysis is often viewed as something unique and independent. Plots established for evaluating yields, management methods, and resistance to pests can also be evaluated for their effects on soil erosion. This is not to say that soil erosion should be an overriding consideration in all farming systems research, rather it is suggested that in designing any research activity in the uplands the question be asked, "Is there an acceptable way to include a soil conservation evaluation component into the activity?"

The weakest area of technical research within FSR is currently the erosion work. Runoff plots are located in the field laboratory at Ungaran and in several Kabupaten sites in East and Central Java. They are either associated with the cropping pattern research (Pola A to D) or the terrace evaluations. They are not replicated and there is no way to make comparisons between sites because three physical factors (soil type, slope, and soil depth) have been confounded with cropping patterns which are themselves changing over time as other research is being superimposed on the plots. Both at Ungaran and at the Kabupaten sites, the runoff plots are not adequately maintained. Not all the runoff from a plot is channelled

through the collection system and runoff from outside the plot is being collected.

The scientist doing the research is enthusiastic and is competent in general conservation theory but he admits that he does not really have a counterpart with whom to discuss the conservation work. Additional TA should be provided in the area of soil conservation research. This person should have experience in establishing runoff plots and designing conservation research that includes the evaluation of biological and structural conservation practices and their interactions.

The socio-economic group is just starting to collect farm record information. They have also done adoption studies to evaluate to what extent farmers are adopting the technologies being tested at the field sites. The socio-economic TA has been responsible for computerizing the data management and has provided computer training to FSR personnel. They are currently planning a series of directed, subject-specific diagnostic surveys to enhance their knowledge about the farming systems in the project area. While these surveys will provide useful information, there has been little attention given to collecting information about farm level decision making and resource allocation.

One would expect decisions about family labor to be different for farmers having access to only upland farms versus those with both "sawa" and "tegalan". The importance of off-farm employment and the availability of cash for potential on-farm investment is another issue. In areas with both Javanese and Madurese farmers, farmers responses to technologies as well as their decision making strategies may be quite different. The evaluation team therefore recommends that additional TA be designed to help the FSR group to respond to these socio-cultural and socio-economic issues. This person would provide leadership in research design and provide training particularly to the young socio-economics researchers but also to the agronomists and field assistants to sensitize them to the issues.

Livestock research is being conducted on feed utilization, grass management, and the introduction of breeding stock into the village to improve local cows. This research initiative benefitted considerably from the assignment of a M.S.-level animal scientist to the unit and the short-term consultant brought in by Winrock.

In our opinion, the level of personnel assigned to FSR has severely limited its research capability. The staffing requests submitted by FSR are ambitious. It is unclear that seven PhD-level researchers would be assigned to the project as

requested. Also it is unclear whether a field-level applied research team needs that capability. In light of the personnel constraints, it is recommended that FSR develop a research management strategy that would focus research efforts. This would mean reducing the number of research topics while maintaining its problem solving client-oriented approach and increasing its on-farm activities with farmer participation. This would also permit the development of a comprehensive long-term training strategy so that several of the young researchers could benefit from training in the remaining years of the project.

Linkages

The interaction between the SUFS component and FSR seems to have improved especially since individual members of the multidisciplinary provincial teams were identified as liaison persons with the Kabupatens. In Central Java, the FSR team has been participating in planning all the new demplots. While in East Java they have participated in the preliminary surveys of only one Kabupaten, Malang. Participation in the SUFS activities on a regular basis presents a problem because of limited budgetary resources for this cooperation and because time spent doing service reduces time spent in research.

There has been some concern expressed by the FSR researchers that they are playing a dual role in the field: that of researcher and extensionist. Because the FSR researchers are in the field evaluating their experiments with farmers, they are doing a certain amount of informal farmer training. They feel that they are isolated from the extension staff and would prefer to facilitate the extension workers contact with farmers rather than perform the service directly.

This is linked to the issue of communication of research results which is a problem for FSR. Currently, FSR provides the PCO with their research reports but recognizes that this may be limiting their usefulness. The FSR researchers would like to be able to deal directly with the BPP at the local level, and provide more input into training content for extension personnel.

Within the current extension structure, the PPS is responsible for performing multilocational testing of new technologies in collaboration with the research institutions. It would be beneficial to both extension and FSR if they could work closely with the PPS to enhance his capacity to do multilocational and innovative testing in the project area. Together they would write up the results of these efforts. This would provide FSR an official link to the extension system. Then if the SUFS involved the PPS in that component of the UACP, the contact

between FSR and the SUFS would be through extension which should reduce the amount of time spent in direct planning of SUFS interventions.

The evaluation team recognizes the importance of joint field visits to facilitate feedback but also recognizes the time commitments that represents. In light of this, the team recommends that in the future, the FSR component be viewed as an information source for the SUFS as are the other AARD and university research groups. In East Java, the SUFS component has received technical information from the Food Crops Research Institute as well as the branch horticultural station.

To fulfill this role and to provide more focus to their own future research agenda, the FSR group should do an extensive evaluation of the research they have conducted to date as well as providing secondary information appropriate to the uplands. The purpose of this activity is to try to develop some preliminary suitability statements about different crops and their potential in the different agro-ecological zones found within the uplands. As a means of organizing this and future research results, the researchers should establish a minimum data set of agro-ecological and socio-economic information which would provide the first approximation for conveying research results and conclusions to potential users.

Within the Farming Systems Research Working Group of AARD it was suggested that the FSR researchers adopt a uniform data reporting format to facilitate communication. If this exists, this may be useful in determining the format for the data base to be developed by FSR.

Organization of FSR

AARD has to date five FSR projects that are funded by outside donors. Each project is staffed by personnel seconded from the existing research centers to address specific problems; i.e., the development of the swamplands, agriculture in the transmigration areas, the uplands, etc. It is beyond the scope of this document to address the issue of institutionalization of FSR in Indonesia, but the commitment of AARD to interdisciplinary research activities greatly affects the future of FSR and the alternatives proposed.

It is assumed by everyone that the level of personnel committed to FSR has severely limited its research capability. It is unclear that AARD will be able to respond to the staffing requests currently being proposed although additional staff was assigned to the project in January 1989.

There is a need to provide additional training to younger staff, particularly those who have worked with the project since its inception and show promise in terms of their ability to conduct research. It is apparent that replacements for these individuals may not be forthcoming if they are sent out in the near future.

Assuming that the research results produced between now and the end of project will not benefit directly the SUFS but will provide necessary information for the development of the uplands, and assuming that AARD benefits from the on-farm perspective that develops within FSR over the next two years, the following represent possible alternatives that should be discussed by donors and GOI:

Scenario 1

In East Java, there is on-farm research being conducted by the AARD research institutes in the maize and soybean programs. These along with the horticultural research institute are providing the SUFS with technological input.

Move the FSR group from East Java to Central Java and thus consolidating personnel. This move assumes that the on-farm perspective will be continued by the existing research institutes.

With the consolidation of personnel in Central Java (assuming the persons move rather than return to their home institutions), a plan for training and improved personnel management could be developed. A more focused research agenda that has fewer research themes but permitted more on-farm work could be established.

A major limitation to this proposal is the limited infrastructure that currently exists to house FSR. At Salatiga, the TA team is already physically removed from the FSR group. The Jratunseluna w/s office at Klepu may or may not be large enough to accommodate the group. The assumption that the personnel would move from East Java may be false.

The existence of the Governor's commitment to facilitate FSR by buying the Ungaran field laboratory site cannot be ignored. There are also no other branches of AARD active in Central Java and the pool of information for SUFS (extension) from other research units is limited. But the physical facilities necessary to have a permanent research presence are just not available.

Scenario 2

Move all FSR operations to East Java. There the group would benefit from the activities of KEPAS. The current FSR office has sufficient space to house everyone. The closer association with the food crops persons, the horticulture researchers, the estate crops researchers and the livestock group outside Malang would facilitate the interaction that is so important to an FSR team (choice of component technologies and feedback of on-farm research to affect research priorities of commodity programs).

The field lab at Ungaran could be maintained by placing a small field core at Klepu to run the lab who could begin on-farm research on a limited scale of technologies coming directly from the Ungaran experience. An alternative use of the land would be to give it to one of the local universities for a research site, or turn the land over to the local BPP for an upland site.

The disadvantage to this alternative is that it may be politically unacceptable to Pusat Central Java who may feel ignored by the research structure. Given the national mandate and the limited numbers of trained personnel available within AARD who are willing to move from Bogor, it is unrealistic to expect to have fully manned research stations in every province. There have already been research activities conducted throughout the province and to disband them would probably not be acceptable.

Scenario 3

Assuming AARD provides the requested personnel, establish two independent units with TA and project leaders and research coordinators---one unit housed in Malang, the other in Klepu. The overall coordinating responsibility would lie with the FSR Advisory Committee.

On-farm research requires more logistical support in terms of field personnel, transport, and planning. The assumption made in the project paper "Sufficient and able staff and financing to carry out the program" is not fully realized currently. In light of that, the expectations of FSR should be reduced accordingly.

Each of these alternatives would require a policy decision on the part of AARD. It is also unclear that there will be funding from with the UACP after 1991.

