PD-ABC-872
XD

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 _____
(ES# _____)

B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan?
Yes ☐ Slipped ☐ Ad Hoc ☐
Evaluation Plan Submission Date: FY ____ Q ____

C. Evaluation Timing
Interim ☐ Final ☐
Ex Post ☐ Other ☐

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)
688-0232	Farming Systems Research and Extension	1985	9-94	19,493	15,503

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director

Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
1. Continue to strengthen capacity of Farming Systems Research Division (DRSPR) to manage several research teams	GRM	
- delineate job responsibilities and staff between the division and research team (OHV) levels.	USAID/GRM	
- extend position of data processing specialist (T.A.) by 3 years	ADO (TKibreab TAtwood	01/9/90
2. Fulfill preconditions and plan for project expansion to Region V	USAID Staff GRM	01/91
3. Establish a multi-year research plan and a clear strategy for impact evaluation	DRSPR, Goïta USAID (TKibreab)	91-92
4. Establish project wide consolidated financial reporting system and update budget requirements per given activity	Proj.Fin.Mngr. Cont. Office	91-92
5. Encourage increased contribution by host government to recurrent costs by assigning more civil servants to the project	USAID	91
6. Formalize collaborative agreements between DRSPR and partners (extension agencies, other researchers, policy makers, etc)	DRSPR, Goïta	91
7. Increase short term training activities (in-country, third country and IARC's)	DRSPR, SECID Goïta	91
8. Provide a new scholarship opening to be offered to a female Malian researcher.	USAID	91-92

(Attach extra sheet if necessary)

APPROVALS

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

G. Approvals of Evaluation Summary And Action Decisions:

	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
Name (Typed)	Tadesse Kibreab	Mamadou Goïta	Jon Breslar	Dennis J. Brennan
Signature	Tadesse Kibreab	M Goïta	Jon Breslar	D Brennan
Date	March 12/91	19/3/1991	12 Mar 91	3/19/91

ABSTRACT

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

The Farming Systems Research and Extension Project (FSR/E Project) purpose is "to provide institutional support to the Institute of Rural Economy (IER) to expand and increase the effectiveness of its farming systems research program in Mali, in order to develop agricultural technology which is relevant to farmers' needs and circumstances, and to promote the effective transfer of such technology".

The assistance is comprised of:

1. Expansion of FSR activities to two additional agricultural production zones: that of Operation Haute Vallée (OHV) in Region II in 1985, and to that of Mopti in Region V in 1989; relocate the DRSPR headquarters to Bamako, from its location in Sikasso; and strengthen DRSPR capacity to manage several zonal research teams (two existing in Region III, plus additionnal teams planned).
2. Improvement of research-extension linkages: within the national research system; between DRSPR - policy/planning agencies; national research - international agricultural research.
3. Training and staff development (long term graduate, short term in country and outside, and on the job training).

The mid term evaluation (10/20/89-11/15/1989) is the first of three external evaluations previewed. The purpose was to assess extent of project accomplishments and make recommendation for future activities. The evaluation was based on review of project documents, field visits and interviews with USAID, IER and Project personnel.

The DRSPR headquarters is relocated in Bamako and new building to accommodate the division staff is nearly completed. The FSR program in Region II (FSR/OHV) has been conducting activities since 1986. Effective, often informal, collaborative linkages have been established between the research system - extension agencies - farmers.

The long term graduate training program is well implemented: 17 participants, out of 19 previewed, placed in U.S. universities and the first two have returned with M.Sc. Similarly, good progress registered on the job training (computing, accounting and field research staff).

Project activities in Region V not yet initiated. In general the evaluation did not indicate any major problems which would question continuation of project.

Continued support to the DRSPR is recommended. USAID needs to work with IER to:

- Strengthen DRSPR capacity to coordinate several teams
- Reinforce collaborative agreements between DRSPR and partners
- Address deficiencies in some areas such as project impact evaluation; more short term training, consolidated financial reporting for each program activity
- Fulfill preconditions and plan for project expansion to Region V.