For these reasons, the recommendation of the team is that FSR reduce the number of research topics being investigated in order to develop a training plan that will let some of the younger researchers be sent out for study during the remaining

time in the project. This would probably involve reducing the number of sites. With a better management strategy for the existing researchers, a reduced level of quality research can be conducted.

The researchers should evaluate past research results in order to put them in a form useful to the SUFS and to prepare documentation that would support any requests for extension of project activities.

APPENDIX G

LOCAL AND DISTRICT LEVEL MANAGEMENT AND PROJECT
INNOVATION FUND

Appendix G

LOCAL AND DISTRICT LEVEL MANAGEMENT AND PROJECT INNOVATION FUND

Loekman Sutrisno

2 March 1989

Field or Local Level Management

There are various policies concerning which government agencies play leading roles in the management of the project at the field level.

In theory, the Central Java provincial government has designated the BPP or REC as the field management for the project.

The East Java provincial government, has designated the Mantri Tani or the lowest ranking MOA official stationed at the Kecamatan (subdistrict) level as the manager of the project (Pinlak) at the field level. The East Java provincial government, meanwhile, has also decided to encourage the participation of the Camats and the Kepala Desas in the implementation of project activities.

These different management structures have inherent strong and weak points. As indicated above the involvement of BPP in the field management of the project in Central Java at the moment exists only on paper. The Juklak issued by the Central Java governor has noted the important role that the BPP is to play in managing the project. The evaluation team has not been able to find any concrete evidence which shows that BPP is currently actively managing the project in the field. Some of the officials of BPP that the team was able to interview indicated that up to now their involvement in the project has been limited to receiving training in upland agriculture conducted by the Kanwil Pertanian, and that their PPLs are involved in providing extension service to upland farmers. These interviewees suggested that all decisions concerning the implementation of the project were made at the PMU level and they are currently only implementing those decisions. As an example of their limited involvement in managing the project they mentioned the fact that they were not informed by the PMU when, for example, the grass and other tree seeds would be distributed to the farmers. by the PMU. These interviewees reported that frequently they received information from the PPLs or PLP stationed in their offices after the PMU had distributed the seeds. They suggested that this situation increased the risk of the plant material dying as the BPP

officials were unable to make timely arrangements for proper planting by the farmers. After the seeds reached the village the seeds often remained for a long time in the garden owned by the Ketua Kelompok Tani before they actually reached the individual member of the Kelompok Tani. When the seeds actually reached the individual member of the Kelompok Tani, the farmer had to hastily dig holes to plant the seeds without paying attention to soil fertilization, etc.

The Evaluation Team noted that the problem indicated above was not purely a problem of not integrating the BPP in the project but it was also a problem of funding. All PMUs in both Central and East Java complained that the funds often came very late so that it disrupted the schedule of project implementation, including plant material distribution. Plant materials often arrived at the project site in February, near the end of the rainy season thus adding further cause to the high failure rate of these plant materials.

According to Indonesia Local and Village Governments Laws, the Lurah and Camat are the two government officials who are responsible for the smooth and successful progress of all development projects in their respective areas. The Lurah is the person who historically can elicit cooperation from farmers in participating in the project.

Therefore, it was surprising to the team that in Central Java both the Lurah and the Camat did not appear to be directly involved in the project. Neither the Lurah nor the Camat were present at the site during our visit. We interpreted the absence of the two government officials in Central Java as a sign that the project in Central Java was not yet rooted in the Desa and Kecamatan bureaucracies. The Evaluation Team noted this situation with regret as this could mean that the project was not under the political umbrella of either the Desa or Kecamatan governments, a political prerequisite for the future sustainability of the project. Stealing of plant materials was reported as a major problem in Central Java which could be interpreted as manifestation of the absence of political umbrella of the project from both village and kecamatan government.

In East Java the evaluation team noted that every time they visited a project site both the Lurah and the Camat of the site area were always present. Talking with both the Camat and Lurah the Evaluation Team was very impressed with the fact that these two government officials had a good understanding of the project and were committed to its success. There were no reports of plant material thefts in East Java.

In East Java, for reason unknown to the team, the BPP's role in the project was also minimal. The field management of the

project was placed in the hands of the Mantri Tani of each Kecamatan where the project is currently situated. As Pinlak of the project, the Mantri Tani (Mantan) manages all the necessary agricultural inputs for the project, directs the activities of the PPL and PLP in the field, and is involved in planning and designing the project and in providing technical guidance to the farmers. The BPP role was reduced to assisting the Mantan in implementing the project (see Juklak East Java). This management organization contains several potential problems which might impact negatively on the future sustainability of the project.

One possible problem is that this field management could generate a split of leadership in the extension force in the field. Before the project existed, the Mantan's role in agriculture development was only limited to administrative activities such as keeping records of agricultural production, pest and diseases, etc. As Mantan he is accountable to the Dinas Pertanian.

It is interesting to note that the Mantan, unlike the PPL or the head of the BPP, rarely has any formal agriculture background. The Mantan has no administrative control over BPP staff as the latter are accountable to and administratively managed by the Kanwil Pertanian and not by the Dinas Pertanian. The project expands the role and scope of work of the Mantan by assigning to them new jobs, including a job which normally falls within the purview of the BPP. Consequently there emerges a situation whereby the PPLs have to serve "two masters", the Mantan and the head of the BPP, who is their official leader. This "split leadership" situation and its effect upon the project was described by one of the PLP in answer to the question posed by one consultant in East Java concerning the very poor performance of SUFS Demlot in the PLP area. The PLP's answer was that the poor performance of the SUFS Demplot in his area was basically the result of the fact that the "bureaucratic channel of the program is invisible." Some PPLs whom the team had the opportunity to interview voiced similar complaints: that they did not know whose instruction to follow, the Mantan or the head of the BPP. They are indeed in a dilemma. Based on our interview with some Mantans, the team found out that the Mantans themselves did not feel totally comfortable with the new job assigned to them by the project. They realize for example that their present role in the project might generate irritation among the heads of the BPP and that as Pinlak they have no control over the PPL and PLP. But they could not refuse their new jobs.

The Team believes that this situation unless rectified would, in the long run, jeopardize the future sustainability of the project. The evaluation team, therefore recommends, that the

BPP should be given more responsibility to manage the project at the field level as already indicated in the Project Paper.

The question now is whether the BPPs both in Central and East Java are ready to carry out the job?

During the field work and during the team discussion with PCOs and PMUs in both Central and East Java provinces, the team got the impression that under the present conditions, it would be still a long way before the BPPs could really perform the job as envisioned in the Project Paper.

The Project Paper has correctly indicated that the success of this project lies in the capacity of the BPPs to manage, plan and implement the project activities in the field. However, despite this formal recognition, the team regretfully must say that the UACP project has done very little to reach its stated objective concerning the role of BPP in this project. It is true that the UACP project has provided the BPP heads and the PPLs with monthly honoraria and training. However the project provides very little assistance as to enable the BPP and its staff to function effectively in the project as planned in the Project Paper.

The BPP involved in upland agriculture continues to be plagued with shortages of extension personnel and lack of logistical support such as a means of transportation and written materials on upland agriculture and land conservation which they could use for improving the quality of their extension activities.

The personnel issue in the BPP is the most difficult issue for the project manager to solve unless GOI changes its current recruitment policy as it pertains to new government officials. To solve the personnel problem in the BPP it was suggested that the project recruit local people/farmers as "spot workers" to assist with the work of PPL and PLP.

The Team, although welcoming new ideas to improve project performance, discouraged project managers from hiring "spot workers" in the project for two reasons. First, the creation of "spot workers" could generate conflict between the former and the Ketua Kelompok Tani who work on a voluntary basis while "spot workers" receive payment from the project. Second, the "spot workers" might create a problem after the project is over by demanding that the local government appoint them as government officials. The team recommends that rather than creating "spot workers" the project should contract with a well-organized and responsible NGO in Indonesia to provide extension workers. These extension workers would to assist government extension workers in providing extension services for the farmers. In fact, this policy is supported by the GOI as indicated in Clause No. 19 Law No. 4 of 1982 on the Basic

Provision For The Management Of Environment. Another possible alternative is to encourage PCOs to cut down hectareage currently targeted for expansion in their respective regions. In addition to the existence of a strong and capable BPP, the future success of this project also depends on the participation of the project beneficiaries in the planning and implementation process. In Central and East Java the team has not been able to find concrete evidence where Kelompok Tani, Kelompo Demplot or Kelompok Dampak are actively planning their own activities. Most of the Kelompok Tani that the team met were basically implementing project activities planned by the PMU. In Malang, the team heard that the Kalikonto Project had initiated a program in the village of Panggak where the village LKMD where Kelompok Tani were assigned to plan the conservation activities. To do so, a team called Tim Asistensi LKMD was established by the Kalikonto Project. The Tim Asistensi consists of PPL and PLP who are working in the village. The role of the Tim Asistensi is to provide technical assistance to the village LKMD to plan conservation activities. The UACP project should look at this strategy for possible replication in the UACP area.

Another important issue that the evaluation team would like to raise concerns with fact that there is an overlap between Kelompok Tani at the SUFS sites. In addition to the Demplot and Dampak (expansion area) Kelompok Tani in East Java, the SFR also established its own Kelompok Tani, known as Kelompok Tani Penelitian. Members of this Kelompok receive a subsidy from FSR. As some members of this Kelompok also own land on either the Demplot or Dampak sites, they also receive a subsidy as a member of Demplot or Dampak Kelompok Tani. The evaluation team, therefore, recommends that in each SUFS there should be only one Kelompok Tani; viz., Kelompok Tani Penghijauan.

Despite the lack of farmers' direct participation in planning, the team welcomes efforts of the project to encourage Kelompok Tani to accumulate group capital. The amount of capital accumulated by the Kelompok Tani varied from one Kelompok to another and there are still variations on how the money is being used. However, the team would recommend to the PCOs and PMUs to give more attention to these activities as they would if well managed enhance the capacity of the Kelompok to sustain the outcomes of this project in the future.

In all farming communities, lowland as well as upland, men and women play equal roles in the farming activities. In upland agriculture as more and more men are migrating seasonally to the cities, the role of women in the farming activities becomes more and more important. Therefore, it was surprising to the consultant that both the involvement of woman in the project is very minimal. Currently there are no specifically designed

women's programs within the project nor is there any effort from either the PCO or PMU to involve formal or informal women organizations at the district or village levels in implementing the project. In all the project sites there is a government-sponsored village woman organization (PKK) which the project could use to mobilize the women in those villages to participate in the project. Aside from PKK the project should also establish a close working cooperation with other women organizations in the villages, such as the Kelompok Pengajian or Islamic Prayers Group.

Another organization in the village which might contribute to the success of this project is the village school. The school could be approached by the project to allow access to the school garden plot as a nursery for the conservation plant materials. The school children supervised by their teachers could be asked to participate in the management of the nursery. Later, when the time comes for the plant materials to be replanted, the school children should be given a few trees to be replanted on their parents' land and, for those whose parents do not have land, they should be encouraged to plant the trees in their parents' garden plot. Involvement of the village school and the school children in the project would support the quick formation of the dampak which in turn would allow farmers who are not member of either the Kelompok Demplot nor the Kelompok Dampak to receive plant materials through their children.

The effectiveness of tingkat II management of the project is impeded by two factors, the external and internal factors. The PMU's role in the project in reality seems to be limited to preparing programs and implementing them. The PMU has no control over the budgeting aspect of the project. The funding power of the project remains in the hands of the central government. Consequently activities at the PMU concentrate more on efforts of how to assure that the necessary funds from the central government reach them in time. With money problems a constant time consumer, the PMU staff have no time to think creatively to find ways to make the project more successful and sustainable in their respective regions. Asked to comment on the situation, one PMU in Central Java told the consultant that unless the central government decentralized the funding power to regional government, decentralized management of the project means nothing to PMU.

Another external factor that impedes the effectiveness of PMU comes from the administrative and legal ambiguities that regulate relations between regional and national governments. Following the establishment of the New Order government, the first major articulation of the government's policies in regard to the development of local government capacities was Basic Law No. 5, 1974. This Law established the concept of autonomous

regions in Indonesia. However, there have been few subsequent enabling decrees or legislation which would translate this general policy into specific guidelines of action. The uncertainty over the proper role of different government agencies is the most evident ambiguity about the relationship between local government agencies and the national government agencies with offices in the region. The cabang SBRLKT, for example, which has an office in the Kabupaten is answerable not to the Bupati but to the Ministry of Forestry via the BRLKT in the province. The Cabang SBRLKT is an important element in the PMU, however, the Pimpro of the project does not have full command over it as the Cabang is not a Kabupaten dinas although it has an office in the Kabupaten. The Cabang SBRLKT's participation in the PMU is therefore basically a "voluntary" gesture by the head of the Cabang to the Kabupaten government rather than as a legal consequence.

A similar relationship exists between Dinas Pertanian and the BPP. The Dinas Pertanian in the Kabupaten is under the direct control of the Bupati, while the BPP and its extension staff are administratively under the command of the Sekretaris Bimas which is separate from the Dinas and answerable to the Kanwil Pertanian. Although the Kanwil Pertanian has an office in the province, it is the representative of the MOA in the province. As in the case of the Cabang SBRLKT, there is no legal basis for the PMU or the Pimpro to really force the BPP to participate in the project, and his current participation in the project is purely "voluntary". As national agencies, both the BPP, and the Cabang SBRLKT do not receive any budgetary support from the Bupati's office, they get their funding from the national government. In the case of the head of the BPP and the PPL their promotions do not depend on the Kepala Dinas Pertanian but on the Kanwil. It is thus not surprising that the PPLs and PPMs in the BPP including its head consider their loyalty to the MOA more important than their loyalty to the Kabupaten government. This means also that the PPLs and the PPMs will tend to give more priority to implementing national projects which are planned and funded by the MOA than those planned and funded by the regional government.

The PLPs seem to have a different attitude than that of the PPLs. As the SBRLKT has done the major job in planning the project, the PLP thus feel responsible to participate actively in the project. This is one reason why in the field the PLPs seem to be more active than the PPLs. Asked by the consultant what he would suggest to improve the situation, one head of a BPP in one Kabupaten in Central Java said, that the regional government must involve the Sekretariat Bimas in the management of the project at the PMU level. By involving the SekBimas in the management of the project, the PPLs and PPMs interests will be represented properly in the decision making process at the PMU level. The involvement of the SekBimas in the management of

the project will "legalize" their involvement in the project as currently the PPLs and PPMs often get the impression that the SekBimas does not "give his blessing" on their involvement in the project. The most important benefit of involving the SekBimas in the management of the project is that the latter will be able to get access to the services of the Subject Specialist Extension workers (PPs) who up to now are not involved in the project. The involvement of the Subject specialist Extension workers would strengthen the extension activities of the project.

Aside from the above mentioned external problems, there are several internal problems that the PMU is facing. First, within the PMU organization there is no one who works full-time on project activities. The Pimpro and Bagpro who are the backbones of the PMU, are all government officials who are heads of important and busy departments in the Kabupaten government. The Pimpro for example is the head of the Bagian Perekonomian in the Kabupaten office. As head of Bagian Perekonomian he/she already heads several other development activities plus his/her own routine jobs. One Pimpro in East Java honestly indicated to the consultant that she only spends 30 percent of her time on the project as do most of her staff. The consultant assumes that the Bagpro, who is the Kepala Dinas Pertanian, does not spend more of his time on this project than the Pimpro does. As head of the Dinas Pertanian, he is also very busy. Like the Pimpro he also has already several projects to manage aside from his routine job.

Another important internal problem that exists within the PMU is that practically no data on the project is available in the PMU. Collecting data, analyzing and using it as input for planning seems to be "foreign" to the PMU's staff. The consultant gets the impression that even if the data are collected, nobody at the PMU office knows exactly how to analyze the data for planning purposes.

To improve the above mentioned situation the project has currently initiated management training for PMU staff and appointed an expert in Management Information System (MIS) to assist the PMU to establish a good MIS system. The evaluation team welcomes the effort although we think that this effort should have been done earlier in the project.

Administrative Impact And Sustainability

The Project's specific purpose is to expand and improve institutional capacities primarily at the provincial, district and farm levels, and to experiment with and apply alternative approaches to upland farming. The consultant must admit that it is difficult to find concrete proof that the project has

achieved these objectives. We admit that various efforts have been made by the project to improve the capacities (such as management training, etc.) of the various agencies involved in the project. However, if the training does improve the technical capacity of the individual officials, we still doubt the current capacity of the project to achieve its objectives as indicated above. This reasoning is based on the following:

First, the organization of the project is similar to the administrative structure of the Indonesian government; that is, there are within the project organizations the national project organization, the provincial project organization, and the Kabupaten project organizations. This structure of organization in the "cultural setting of the Indonesian bureaucracy" automatically generates a feeling among the lower level organizations that they are subordinate to the higher organizations. The PMU for example look at themselves as the subordinate of the PCO. The PCO also looks at the PMU as representing the Kabupaten, and since Kabupaten is lower than the province the PCO therefore feels that his position in the project is higher than that of the PMU. The "chief-subordinate" relation between PCO and PMU would not be a conducive atmosphere to generate innovations among agencies involved in the project. It is interesting to note here that in various meetings held between the consultant and PCO where PMUs are present, the latter always remain quiet unless asked by the PCO to talk.

Second, despite the fact that the project has been on-going for three years, there is no serious preparation from either the provincial or the Kabupaten governments to institutionalize project management and to prepare the bureaucratic apparatus to routinize the operations when the project is over. The Bupati, the PCO, and PMUs all express their desires that the project to be expanded beyond 1991. But none of them express their commitment to institute any administrative changes imperative to the success of the project. This includes appointing a full-time government official to manage and administer the project.