COSTS

I. Evaluation Costs

1. Evaluation Team

Name	Affiliation	Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. $)	Source of Funds
Dr. Peter Van Shaik/Team Leader	Exper. Inc.	19		
Dr. Martha Gaudreau/Agronomist	" "	24		
Mr. John Lichte/Economist	" "	21		
Dr. Richard Cook/Animal Sc.	" "	21		
Mr. Donovan Rudisuhle/Financ. Mngr.	" "	7		
Mr. N'Faly Dembélé/Economist	IER/GRM	18		

2. Mission/Office Professional Staff Person-Days (Estimate) _____

3. Borrower/Grantee Professional Staff Person-Days (Estimate) _____

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:	Date This Summary Prepared:	Title And Date Of Full Evaluation Report:

The Farming Systems Research and Extension (FSR/E Project) purpose is to provide institutional support (technical assistance services, training and finance) to the Malian agricultural research institute - Institute of Rural Economy (IER) and its Division of Farming Systems Research and Extension (DRSPR) to enable IER to expand research activities to new zones and develop agricultural technologies relevant to and adaptable by farmers and thus improve the production, productivity and well-being of rural households.

The project assistance is targeted at two organizational levels: the Division of Farming Systems Research (DRSPR) and two zonal research teams (Region II and V) under DRSPR. At the start of the project (1985) two FSRE teams, supported by other donors, were operational in the southern zone of Mali (Sikasso area - Region III).

The project assistance comprises of:

1. Expansion of FSR/E to two agricultural zones: 1985 to the central zone around Bamako-Region II or Opération Haute Vallée (OHV); and later on 1989 around Mopti (Region V). The division headquarters is to be transferred from Sikasso to a new building in Bamako.

2. Improvement of institutional linkages between research, development, training and policy institutions.

3. Supporting training of Malian staff. Three types of training (long-term, short-term, and on the job) activities are previewed to meet different skill requirements.

The evaluation (10/20-11/15/89) is the first of the three external evaluations previewed (years 4, 7 and 10) during the life of the project. It is to assess extent of accomplishments of expected outputs for the first phase and make recommendations for future project activities. The evaluation was conducted by six member team on the basis of review of project documents, field visits to research sites; and interview of I.E.R. researchers , USAID/MALI officials, and GRM extension personnel. The team deliberated on all major categories of the project activities: institutional organization and management issues; program development; training, financial management and future plans.

Principal findings

1. Institutional organization and management

1.1 Project implementation suffered from delayed placement (1986) of Technical Assistants and frequent personnel changes - the earlier Malian staff left for training and most T.A.'s quit after 2 year-tour of duty.
1.2 Division relocated to Bamako as previewed and new headquarters building nearly completed.
1.3 Division capacity to manage several teams still weak due to limited number of Malian staff (only the head of division). The successive T.A. Chiefs of Party did not provide research management advice to the division, as previewed.
1.4 Responsibilities of each of the parties (IER, contractor, USAID) in project monitoring not defined clearly.
1.5 Data management services not extended to other I.E.R. divisions.

2. Program development

2.1 The FSR team in Region II (FSR/OHV) conducting active research since 1987.
2.2 FSR/OHV established effective, often informal, linkages between development organizations and other researchers. The team was commended for addressing female producers concerns and incorporating farmers' views in research planning and evaluation.
2.3 No clear strategy for project impact evaluation.

2.4 Research activities spread thinly over a wide geographical area; and data collection not targeted to meet specific objectives.

3. Training

3.1 Degree training; research supervision from training institute students, and on the job training programs well implemented.

3.2 Short-term (in country, third country) training program poorly coordinated. Overseas short-term training opportunity not extended to participants outside DRSPR.
3.3 No specialist in IER to answer demands for training in statistical design and analysis.
3.4 No female participant in long term training program.

4. Financial Management

4.1 Project accounting has adequate controls for transactions and assets.
4.2 GRM contribution to recurrent cost (largely in personnel) less than half of its commitment.
4.3 Financial reporting system does not provide consolidated expenditures by all parties (USAID, SECID, Project) and line item classification not consistent among the parties.
4.4 Long-term training expenditure exceeded budget for the item.

Principal recommendations

1. **Strengthen division capacity to coordinate several research teams.**

   1.1 Encourage GRM to assign more civil servants.
   1.2 Establish a new research management T.A. position to serve as advisor to the head of DRSPR.
   1.3 Extend data processing position for at least 3 years to offer services for all FSR teams and other IER divisions.

2. **Formalize linkages and consolidate research programs**

   2.1 Formalize collaborative agreements and state responsibilities and obligations between FSR teams and partners.
   2.2 Establish specific quantifiable objectives which would serve as criteria for program monitoring and impact evaluation for the division and research teams.
   2.3 FSR/OHV establish multi-year research plan, incorporate cost accounting for each research program and prioritize data collection to meet specific objectives.

3. **Reinforce training**

   3.1 Increase effort in short-term training; and extend opportunities to other IER divisions and collaborators.
   3.2 SECID provide services of statistician under the short-term training program.
   3.3 Add a long-term training scholarship for a female researcher.
   3.4 Allocate USAID Human Resources Development Funds to support training of spouses for long-term participants in U.S.

4. **Harmonize financial management**

   4.1 All parties establish a common financial report format, to permit project management produce consolidated report which reflects financial status of each category.
   4.2 USAID, the GRM and project management review all line items and update budget to reflect developments in the project. SECID and USAID provide project with timely financial reports.

5. **Future Plan**

   Defer extension to Region V until (unspecified time): GRM meets its recurrent cost obligations (i.e. increased civil servants to project), DRSPR management capacity is strengthened, FSR/OHV establishes effective research management system, and until sufficient commodity research experience in dryland agriculture exists in Region V.

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.)

COMMENTS

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

The evaluation team did an outstanding job of analyzing all major project activities and indicated their interrelationships. Most of the recommendations forwarded were accepted by all parties and are being addressed. The recommendation to add a new research management T.A. position was rejected on the grounds that the position of the COP T.A. and the new T.A. on research management will be overlapping. Similarly the recommendation to physically separate the FSR/OHV team office from the division headquarters was not accepted as this would increase the recurrent cost.

The evaluation addressed project implementation problems at different levels of GRM decision making: the Institute of Rural Economy, its division of FSR, and the research team (OHV); therebye focussing implementation actions to the appropriate hierarchy. Similarly actions to be taken by USAID and the contractor (SECID) were clearly and objectively stated. The result is clearer and more coherent definition of each party's responsibility; which was not previously achieved from internal evaluations by the implementing agencies (USAID/Mali, GRM or SECID).

Lessons

- Period allowed for graduate training (36 months for a M.Sc. and 48 months for a Ph.D.) too short.
- Time allocated (3 1/2 weeks) for evaluation restrictively short Five to Six weeks would have been more realistic period to permit visit to new region and address some issues (e.g. design assumptions) in depth.
- Support staff requirements for FSR/OHV double that estimated in Project Paper.
- Change from Malian francs to francs CFA and relative devaluation of dollar affected accuracy of budget projections.

Weakness

Poor translation of evaluation report into French by contractor (Experience Inc.).

Despite the short-time and the complexity of the project, the evaluation team did first rate job and its analysis is providing valuable guide for improving the project implementation.

Attachment
PES - FSR/E Project

Development after the mid-term evaluation

There have been important positive developments in IER and DRSPR since the mid-term evaluation was conducted.

The two major Malian agricultural research institutes have been reorganized and merged into one institute one year after the evaluation was completed. This has permitted more civil service staff to be assigned to FSR and thereby increase GRM contribution to project recurrent costs. GRM has assigned three more civil servants to the division and identified another four who are ready to move to the new region (V). Another donor (Dutch) has provided the services of an experienced research management advisor to the division. These answer recommendation 1. Commodity research experience in dryland agriculture exists in Region V. The preconditions for extension are being sufficiently met and USAID and GRM are preparing for the extension.

New building for division headquarters was completed (01/1990) and since occupied: the division staff in one wing of the building and FSR/OHV on a second. Other two wings are being used jointly by division and FSR/OHV team. The building is spacious enough to accommodate both; and recommendations to physically separate the team from the division staff was not accepted.

All degree training participants (19) have been placed in U.S. universities - 2 after the evaluation. Three more graduates (M.Sc.) returned bringing the total to 5/19.

In answer to recommendations 2.2 and 2.3 the project has elaborated a long term research plan with criteria for impact monitoring. Similarly there is increased emphasis on short term training in the 1990-1991 work plan.