Third, the national organization of the project (EXSEC) seems not to be very effective in supporting the project's objectives. Currently the PMUs complain to the EXSEC about the complicated funding procedures of the project, particularly the SP3. However, so far nothing has been done by the EXSEC in Jakarta to solve the problem. Without a solution of this issue one could not expect the PMUs to improve their administrative capacity in managing the project, let alone to adopt alternative approaches to upland agriculture development.

Given all those problems, the consultant feels that unless the government of Indonesia simplifies the present project

organization by giving autonomous power to the Kabupaten government to manage the project, and unless the GOI initiates a simpler funding procedure there is only a small hope that the project could generate a positive and sustainable administrative impact.

Farmer Training

The farmer training is conducted by the Dinas Pembangunan Desa Tk. II or the Kabupaten Rural Development Agency. The training is focussed on key farmers who will act as model farmers and give accurate information to their farmers and provide feedback information for the project. There are several issues that the consultant would like to raise concerning the farmer training program.

A review of the list of participants taking part in the farmer training program revealed that no women have been recruited to participate in the training. This is indeed surprising as, in the upperland agriculture, women play roles in the farming system as equally important as those of the men. In some villages where men leave to find city jobs the women are the only ones involved in farming activities.

In our discussions with various government officials, the content of the training was criticized as being too oriented toward training farmers in techniques of land and water conservation. These officials pointed out that in most cases farmers are already familiar with these techniques as they had been introduced to them by the former penghijauan project. The training, according to these officials, should be more oriented toward imparting planning and management skills and knowledge to allow them to be able to participate in the implementation of the "bottom up planning" process. Thus they will be able to plan and to implement their own conservation activities and not depend only on the government's initiatives.

Up to now training is limited to farmers who are either members of the Kelompok Demplot or the Kelompok Dampak, those who are considered by the government as the informal leaders of the village, and those who hold position in the village LKMD. During our discussions with farmers, this selection policy was criticized. They believe that the government should allow farmers who are non-members of either the Kelompok Demplot or Kelompok Dampak to participate in the training. In this way, they said, that all farmers in the village will feel that the project belongs to the village as a whole and not only to the Demplot and Dampak Kelompok Tani as currently as seen by the non-Demplot and non-Dampak farmers.

It seems that here we are facing a phenomena that Foster, the American Anthropologist called, "the doctrine of limited goods" among peasant communities. All the subsidy and the training that the Demplot and Damplak Kelompok Tani receive from the project has created jealousy among farmers who do not receive those facilities. This might explain the reason why, according to one PMU in East Java, despite the training, he discovers that in his area the trained farmers are not effective in transferring their knowledge to other farmers in their villages. Another possible reason of course is that farmers selected to receive the training are not farmers who are really influential within their respective village.

Extension Worker Training

Training for the extension workers is conducted by the Kanwil Pertanian. The object of the training is to upgrade the technical knowledge of the extension workers, especially the knowledge regarding upland farming system and land and water conservation. Most of the extension workers participating in the project have undergone the training given under the project.

After reviewing the curriculum it is apparent that although the training will help to improve the technical knowledge of the extension workers, it will not assist them in functioning as effective extension workers.

An effective extension worker must not only have sound technical knowledge in agriculture but of no less importance, he/she must have sound knowledge in the various motivational techniques. This will assist with motivating the farmers to adopt new technology, identify potential leaders in the community, etc. These techniques are necessary for the extension workers to master if they would like to support the idea of the Kelompok Tani functioning as an initiator rather than the usual passive group it generally has been.

The head of a BPP has a dual function, he is an extension worker and a planner for agriculture development for his area. To assist the heads of the BPP to carry out his dual function effectively, the consultant suggests that the project design a separate training program for them. To make the training more effective the team recommends that the project contract with a NGO which has experience in designing and conducting such training, such as the Yayasan Indonesia Sejahtera in Solo, Central Java or the Yayasan Bina Swadaya in Jakarta.

Project Innovation Fund

There are several important issues concerning the Project Innovation which the evaluation team would like to raise. Firstly, three years after the project was initiated, the Selection Committee had only managed to agree to provide funding for three proposals. Currently four other proposals are being reviewed by the selection committee.

Secondly, several innovative activities funded by PIF were referred to by interviewees. A potentially innovative approach to conservation (alley cropping) is being tested in both East and Central Java using PIF funds. At the East Java site, the evaluation team saw no evidence of innovation. The alleys were not in place and from the supporting documentation presented, it was apparent that the intent was to plant tree crops in lines within terraces. This was already being done and more effectively at SUFS in Patok Picis where farmers were interested in developing perennial crop production. The Central Java sites were not visited so no evaluation is possible. The use of PIF funds to study alley cropping could have provided useful information to the project but the activities were not treated as research but rather as extension. The sites were not selected to effectively test alley cropping as an alternative to terracing nor was there sufficient consideration given to species selection and management. Farmers in East Java have a lot of knowledge about multipurpose legume trees and both fruit and estate crops. This knowledge and interest could have been incorporated into a coherent research strategy to evaluate alley cropping as an alternative to terraces for less unproductive land.

Thirdly, people are complaining that not only is information concerning PIF not widely spread but there is no clear definition given by the Project Paper concerning the meaning of the word "innovation". According to those interviewed, this confusion discouraged interested persons from writing proposals to be funded by PIF, thus explained why much of the PIF money in the PIF is currently idle. The evaluation team therefore recommends that the PIF fund be abolished and the remaining funds be used to fund the additional technical assistance to improve the current project performance.

Demplot versus Dampak

Theoretically speaking the consultant suggests that the current usage of the word Dampak is a misconception which might lead to various problems which could jeopardize the sustainability of the project.

Dampak, which is a translation of the word "expansion" in the Project Paper, theoretically means something that comes out of a process; viz, the adoption process. Thus the Dampak in this Project will emerge after farmers see that what the Project has been doing in the Demplot is worthy for them to adopt. In other words, the Dampak farmers are farmers who are voluntarily adopting better agricultural and conservation practices than are seen in the Demplot. However, what actually happens in the field is different from the theory. The Dampak is "Created" by the Project by providing subsidy to the Dampak farmers, and thus the Dampak becomes the Project's strategy to achieve its hectare target.

There are several problems that come out of this difference:

First, the project implementation becomes expensive as the project has to subsidize both the Demplot and the Dampak farmers. The sustainability of the project is therefore questionable. By providing subsidy to the Dampak farmers the process of adoption of the new agricultural and conservation practices within the SURFS becomes a construct.

Second, as Dampak and Demplot overlaps, it splits the attention and time of the already limited number of the extension workers. This explains the fact that in some cases the quality of both the Demplot and the Dampak is often low. The low quality of the Demplot in particular, will in the future, affect the process of adoption by the farmers as they do not see anything in the Demplot that is worth adopting.

Third, as Demplot and Dampak are created at the same time by the Project, the extension workers do not have enough time to identify which farmers outside the Demplot and the Dampak Kelompok Tanis can adopt the new technology. This explains the complaint that the team receives from one PMU in East Java who observes the failure of the trained farmers to speed up the process of technology transfer within the sites in his district.

The consultant recommends that in the future any project which has similar objectives to the current UACP must treat the two concepts, the Demplot and the Dampak, as part of the extension strategy and not as a means of achieving targets as is currently happening in the UACP.

Recommendations

1. The BPP should formally be instituted as the field management organization of UACP project.

2. Serious effort should be made by the PCO to provide the facilities needed by the BPP to facilitate the latter's becoming an effective field manager.
3. It is recommended that SBRLKT issue a written order to all PLPs in the UACP project areas, instructing them to work closely with the BPP heads in implementing the project.
4. It is recommended that women be given more opportunity to participate in all activities of the project.
5. To achieve greater success it is recommended that the BPP as field manager of the project work closely with the existing village organizations such as the LKMD, the Womans Association (PKK), the Village School and other non-formal organization within the village such as the Pesantren (Islamic School).
6. Given the important roles of Kepala Desa and Camat in motivating farmers participation in the project, it is highly recommended that these two government officials to be officially involved in the implementation of the project.
7. Decentralize the funding responsibility to the regional government with the PMU being involved in the budget function.
8. Formalize the Cabang SBRLKT's participation in the PMU.
9. Involve the SekBimas in the management of the project which will "legalize" their involvement.
10. It is recommended that the Kabupaten SekBimas be appointed as Pinlak of the project.
12. It is recommended that the position of the Cabang SBRLKT at the Kabupaten to be promoted to Dinas SBRLKT.
13. Simplify the present project organization by giving autonomous power to the Kabupaten government to manage the project.
14. Initiate a simpler funding procedure.
15. Review and redesign the training programs.
16. Abolish the PIF fund and use the remaining funds to fund the additional technical assistance to improve the current project performance.

17. Treat the Demplot and the Dampak, as part of the extension strategy and not as a means of achieving targets as is currently happening in the UACP.

APPENDIX H

PROJECT ORGANIZATION AND MANAGEMENT AT
THE NATIONAL AND PROVINCIAL LEVEL

Appendix H

PROJECT ORGANIZATION AND MANAGEMENT AT THE NATIONAL AND PROVINCIAL LEVEL

E. Roekasah
2 March 1989

The Objective and the Approach

The objectives of the project among others are the institutional development to strengthen the capacity of the agencies involved at national, provincial and district government as well as at the field level, to experiment with and apply alternative approaches that will increase farm production and minimizing further soil erosion of the existing critical soils of the top priority watershed (DAS). One major emphasis in institutional development is a "learning by doing" approach.