XD-AAC-872-A
ISN 71806

EVALUATION

FARMING SYSTEMS RESEARCH AND EXTENSION
No. 688-0232

Prepared for:

The U.S. Agency For International Development
Bamako, Mali

by

Peter van Shaik
Team Leader/Research Manager

Martha Gaudreau
FSR Agronomist

John Lichte
FSR Economist

Richard Cook
FSR Animal Scientist

Donovan Rudisuhle
Financial Expert

Under

REDSO/WCA Indefinite Quantity Contract
No. 624-0510-I-00-9039-00
Delivery Order No. 1

November 1990

EXPERIENCE inc.

Washington, D.C. 20006
USA

EVALUATION

FARMING SYSTEMS RESEARCH AND EXTENSION
No. 688-0232

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November 1990

ACKNOWLEDGEMENTS

We would like to acknowledge the assistance, support and encouragement which numerous people offered in conducting this evaluation. To all those persons listed in ANNEX G, we are grateful for your open responses to our questions, for your willingness to endure our quieries, and for your enthusiasm for Farming Systems Research activities in Mali. We want also to thank the farmers in the project area for welcoming us into their villages and sharing with us their experiences in relation to DRSPR activities in both Region II and in Sikasso.

We received numerous comments, suggestions, and corrections. We considered them all seriously and incorporated them into this document wherever possible. We accept responsibility for the final report and its contents.

P.v.S
R.C.
J.L.
M.G.
May, 1990

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LIST OF ABBREVIATIONS

AMS	Sorghum and Millet Improvement Section
CAA	Agricultural Extension Training Center
CESA	Study Commission on Food Security
CILSS	Permanent Interstate Committee for Drought Control in the Sahel
CIRAD	Center for International Cooperation in Agronomic Research for Development
CMDT	Malian Company for the Development of Textiles
CRNA	National Agricultural Research Committee
CRNST	National Comittee for Scientific and Technical Research
CRZ	National Livestock Research Center
DAF	Division of Administration and Finance
DDI	Division of Documentation and Information
DET	Division of Technical Studies
DHV	Haute Valee Development Project
DMA	Division of Agricultural Mechanization (Engineering)
DNA	National Direction of Agriculture
DNE	National Direction of Livestock
DPE	Division of Planning and Evaluation
DRA	Division of Agronomic Research
DRFH	Division for Forestry and Hydrobiology Research
DRSPR	Division of Farming Systems Research
FSR/E	Farming Systems Research and Extension
FSSP	Farming Systems Support Project
GIS	Geographic Information System
GRM	Government of the Republic of Mali
ICRISAT	International Centre for Research in the Semi-Arid Tropics
IER	Institute for Rural Economy
IITA	International Institute for Tropical Agriculture
ILCA	International Livestock for Africa
INRZFH	National Institute for Research in Livestock, Forestry, and Hydrobiology
IPR	Rural Polytechnic Institute of Katibougou
ODEM	Mopti Livestock Development Agency
OHV	Haute Valee Development Agency
ON	Niger Office for the Development of Rice and Sugar
ORM	Mopti Rice Development Agency
PIRT	National Resources Inventory Project
PRMC	Cereal Market Restructuring Project
SRCVO	Food Grains and Oil Seed Research Section
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

1. **U.S. Agency for International Development, Bamako, Mali**
   Farming Systems Research and Extension (688-0232)
   First External Evaluation, October - November, 1989

2. The purpose of the Farming Systems Research and Extension Project is to provide institutional support to the Institute of Rural Economy (IER) and its Division of Farming Systems Research (DRSPR) to expand and increase the effectiveness of its farming systems programs in Mali so as to permit development of agricultural technology of relevance to and adoptable by farmers and thus improve the production, productivity and well-being of rural households.

The project's three components are concerned with the following activities:

1. Expansion of Farming Systems research and Extension:

During the first phase of the project, farming systems research will expand to the agricultural production zone of the Operation Haute Vallée (OHV) in Region II. Subject to evaluation of resource availability, personnel, financial, and time constraints, it will also expand to the zone of Operation Mil-Mopti and Riz-Mopti in Region V. Activities will include a move of DRSPR's headquarters to Bamako/Sotuba from Sikasso, institutional financial support for staffing and operational costs and long-term technical advisors in <u>three</u> subject matter areas.

2. Improvement of Institutional Organization and Management Capability:

In addition to actual farming systems research the project addresses the important issues of strengthening the Malian institutional ability to manage technology development and adoption. The project is also concerned with the interactions between research and activities related to, or impacted by it. Linkages are addressed: 1) within the research system; 2) between the research system, extension agencies, and farmers; 3) between research and training institutions; 4) between research, agricultural policy, and national planning agencies; and 5) between research and international research institutions.

3. Training and Staff Development:

There is a significant shortage of trained manpower in agricultural research in mali. The success of the project ultimately depends on the quality of research and technology developments which in turn will be greatly affected by the technical training and qualifications of the Malian professionals. Training is therefore a major component of the project and will be conducted at four levels: 1) long-term training overseas; 2) short-term training abroad: 3) on-the-job training through workshops, seminars and every day working interactions, and 4) the introduction of farming systems research-extension concepts and principles in the undergraduate training curricula within Mali.

EVALUATION METHODOLOGY

This evaluation is the first of three formal external evaluations to be held in years 4, 7, and 10 during the life of the project. It is to assess if the project has attained the expected outputs for Phase I and to make recommendations for future project activities, including expansion of an additional field unit in Region V.

The evaluation was performed under a contract between USAID/Mali and Experience, Incorporated. The team consisted of the following:

Richard Cook, Livestock Specialist
N'Faly Dembele, Economist, IER
Martha Gaudreau, Farming Systems Agronomist
John Lichte, Farming Systems Economist
Donovan Rudisuhle, Finance Specialist
Peter van Schaik, Research Management Specialist and Team Leader.

The team arrived in Mali on October 20 (except Rudisuhle who arrived November 3) and departed November 15, 1989.

Details of the schedule of conferences, field trips, etc. are shown in Annex I.

After an initial period of general review of documents, meetings with USAID and GRM officials and travel, the team agreed to treat the evaluation in five broad categories:

1. Institutional organization and management
2. Program development and implementation
3. Training
4. Financial management
5. Future considerations

Team members Cook and van Schaik evaluated the institutional organization and management issues and training, while Gaudreau and Lichte concentrated on program development and implementation. Rudisuhle evaluated the financial management aspects. Dembele assisted all team members, specifically in the institutional organization and training areas. The Project Paper and its Logframe were used as guidelines in the evaluation process.

FINDINGS AND CONCLUSIONS

Malian research activities started in 1985, but no Mali FSR/E Project support, including personnel, arrived until mid-1986. Between 1986 and 1989 the U.S. technical advisory team has had several personnel changes, as did the Malian team. In spite of such setbacks and delays, significant progress has been made.

The time frame of project operations against expected and realized accomplishments was kept very much in mind by the evaluation team. The recommendations for institutional organization and management are based on the need to separate management and leadership at the national level from individual research project operations. Many of the recommendations for program development and implementation should be seen in the light of a rather new project in which the individual participants are just beginning to work as a team.

1. Institutional Organization and Management:

Findings, Conclusions, and Recommendations

DRSPR headquarters has been relocated to Bamako as proposed in the project paper. It is currently sharing facilities with the DRSPR/OHV research team. To further strengthen DRSPR's capacity to effectively coordinate and manage a national farming systems research program, the evaluation team has concluded that there should be a physical separation of DRSPR headquarters from its research teams' locations.

According to the project paper, one of the tasks of the Chief of Party of the Technical Assistance team is to serve as research management advisor to the head of the Farming Systems Research Division Chief. It is the conclusion of the evaluation team that none of the three TA's in that position have been research management specialists or have served in that capacity at the Division level. The evaluation team recommends that a new research management TA position be established at the Division level and that the Chief of Party continue to work at the DRSPR/OHV team level and be designated counterpart of the DRSPR/OHV team coordinator. The evaluation team feels that there should be more evidence of coordination among the component disciplines of DRSPR/OHV in priority setting, in research planning, and in program execution, and that TA at the team coordination level would improve its functioning.

The evaluation team concluded that a completely separate, independent library at DRSPR headquarters would be costly to establish and maintain. It would be a duplication of existing library facilities and would not be sufficiently complete to meet the needs of all DRSPR research teams.