The widely varying agro-climatic, social and economic characteristics, and the differences in farming practices and the rate of soil erosion, require multiple interventions to assure adoption of productive but ecologically stable, upland agriculture technology.

The existing government program in soil erosion control and rehabilitation of the DAS through what we called the Reforestation and Regreening Program began at 1976, especially in top priority watersheds. The two watersheds under UACP belong to the top priority watersheds since downstream areas of these watersheds are densely populated and much irrigation has been and is being developed. In carrying out this program several departments and their institutions are directly involved.

Therefore, the organization of this project is not just to carry out the project, but is also experimenting to test the new management concepts which will hopefully create a more effective inter-agency approach to watershed/upland farming systems development. The experience of the Citanduy and Yogyakarta and PDP projects led to the formulation of the organization and management of this UACP.

Three main inter-agency approaches being tested in this project are i.e.:

- a. Decentralized management.
- b. Unified management.
- c. Unified budgetary system.

The approach of a decentralized management structure places responsibility and authority at lower levels of government in a practical way of planning and managing development and conservation.

Therefore, the planning and management systems used by this project, relatively new and untested innovations, are modifications of the present systems in the Reforestation and Regreening project as well as previous similar projects such as the Citanduy II Project.

The term decentralization means that the project is being planned and managed at the district level. Provincial government authorities are responsible for the design/application of the relevant planning, management and budgetary information systems needed by participating districts to formulate and execute the project. The provincial governments are appointed as representatives to be the responsible authority on the GOI side for the disbursement of IBRD and AID funds, with the exception of agricultural research and training.

Unified management means that the provincial government (in this case the Governor) appoints a full time Project Coordinator and staff as a nucleus of a Project Coordination Office. This office operates under the overall policy guidance of an inter-agency provincial Guidance Team authorized by the Governor and composed of the heads of the technical line agencies directly involved in the project activities. Each technical agency appoints its staff to be responsible for that agency's activities in the project. The same procedures applies to the Project Management Unit (PMU) of each district. The Governor appoints, on the advise of the district chief, a full-time Project Manager. The Project Manager reports directly to the district chief. Professional members from each agency work on the project and are responsible for management of the agencies and their contribution to the overall field program, in close coordination with the Project Manager.

Budgetary system means that the local governments can allocate the budget so that they unify the delivery of services by respective line agencies. BAPPEDA prepare annual plans and budgets in conjunction with the line agencies. These budgets are reviewed and approved by the Ministry of Home Affairs and than disbursements are made through the Inpres Dati I.

The Overall Structure of the Project

The vertical organization of the project, similar to the administrative organization of the government, consist of 3 levels--the national, provincial and district levels. The District level plays an important role in planning as well as in executing the field activities. The leading agencies at all levels (on technical aspects) consist of the Departments of Agriculture and Forestry under the direction of the Ministry of Home Affairs. Adherence to the financial procedures is maintained, at least at the national level. The Agricultural Research organization has a separate organizational structure, but, at the provincial and district levels especially in the field, this agricultural research "organization" which carried out the Farming System Research as a part of the project activity, is integrated into the organization of the project.

The agencies of the Ministries of Agriculture and Forestry, at the national level are responsible for providing technical, administrative and policy support to the project through the Technical Team and Executive Secretariat (EXSEC) of the project. The Technical Team as well as the EXSEC, is chaired by BANGDA. There are additional members, both of the Team, and one representative each from BAPPENAS, Ministry of Finance and from the Office of Population and Environment. This kind of "organization" is common for almost all intersectoral projects. But few of these organizations are completely effective. This was an issue stressed in the project paper.

The Executive Secretariat will have full-time staff, two professionals from the Director General for Regional Development Ministry of Home Affairs and one professional staff each from the other two Ministries. Yet the full-time staff have not been assigned. Instead, an EXSEC joint operations support staff (Joss) is being established to provide full-time, professional management assistance. There are about 18 specific routine tasks of the Joss.

The scope of work for each staff is clear. This body and others are drafting the required Interministerial Instruction or ministry specific guidelines, the annual review of plans and annual budgets for the coming fiscal year, and the resolution of administrative or financial problems impeding project implementation. The administrative work includes responsibility for reports, documentation flows, and maintenance of project files and financial records. Two permanent consultants, employed in the EXSEC, are to increase the effectiveness of this "body".

As experience with other projects shows, the "owner" of the project (in this case BANGDA) runs the daily activities of these organizations. There Project Manager under Bangda, in addition to the EXSEC. The officials in charge are not full-time staff.

The EXSEC was first created in the Citanduy II Project to handle the administrative aspects of the project Citanduy Steering Committee. This raises the question: If there is more than one project of a similar nature, should an EXSEC be created for each?

The land rehabilitation and soil conservation program in the top priority watersheds is one of the priority programs of the Five Year Development Plan. At the National level there are no permanent institutions coordinating all of the integrated multi-sectoral conservation program. As there are a number of on-going projects, it is recommended that the permanent "body" which has a membership and function similar to that of a Citanduy Steering Committee act as a consultative and coordinating body dealing with all aspects of and all projects for watershed management as well as those dealing with forestry land (which are controlled by Perhutani/forestry). The EXSEC supported this body.

Consistent with one of the objectives of this project to induce the decentralization of the project activities, the Governor is the principal decisionmaker responsible for overall project direction and performance. Moreover, the unified financial system, using the Inpres Dati I funding channel, strengthens the position of the provincial government in directing the project. To implement this system, the Project Coordinator functions as an authorized GOI representative responsible for the application and use of the funds, including the donor funds. Here again the exception is the FSR research activity under the AARD.

To insure effective planning and execution of the project, with the exception of the research and some of the training, the Governor redelegates his authority to provincial level institutions through the Provincial Guidance Team, chaired by the Head of BAPPEDA, and overall field planning and management to district chiefs and their respective administrations. A Project Coordination Office (PCO) is chaired by the Project Coordinator, appointed by the Governor. The appointed project coordinator in both provinces is the head of the Physical and Infrastructure Section of BAPPEDA. The PCO will carry out the policy instructions of the provincial Guidance Team (GT). The PCO consists of BAPPEDA staff, to insure coordination within the agency. Almost all of the staff of the PCO are part-timers who have permanent positions in their respective

agencies. Technical assistance in each province is assigned to the PCO.

The PC, as a coordinating office of this project, functions as the coordinator of PMU and, in administrative work, functions as the "Executive Secretariate" of the GT. But, since the Project Coordinator is also the authorized GOI representative for the application and use of donor funds, the role and function of PCO is not just as an "EXSEC". The function of PCO is important as the coordination unit putting together several sources of project funds and administering them for further disbursement. During the first three years, all PCO staff learn the administration process for a project. This training period is common for any new project, especially for an inexperienced project manager. The UACP staff has improved in its knowledge and handling of administrative matters.

However, the Guidance Teams do not function well and are not very effective. The result of the PCO being too involved in detailed planning and implementation of the project activities, will create a situation where the PMU is in a passive role, which is not how the project was designed.

The consultant supports the decentralization process introduced by this project as being very positive. The overall goal of the project supported by the Governor and is expressed in the Execution Guidance (Petunjuk Pelaksanaan, "Juklak") of East Java supports one of the objectives of this project; that is, institutional strengthening and better coordination between agencies. Moreover the responsibility of the provincial government is increased as indicated by the participation in financing using APBD funds for some of the project activities.

The roles of the Guidance Team and PCO are in planning which is in line with BAPPEDA's function. Actually, the role of project organization at Dati I is not only to coordinate planning of UACP but also to coordinate planning of all projects directly or indirectly related to upland agriculture and conservation in the watersheds.

This decentralization process should be supported at the Dati II level. Using the Dati II imprest fund for the field activities of this project will strengthened the role and responsibility of the Dati II agencies. In fact, the Impres Penghijauan used the Impres Dati II funds. It will be more realistic if the sectoral activities presently carried out by its line agencies can have their funds channeled through the Impres Dati II. Through this procedure, the position and the role of BAPPEDA Dati II in coordinating the sectoral activities including the activities of Subject Matter Specialist (PPS), REC and the field extension (PPL) and PLP's, will be enhanced.

One of the indicators of the success of this project, is in institutional development which is clearly demonstrated by the effectiveness of these organizations in administration and coordination of intersectoral activities in watershed development. It should be noted about one-third of the total budget of the project has been earmarked for institutional development. It is hoped that the role of the Guidance Team as a "vehicle" for practicing the integration of activities through "learning by doing" will result in watershed/upland farming system development. Further, the lessons learned from running this project could be practiced by the agencies involved in the similar projects. The activity and the role of the GT will be important for (institutional development and) the sustainability of the approach in executing the intersectoral activities. Therefore, it will be useful for the rest of the life of this project to support making this "body" more active in the project as directed in "Juklak". Another alternative is to eliminate the GT and make the information transmission function part of the regular duties of the BAPPEDA.