Data management services have focused on support for DRSPR/OHV; however, in the future there will be a need to begin developing a data management information system at the Division level and establish more formal linkages with other IER divisions (Technical Studies Division (DET), Planning and Evaluation Division (DPE)), adding an additional burden on present staff. The evaluation team, therefore, recommends that the TA data processing position be extended for at least three years with priority given to consolidating data services at DRSPR/OHV and initiating service and training for other DRSPR research teams.

Although there are established and functional review committees, there is no formal process for monitoring administrative data and project impact which will facilitate future project evaluation. There has been no procedure for the routine diffusion of

management information among the different parties involved in project implementation. The evaluation team recommends that DRSPR identify specific, quantifiable objectives which would serve as criteria for program monitoring and program and impact evaluation.

2. Program Development and Implementation:

Findings, Conclusions, and Recommendations

The evaluation team notes that interdisciplinary activity in DRSPR/OHV has markedly improved over the last two years. Indications of this include the significant contributions of the economic unit in the form of ex post analysis of all on-farm research, and joint research trials conducted by the animal science and agronomy units. With recent changes in personnel, additional steps are needed to assure that there is continued interaction between the disciplines. The evaluation team recommends that DRSPR/OHV undertake more informal reconnaissance surveys as an integrated team, produce a single report identifying predominant farming systems, constraints and opportunities for research, and establish joint research priorities.

The DRSPR/OHV research team has established a farming systems research program in eight villages representing the four ecological zones in the OHV region. While commending this initiative, the evaluation team is concerned that DRSPR/OHV is spread too thinly over a wide geographical area and that this may affect research quality and reduce the amount of time researchers spend with farmers. The evaluation team recommends that DRSPR/OHV establish a more realistic work program that assures adequate field time while taking into account limited resources, both personnel and financial.

Agronomic trials have been successfully conducted over the last two years with a significant improvement in their design. The DRSPR/OHV team has established mechanisms for including the farmers in the research planning and evaluation process. Working relationships have been established with other Malian agricultural research and extension organizations.

The evaluation team commends DRSPR/OHV for its efforts to include women's issues into the Mali FSR/E project by conducting on-farm research with female collaborators and hiring women. Since the women currently associated with DRSPR/OHV are not civil servants, they cannot benefit from long-terming training. Therefore, the evaluation team recommends that an additional scholarship be added to the long-term training program or the scholarship being allocated to DET (one of the two remaining scholarships in the training budget) be designated for a woman who would be assigned to DRSPR upon completion of her studies.

The Data Processing Unit is handling large quantities of data due to baseline data collection and increasing on-farm activity. The evaluation team concluded that DRSPR/OHV needs to establish research and data collection priorities to meet specific

objectives of the research plan. It also needs to develop a well defined system for data flow.

Training in statistical analysis techniques and the use of statistical software packages is being increasingly requested by other DRSPR research teams and Divisions within IER. Given the absence of a statistician and time constraints of the agronomists and Data Processing Unit staff, the evaluation team suggests that SECID arrange for a short-term consultant in statistics to meet this demand.

Geographic Information System (GIS) mapping is not essential to DRSPR and DRSPR/OHV central objectives. The evaluation team recommends that these activities should be curtailed until other priorities have been achieved.

It appeared to the evaluation team that DRSPR/OHV has no clear strategy for evaluating project impact. Project personnel did not seem to know how they would use baseline information or how comparisons would be made to indicate change over time. The evaluation team recommends that an impact monitoring plan be quickly established.

DRSPR/OHV researchers report their research results in the Technical Commission reports. The evaluation team recommends that funds from the publication budget be used to produce publications that can be used by OHV and other development organizations.

A number of effective, working linkages have been established between DRSPR/OHV and research workers within IER and other research and development organizations. In order to assure continued collaboration and good will, the evaluation team recommends that more detailed agreements be negotiated that elaborate roles, responsibilities, and obligations of each party involved.

3. Training:

Findings, Conclusions, and Recommendations

It was clear to the evaluation team that an effective training program is critical to achieving project objectives. Each component of the program, local training, study/observation tours, short-term overseas training, and long-term degree training, is intended to fulfill specific training and institution building needs and objectives.

There has been in-service training in the use of computer soft-ware--word processing, data base management, statistical software and various utilities. DRSPR/OHV researchers, administrative staff, accountants and secretaries routinely use the project's microcomputers in their work. In addition, a field staff of about two dozen people has been trained to collect socioeconomic and agronomic data and monitor trials.

Formal local training seminars and workshops (such as the statistical analysis workshop conducted in 1988 and the on-farm research seminar in 1988) have not played an important role in the training program to date. The evaluation team recommends that a

senior research team member should be responsible for coordinating local training activities and for elaborating a training plan as part of the project's annual workplan.

Study/research training programs for students of agricultural training institutions have been quite successful and should be continued.

All the DRSPR/OHV researchers and some field staff have successfully participated in short-term training courses in the U.S. and third countries. The training has primarily centered on FSR/E methods, financial management, and relevant statistical software programs. No senior researchers or GRM staff from outside DRSPR have benefited as proposed in the project paper.
No training opportunities have as yet been identified at the International Agricultural Research Centers. The evaluation team recommends that active collaborators with DRSPR/OHV be involved in identifying short-term training needs and have the opportunity to participate.

Seventeen Malian participants have been sent to the U.S. for long-term M.S. and Ph.D. Two have completed M.S. degrees and another is scheduled for completion this spring. Because of anticipated extensions in the remaining academic programs, the long-term training will incur additional costs. While the residual training budget contains sufficient funds to cover the costs of students currently in the US, as well as the last two participants who have not yet been sent, long-term training will absorb approximately 93 percent of all training budget funds. No funding would be available for additional short-term training abroad or in-country. This would mean that a significant portion of the short-term training objectives would not be accomplished.

Project management must have adequate financial information in order to establish training priorities in a fiscally sound and responsible manner. The contractor has been quite effective in implementing the degree training program, but improvements in the flow of financial information among the project, the contractor, and USAID are essential if the project is to effectively manage the training program in response to evolving program needs.

4. Financial Management:

Findings, Conclusions, and Recommendations

The evaluation team performed a brief examination of the accounting system and records, the derived financial reports and control mechanisms. Except as noted below, the system appears to be very well designed and maintained. The review conducted by the evaluation team concluded that the internal controls in place at the project accounting office are adequate to insure the proper recording of transactions and the production of project assets.

The computerized system that presently controls all project disbursements and consolidates them with expenditures is inappropriate as a long-term means of processing accounting data. Alternative systems have been proposed, but decisions should be made

by person(s) responsible for its implementation. The team found the training of accountants to be quite good.

The detailed isolation of different types of expenditures is fundamental to the proper management of a project. The evaluation team recognizes that USAID controller's reports are not designed to be management tools, a view not held by the USAID/Mali Controllers Office, but only to serve the purpose of integrating project expenditures into a larger framework of Mission activities. The evaluation team recommends that the USAID Controller's office evaluate whether it would be useful to have its pipeline report expenditures classified in such a fashion that would be useful for comparing actual expenditures to the amounts budgeted.

In March of 1989, the report "Summary of Disbursements by Projects" was discontinued and replaced with a different report which does not provide the same level of detail. The effect of this change was an interruption in the recording of expenditures by the project as sufficient detail to classify expenditures was no longer readily available. USAID should provide the project accounting office with a monthly detailed listing of all disbursements which includes the payee and purpose of each expenditure.

The evaluation team noted that information regarding expenditures effected by SECID in the United States is not reaching the project accounting office on a timely basis. SECID should report all disbursements and other relevant financial information required by the project on a timely and detailed basis in order to allow for prompt preparation of consolidated financial statements.

The evaluation team noted that GRM contribution to recurrent costs has consisted largely of personnel, and that to date the GRM has failed to meet even half of its commitment as set forth in the Project Paper. The evaluation team recommends that USAID should enter into further discussions with the GRM to see if there is any way that the number of civil servants provided to the project can be increased to the levels laid out in the Project Paper.

Aside from concerns regarding the funding of training activities currently being undertaken by SECID, the team found no other evidence that points to a potential shortfall of financial resources, provided that the expansion to the Fifth Region is postponed. The evaluation team recommends that USAID, the GRM and project management should review all line items which show significant variances against budget and prepare a new updated budget which reflects the latest developments in the evolution of the project.