The Budget Procedures

The initial source of project funds came from three different sources: GOI, IBRD and AID. These funds are channeled through one source, using one channel, namely the Impres Dati I channel. The pre-financed funds can be re-disbursed to the donor, and the counterpart rupiah budget are "build into" the Impres Dati I funds, called "on top" Impres. The procedures and the flow of funds are therefore similar to the normal Impres Dati I. The flow of funds comes through the BRI where the PMU at the district level received the funds for the project directly from kantor Cabang BRI.

The difference with imprest projects are the procedures for reimbursement. The administrative procedures on reimbursement are relatively complicated, started at the planning stage, at least for the unexperienced project manager. Not all of the components of the project are reimbursed at the same percentage.

To make the decentralization process more effective, USAID should refrain from micro-managing activities. Also, to allow the project managers a more active role in planning which is more suitable to the local problems and situation, the project paper and other basic documents which are in some cases too detailed, should be used only as guidance tools. Written guidelines addressing standards and procedures for reimbursement should be established and distributed among the project managers. With the high cost of preparing the SP3 documents, it is necessary to develop and adopt a much

simplified procedure to document requests for external funding. The Project Coordinator is responsible for insuring that all planning and review procedures required by AID/IBRD are being followed by the Project Manager of PMU in order to be eligible for reimbursement. The Project Coordinator has to initiate requests for reimbursement.

The coordination among donor and GOI (the project coordinator supported by the EXSEC.) is important in fulfilling all the requirement for PIL released by the donor and in the proceeding years for the request for reimbursement. The PIL release affects the funds released by the Ministry of Finance through BRI, because the pre-financed funds are released according to the PIL (each PIL has a number).

For PCO it takes more time to adapt to these new procedures, compared to the FSR/AARD, because PCO's work depends on PMU's work. The PIL received by UACP-FSR is progressing as seen in the following example. For the first and second years (1985/86 - 1986/87), the PIL received by the FSR Project Management was dated December of the respective fiscal year. In the third year, it was dated September. For the fourth year (1988/89) it was dated April--the same month as the fund from GOI budget.

The funds received by PMU through BRI are also progressing. For example in Blitar, the funds transfer for 1987/88 was 75% on December 1987 (9 months delayed) and the other 25% received on March 1988. The use of these funds by PMU was 48% through the end of December 1987, up a cumulative 73% through the end of March 1988 (the end of Indonesian fiscal year) with the rest disbursed thereafter. For 1988/89, the fund transfer was 36,6% by July 1988 and 73% by December 1988. The disbursement was 20% by the end of October 1988, 36% by the end of December and by February 15, 1989 has been disbursed at about the 68% level. A delay in funding can seriously effect the project in terms of fields activities. Some of the farmers try to finds credit from different institutions, such as BRI. Fortunately the real SUFS activity started August or September. However the delay in supplying inputs for SUFS or Dampak has caused serious problems for the project. Some of the 1986/87 SUFS plots of used the farmers seed/plant materials, because the "subsidy inputs" came after the planting periods for that location. The honorary fields worker (of FSR and some of the PLP) received their honorarium 2-3 months late, even though the funds used for them come from the GOI portion.

But it is now improving, even with mostly part-time staffers from the PCO and PMU.

Recommendations

1. It will be very useful if the Executive Secretary at National level becomes a consultative and coordinating body dealing with all aspects of and all projects for watershed management.
2. It is recommended that the Guidance Team at Provincial level be eliminated and its function be made part of the regular duties of the BAPPEDA staff but at District level it is recommended that the Guidance Team be more active.
3. The use of Impres Dati II in channeling the funds for the field activities of this project will speed up the funding process and also support the decentralization in planning and execution by the respective Dati II agencies.

The increase of these funds for maintenance activities, such as extension activities, and BPP activities is recommended.

4. The role of BAPPEDA in coordinating all projects (including the sectoral projects) should be increased.
5. To support more effective management, planning and implementation of the UACP project activities should be considered in light of other past and on-going projects, especially for projects with similar objectives (such as the Aneka Usaha Tani project and agriculture intensification project).

Lessons learned should be collected, analyzed and disseminated through prepared materials to all agencies and local farmers involved.

The MIS should play a more active part in improving the collection, analysis, and dissemination process.

5. Funding, administration, accounting, and MIS training may help solve funding delays.
6. Simply administrative procedures required by GOI as well as donors to lessen the administrative burden of PCO and PMU, so that their time and effort can be focused more on coordination of the planning activities and execution of the project.

APPENDIX I

IMPACT AND SUSTAINABILITY OF THE
UPLAND AGRICULTURE AND CONSERVATION PROJECT:
A SUB-REPORT OF THE EVALUATION TEAM

Appendix I

IMPACT AND SUSTAINABILITY OF THE UPLAND AGRICULTURE AND CONSERVATION PROJECT: A SUB-REPORT OF THE EVALUATION TEAM

2 March 1989

Bruce Glassburner

Part I: Impact

Data Problems

A deficiency in project design and implementation meets the eye of the evaluating economist immediately upon perusal of the basic documents, namely, the absence of the necessary information to make judgments about impact. There was no initial baseline study of the eight kabupaten upon which to base estimates of changes in the upland areas concerned. Moreover, there has been no systematic monitoring of the performances of the demonstration and expansion sites, except in the crude physical sense of measuring areas on which the chosen technologies have been applied and the quantities of resources expended in accomplishing that application.

Of necessity, therefore, judgments of impact must be educated guesses which rely primarily on interviews with farmers, project leaders, extension personnel, and technical advisers.

THE FIRST RECOMMENDATION TO BE MADE FOR ANY FURTHER ACTIVITY UNDER THIS PROJECT IS TO DIRECT SUBSTANTIAL RESOURCES TOWARD COMPREHENSIVE DATA GATHERING AND MONITORING, SO THAT MORE RELIABLE ESTIMATION OF IMPACT CAN BE ACCOMPLISHED IN THE FUTURE.

Fortunately, the Management and Information System (MIS) has, only recently, (four years into the program) established what appears to be a very comprehensive and useful framework for collection of the needed data. Unfortunately, this collection, still mainly on computer discs and only partially available in published form, amounts to a baseline study against which only future progress can be measured. Efforts to treat this data in an attempt to derive meaningful cross-section comparisons so far have not been productive. It should be added that there are several key variables which are all but unmeasurable. One of the most important of these is soil loss due to erosion. The Farming System Research Team has begun to monitor runoff with gauges in

various locations, but these are not to be found in all project locations, and the opinion of expert observers is that the design of these instruments and their location is not adequate to give reliable measurements of either runoff or of erosion.

Obviously this information is vital to evaluation of the impact of the project. Not only is it important to be able to judge whether farmers have been able to reduce loss of fertility on the lands which they cultivate, but it is also desirable to be able to make some sort of judgment about the impact of upland agricultural conservation practices on the lands, dams and streams at lower elevations.

The evaluation team recognizes that measurement of erosion and attribution of it to specific agricultural and conservation practices is extremely difficult, given the fact that natural erosion and that caused by upland forestry and road-building activities must also be evaluated if the impact of agricultural activities is to be isolated. But these are vital questions which need to be addressed in as scientific manner as possible.

From the point of view of evaluating soil loss in connection with evaluation of the impact of project activities on net internalized returns to farmers, this lack of data on erosion is of less importance in areas with deep volcanic soils, as, for example in Malang Kabupaten in East Java, and with many areas under the Citanduy project. However, the external effects of high levels of erosion, and the possibility of their reduction have potentially such great importance as to reverse a very strongly negative (or positive) conclusion about the balance of internal and external effects.

Information is not to be gathered for its own sake. It is precious because it is necessary to know where policies chosen in the past have taken us. This is the first step toward making wiser decisions about policies in the future. If bench terraces, for example, prove of very low effectiveness in reducing loss of fertility in upland sites, it becomes more obvious than ever that alternative types of structure be found. If returns to seed from the planting of peanuts prove to be too low to justify their being planted in thin soils, then adjustments should be considered in the planting pattern. In short, information is an absolutely essential planning tool. In that connection it is imperative that as the data base improves, a rigorous effort to profit from the lessons learned from those data. It should emerge from the computers and be fashioned into useful form so that it can be analyzed in search of better ways to conduct upland farming, both for the benefit of the farmers, as well as for the general Indonesian public. Thus, we wish to reiterate and re-emphasize our recommendation that a far more substantial knowledge base be considered preconditional to effective operation and to effective determination of the direction of

change in the project or any successor project which may ensue. It should be added that the preconditional nature of a firm information base applies to virtually every aspect of project activities. It should be considered the first priority of activities in any extended activity under the program. A solid information baseline has now been established; and it should be made the sine qua non of further work under the project that these detailed studies be repeated annually, or even twice per year as a means of gauging rates of change in key variables. And, beyond that, that project-wide solid efforts to analyze those data be undertaken.

Types of Impact

The above introduction discusses at some length the need to be able to judge the soil conservation impact of the project. In addition to that factor, we would like to indicate several others that must be given attention, and for which vastly improved data are needed:

1. The impact of the changing of soil conformation (mainly bench terracing, but also alternatives to bench terraces, such as ridge terracing, alley cropping, etc.) on the productivity of agricultural activity.
2. The impact of terracing employment on agricultural productivity, in terms of the diversion of labor from traditional farming activities.
3. The impact of subsidization on farm incomes in the project regions, particularly in relative terms vis-a-vis use of labor time on sawah, and various types of non-agri cultural employment (see Appendix A for a discussion of subsidization strategy).
4. The impact of adjustment of cropping patterns from more traditional varieties to those adopted under the project.
5. The impact of specific training activities on the long-term productivity of farmers. This applies to farmer training, learning by doing, technical assistance guidance, and extension training.
6. The impact of roads built to service the project. These include the employment and income effects of the road building, the reduction of effort on other productive activities, and reduction of costs of marketing of both inputs and outputs.
7. Income distribution effects.

8. Multiplier effects, which derive from changes in aggregate income in the project areas, and which are attributable to the project.

There can be little doubt that a project of this sort has broad impact in the selected areas, in both a positive and negative sense. The benefit of the widespread terracing on productivity can not be isolated from other effects, such as the effects of seed, seedling, and fertilizer distribution. Almost all farmers interviewed agreed that they got much higher yields, some claiming yields to seed ratios of as much as 50 to 1. (Such yields are plausible--see Appendix B). However, this generally euphoric reaction was made difficult to interpret because of the many other factors involved. In some cases the first year effect was zero or even negative, because of very poor soil in the chosen plot site, and/or failure to avoid working the thin top soil into the less fertile earth removed from the hillside. Also, delays in delivery of inputs until well into the planting season prevented full exploitation of the opportunity presented. In a single case observed, the choice of site was so poor that the first year cropping results were negligible.

Efforts were made in farmer interviews to determine if the internalized benefits to farmers were commensurate with the value of the subsidy, i.e., to see if the direct benefits to farmers in the form of increased income from SUFS area planting and harvesting in the two years of subsidization equalled or exceeded the value of the subsidies--which took the form of cash payments in some cases, but also seed and seedlings delivered free of charge, and fertilizer. Other special services to the SUFS area farmers were not considered in this specific context (i. e., extension services, the building of roads, etc.). The majority of farmers interviewed considered that they had been able to achieve a net gain above the subsidy costs. However, there was clearly confusion in these interviews conducted by the present author and Dr. Roekasah, the agricultural economist member of the team. Few of them were able to evaluate the subsidies effectively for the simple reason that the value of the subsidies in kind were not known to them, and often there were communication difficulties between the two interviewers and the Javanese farmers. In the absence of a carefully conducted detailed survey, this key question could simply not be answered.

There is the additional difficulty that subsidies to individual farmers varied according to individual holdings within the demonstration plots and expansion areas. Moreover, there were more than a suggestion of evidence that materials, such as fertilizer and seed were diverted to non-project areas. The latter phenomenon is to be expected, given the pattern of incentives. Enhancement of yield is likely to be greater on land of better quality, other things being equal.

The issue was further confounded by the fact that time and effort spent on the demonstration plot or the impact area was time taken from other pursuits--a matter of great importance in most upland areas, where families are dependent on multiple sources of income, including other packets of land outside the project area, and on off-farm employment.

Our best judgment in response to this question is that in the most fertile, best managed areas, net returns were undoubtedly in excess of the value of the subsidies; but we could not conclude that project-wide the full value of the subsidies was passed on to the participant farmers in the form of income increases. And in the poorest areas it appeared doubtful if benefits to all farmers were positive. Some net losses were suffered.

The above conclusion does not necessarily mean that the project as a whole is of zero or negative net benefit to the community as a whole. Such a judgment would require that all impacts somehow be compared, including the substantial benefits of roads, the probable gains in erosion control from terrace-building, the benefits from project-related research and data-gathering, the benefits from extension and training and the benefits of technical advice from the DAI/SCS and Winrock teams. Some of these benefits will be derived over a lengthy span of time, and despite a very high social rate of discount, surely have a positive net present value.

Queries concerning multiplier effects were generally met with affirmative responses, albeit not very specific ones. There are village non-farm activities, such as construction, handicrafts, and food processing (making of "gula Java", drying of cassava, etc.), which were apparently stimulated by the rise in demand for labor, the concomitant increased incomes, and the "wealth effect" of rising asset values (land and houses, in particular).

We would be remiss if we did not comment on the apparent income distribution effects of the project. Strictly speaking, income distribution and equity issues are not economic issues. However this has never deterred economists from discussing matters of equity. Other things being equal, additional income for the poor can be regarded as of more social benefit than additional income for the rich. This concept can be formalized by giving greater weight to income received by the lowest deciles in the income distribution pattern than that received in higher deciles. The baseline data show that virtually all families in the SUFS areas are poor relative to the total population. This indicates that the channelling of resources into the upland areas improves the national distribution of income and wealth.

It is important to qualify the above statement, however, by recognizing that certain inequities are discernable in the operation of the project. Subsidies in kind are determined on a land ownership distribution basis, i.e., a family owning two hectares in a demonstration plot will receive four times as much as a family owning 0.5 hectare. Nevertheless we believe that the overall impact of the project is in the direction of greater equity.

We would not hazard a guess at the Internal Rate of Return (IRR) for this project, but we believe that the estimate in the economic analysis of the project paper, namely, that the IRR would reach the social rate of discount was too optimistic. This implies that the returns to this project are below the best alternative uses of the resources. In general we feel that better conservation results would be attained if the problems of erosion and deforestation were attacked directly, treating these problems as problems of social overhead, or public goods; and that they be approached essentially as public works projects. To the extent that upland labor is used for this work, it should be paid cash wages, thereby alleviating one of the main constraints to upland farm management, namely, cash deficiency.

As for improvement of productivity of land and labor used in agriculture in the uplands, we feel that this is best achieved through a broad pattern of agricultural policy which provides an environment in which farmers are given support of a variety of types which will encourage them to make farming decisions in their own interest. This would include adaptive research into methods of conservation and cultivation as specific to the area as possible, and with widespread dissemination of this knowledge through field demonstrations, circulation of literature, enhanced training of extension workers, and expansion of the extension services so that more frequent field visits would be possible.

In addition to much improved research and extension, we feel that continued expansion of farm to market roads is highly desirable, such activity having been demonstrated in other developing countries of the world to be among the highest benefit types of investment possible.

Finally, the fundamental problem of rural finance is felt acutely in upland areas, where the problem of "financial repression" is most acutely felt. Fortunately, the Indonesian Government, after many years of limiting the formal commercial banking sector mainly to urban areas, has now undertaken a sweeping reorganization and deregulation of financial intermediation. Many studies indicate that the basic problem of rural finance is not the high cost of such intermediation to poor rural borrowers, but access to the financial institutions at rates commensurate with the real value of capital including costs of risk-bearing and of intermediation. Agricultural sector

interest rates will probably always be higher than those of the non-agricultural sector, because of the high risks involved. This problem can only be mitigated by avoiding policies that make it difficult for banking and para-banking activity to expand into rural areas. Antipathy to rural money lenders is a deep-seated emotion, reflecting the high risks and the pain of loss that has accompanied failure to meet repayment schedules. This problem is best alleviated by openness in the system so that local monopoly is minimized and access to intermediation services is increased. It is important to note, if only parenthetically, that the deposit-taking function of financial intermediaries is of equal importance with credit creation. Banking and parabanking regulation of a sort that regularizes banking practice and minimizes banking administrative obstacles is the best antidote to loan-sharking.

Summary: Impact

The economists on the evaluation team feel seriously hampered in making judgments about the impact of the UACP because of the lack of monitoring data. Basing our judgments on farmer interviews and the baseline data, we feel that the broad impact is positive, in the sense that in the aggregate the net benefits are positive. Whether the entire project can be said to yield positive social welfare improvement, taking into consideration the alternative costs is questionable, however.

Some benefit appears to have been derived from terracing, and still more, we feel, from roads, some lasting benefit from farming systems research, from extension and training, and some improvement in the distribution of income. These judgments (it must be emphasized) are no better than educated guesses and we also wish to emphasize that continued activity in this project format should be undertaken if and only if the good start with the information system is extended into the future, regularized, and attended to very seriously by the planners and decisionmakers at every level.

Part 2: Sustainability

The fundamental concerns of the authors of the Project Paper which established the rationale for this project included, among other objectives: Increasing the net incomes of farmers in the watersheds concerned, to the extent that participants in the program demonstration plots and expansion areas (and possibly farmers outside these activities, or Swadaya participants) would continue to utilize newly introduced technologies once subsidies were removed. It was also anticipated that success on the demonstration plots, supported by adaptive research which would provide a sustainable stream of cost-reducing and productivity-

raising innovation would induce adoption of conservation and culture techniques of a nature which would make upland cultivation viable as a source of livelihood for increasing numbers of upland dwellers.

Whether the strategy toward upland population is intended to hold numbers of cultivators and their families at established levels, an attempt to slow the rate of upland population attrition, or for the purpose of absorbing larger numbers is not, at this juncture, clear. In any event, if it is assumed that the economy generally will grow, a rising rate of growth of per capita incomes in the uplands will be necessary to achieve any of these objectives. This is to say that a minimum condition for success is that per capita incomes in the project SUFS areas rise at a sufficiently high rate to cause returns to labor in these upland areas to exceed returns to labor in what the families perceive to be the best alternative use of that labor, and that superiority be retained.

At the time of this evaluation (February-March, 1989), it is not possible to offer a firm conclusion as to whether the above economic goals are being achieved, because of the absence of information showing levels of incomes before and after project experience. Several papers have been offered which provide a framework of analysis for making judgments about this matter; however, they are not systematically empirical but rather present models of farm cost and benefit relationships, or rely on projections of limited amounts of empirical information. In this investigation, we have, perforce, relied on field information obtained from interviews and discussions with farmers, extension workers, technical assistance personnel, and officials. As expected, farmers and most (not all) other persons in the field, being recipients of project benefits, or being otherwise committed to the success of the project, take a favorable view of the activities under the project thus far. As a result of our admittedly limited opportunity to observe the project as it functions, we are much less sanguine.

In our field work we have sought consistent time series data on farm net incomes. Baseline data of good quality are available, but they are not amenable to analysis of change, as indicated previously. For an effective evaluation, we would need to obtain time series which date back to the earliest efforts under the project, and even before. One would have hoped to find these at the kabupaten level. These should show paths of earnings of persons involved in the project activities, as well as those not involved to provide a control group. As indicated in the section on impact, these data have not been available. Our only systematic data source is the baseline studies undertaken under the guidance and supervision of the DAI/SCS advisory team and being extended by the Monitoring and Information System. These data have come to us only recently, and provide

only a very good baseline. These data will be very useful for making comparisons in the future, but are of little help in judging progress to date. Efforts to make cross section comparisons have not proven fruitful.

Our judgment on sustainability, based on this limited information is that it is very unlikely that any very large proportion of participating farmers will continue to farm in the patterns prescribed under the project. Undoubtedly some of the knowledge acquired through research and extension will be retained in practice, e.g., terraces which have been well constructed and clearly reduce soil loss will be maintained for the most part--as they have been under the Citanduy projects. Indonesian economists with extended experience with the Citanduy experience confirm that, once farmers perceive that such maintenance is of direct interest to their livelihoods, they are willing to allocate the necessary time. But cropping patterns are very likely to return to largely pre-project tegalan practices, with heavy emphasis on low-maintenance food crops, notably cassava and corn. It should be added that in many sites some volunteer adoption is observed. However, it was consistently partial adoption, and these efforts rarely showed promise.

Possibilities for Economic Improvement

Whether or not we are correct that the newly introduced technologies are unlikely to be sustained, or in raising the long-term rate of growth of net per capita incomes of cultivators and their families sufficiently to make the new practices competitive, it is incumbent upon us to suggest ways in which the effectiveness of the scheme might be improved upon, not only for the duration of the present project, but for the future of upland agricultural policy in general. Some considerations related thereto are the following:

Adaptive research. Is there a research effort afoot which deals in a specific way with the problems of topography and soil type, as well as cropping patterns in the area that has some reasonable chance of contributing to the success of farming in the region under consideration? There is a limited amount of such research underway, this being the main function of the Field Research Systems activity. As is indicated in the consultant's evaluation of FRS, the hope for such adaptiveness lies primarily in the future; and there is hope for eventual success.

Transmission of information to the cultivators, planners, and policymakers.

Is extension effective? In general the team members have found that extension workers are intelligent and enthusiastic; but they are also overburdened by excessive area to cover and lacking in specific training. They also lack equipment to measure change in the field.

Comprehensive monitoring data is also absolutely essential for planning and policymaking to be undertaken efficiently and effectively. It is incumbent upon MIS personnel to produce data in report form as early as it can be done. Means must then be found to disseminate these data reports and to submit them to analysis so that they have impact on project administration and policy pattern. Any effective data system must be "demand-driven." At this juncture there is scant evidence of developing effective demand for the data and analysis of a type being considered here.

Training: Investing in Human Capital

Much useful training has been undertaken in the project thus far. However there are serious gaps in the pattern of training. The importance of more and better training for extension personnel has already been sufficiently emphasized, except for the need for social and economic training. The project is overwhelmingly technically oriented, and very little attention has been paid to such vitally important areas as expertise in rural dynamics, farm management, marketing, and micro-economic analysis. Indeed, the latter subject is entirely confined to the work of one technical advisor and a few members of the sosek section of the FRS in Salatiga. This is inadequate and should be given high priority.

Credit

The Indonesian financial system is underdeveloped, in the sense that the formal financial intermediation system is not accessible to rural regions generally, and to uplands areas in particular. The informal intermediation system performs impressively; however, it is administratively expensive, may entail elements of local monopoly, tends to deal with high risk borrowers and therefore provides credit only at very high rates of interest. The Indonesian government has recognized this deficiency, and is taking broad measures to improve the situation by allowing branch banking in smaller cities and villages, and reducing the administrative burden of regulation. The government is no longer willing to provide large quantities of agricultural credit at subsidized rates of interest, but has, instead, opted for a policy of increasing credit availability at

competitive market rates of interest. Although progress is being made in these areas, the problem of limited credit availability and high cost will remain a problem, particularly in the more isolated agricultural areas for many years to come.

Despite the evident shortage of financial capital in the uplands (and in the agricultural sector generally), subsidization of credit through a project such as the one under review is not an advisable means of meeting the problem. Credit supplied on terms below the real cost of capital plus appropriate premiums for risk and administrative cost implies diversion of capital from higher value uses, which, in a capital-poor nation, is extremely wasteful. If it is a matter of national policy to subsidize the building and maintenance of terraces or other erosion control structures--~~or~~ even the vegetation of slopes for that purpose, the preferred solution should be to pay the labor needed directly, in cash. This is tantamount to regarding the conservation of the upland soil as a matter of general public interest, i.e., considering reduced runoff and reduced erosion as public goods. Indonesia might, for example, consider the formation of a conservation corps, and consider its activities as being in the same general category as public works activities, along with roads, bridges, and the national communication system.

This is a problem shared by virtually all developing nations, and it is not one that can be overcome readily by non-market or capital-market distorting methods, such as heavy subsidization of interest rates in the fashion of the various versions of the Bimas agricultural intensifications programs. If it is appropriate to offer explicit policy advice to the World Bank and USAID on this issue, we suggest that if there is to be modification of the project format, that it not include any provision for subsidization of credit.

In order for this project to become self-sustaining, internalized benefits to farmers must be sufficiently large to induce them to continue to plant, harvest, and maintain soil conditions using the new technologies introduced under the project; and they must have sufficient economic incentive to be willing to adopt superior technologies which will be introduced as research and extension are improved. After taking into consideration the results of our field trips to the eight kabu patens in the project, our opinion is that this is not likely to occur in many of the areas we have seen, regardless of the means adopted.

However, there are clearly positive indicators in some areas: The strategy emphasized in East Java calls for a shift from annual to perennial crops of high value. This could conceivably work, provided prices of fruits and other perennials (coconut, kapok, etc.) are at high enough levels to pay off. However, even in these promising areas, there is a problem of

gestation, i.e., after the subsidies have been dropped (i.e., in the 3rd year of participation), the demands for income in the form of food crops may be so strong as to require that farmers revert to basics, which means cassava and corn for the most part. Rural interest rates are typically as high as 6% per month in village revolving funds, so the costs of waiting for jeruk groves and other tree crops to mature are extremely high, and may very well defeat the strategy. Upland farmers rely on these "critical" lands for marginal income for the most part. Many have family members, male and female, earning in non-agricultural employment in the nearby urban areas. Population distributions in many of these villages are "double-humped", with the middle of the distribution rarely available for farm work; hence a frequent complaint of shortages of manpower, and it is readily evident that men and women working in the area are very frequently of advanced age, thus constraining the supply of effective manpower.

Conversations with key personnel involved in the design and implementation of the Citanduy projects, which generally were undertaken on good soils (as compared with most of those in the Jratunseluna and Brantas watersheds), found that the completion of the subsidy cycle was followed by almost universal reversion to preproject cropping practices, for reasons similar to those indicated above.

In the absence of any very high probability that cropping practices established under the project will be self-sustaining, the question arises as to what measures, if any, could lead in that direction. Experienced observers of upland agriculture in Indonesia insist that in many areas, very good incomes can be derived from shifting to high value tree crops, animal husbandry, and various high value food crops, such as chillies. However, such a strategy is one which requires substantial financial capital to initiate, and for that reason is beyond the reach of smallholders. Even with rapid expansion of the rural system of financial intermediation, it is impossible to imagine such a cropping pattern becoming widespread in the short or intermediate term.

The implication is that the process of economic transformation, which shifts the occupational distribution of the labor force from the agricultural to the non-agricultural sectors of the economy will have to be extended far beyond that achieved thus far in Indonesia, which is to say that sustained rapid expansion of non-agricultural employment is the best hope for mitigation of the low returns to labor (and land) in the uplands.