5. Project Expansion into Region V:

Findings, Conclusions, and Recommendations

The evaluation team found interest and determination to proceed with expansion of FSR/E activities into the Fifth Region. There also was concern regarding resource

availability, particularly regarding the availability of qualified staff, and operational needs.

The evaluation team did not have an opportunity to visit the Region V and make an on-the-ground assessment; however, after a careful review of secondary information regarding Region V, personal communication with the author of the feasibility study and an assessment of the present situation and future needs of DRSPR (the Division) and DRSPR/OHV, the team can only conclude that the expansion of FSR/E activities to Region V should not be undertaken at the expense of efforts to strengthen operational capabilities of the Division and DRSPR/OHV as recommended in this evaluation. The evaluation team cannot recommend expansion into Region V at this time.

LESSONS LEARNED

1. Participant Training: Major problems repeatedly arise in USAID's participant training components of technical projects. The months allowed for M.S. and Ph.D. programs are never sufficient, causing delays in the return of participants and severe cost overruns of project budgets. The delays also cause professional personnel to return when U.S. technical assistance has terminated or nearly so. This problem can easily be solved by adopting more realistic time schedules for trainees and by having the participant training phase implemented before the technical assistance phase.

2. Evaluation Procedures: Evaluation team members should receive at least the Project Paper and preferably other background documents prior to arrival in Mali for a project evaluation.

The expansion to Region V was a major issue during the evaluation. Expecting the evaluation team to make a pronouncement on this without visiting the region was not realistic.

Based on the experience of this evaluation, the team proposes the following sequence of activities to permit USAID to estimate realistic contract length to perform a project evaluation.

Prior to arrival in country: project paper and supporting documentation sent to team (1 week prior to departure)

Initial meetings and planning of field work, collecting and reviewing project documentation (1 week)

Field Work (2 weeks--variable depending on the complexity)

Analyses and consolidation of information (1 week)

Presentation of preliminary results and discussions (2 days)

Correction, Revision, and Completion of Draft (1 week)

This represents five weeks plus several days in-country. It allows sufficient time for analysis after visiting field sites and time to verify issues raised during the discussions when preliminary findings are presented.

PROJECT IDENTIFICATION DATA

1. Country: Mali, West Africa

2. Project Title: Farming Systems Research and Extension

3. Project Number: 688-0232

4. Project Dates:
   a. First Project Agreement: 1985
   b. Final Obligation Date: FY 1984 - Planned
   c. Project Assistance Completion Date: 30 September, 1994

5. Funding to Date:
   a. AID Bi-Lateral Funding: $ 11,002,000 (as of 10/31/89)
   b. Other Major donors: None
   c. Host Country Counterpart Funds: $116,500
   d. Total: $11,118,500

6. Mode of Implementation: AID Direct Contractor, Southeast Consortium for International Development, SECID

7. Project Designers: USAID/Mali, GRM, REDSO/WCA, various consultants

8. Responsible Mission Officials:
   a. Mission Director: USAID/Mali
   b. Project Officers: ADO, USAID/Mali

9. Previous Evaluations: None

1.0 INSTITUTIONAL ORGANIZATION

Introduction: The Institute for Rural Economy (IER) is the national agricultural research organization in Mali. It was established at independence and given responsibility for all crop research activities in the Ministry of Agriculture. Livestock, forestry, and hydrology research are conducted by a separate institute in the Ministry of Livestock and Natural Resources. Research on agricultural mechanization is done in the Division of Agricultural Engineering within the Ministry of Agriculture which is not part of IER.

The IER is headed by a Director-General who oversees the activities of six Divisions: Agronomic Research (DRA); Farming Systems Research (DRSPR); Technical Studies (DET); Planning and Evaluation (DPE); Documentation and Information (DDI); and Administration and Finance (DAF), each headed by a Division Chief.

Farming Systems Research was initially established in 1977 as a cell within the Agronomic Research Division but was elevated to full Division status in 1979. The Division has three interdisciplinary research teams at present with near future expansion planned for two more and long term plans for as many as eight. Presently active research teams are the Operation Haute Vallee (OHV) team, DRSPR/OHV, operating from Bamako; the Fonsebougou team, headquartered in Sikasso with active long-term Dutch support; and the Bougouni team, formerly supported by Canada but now in a state of transition. The two additional research teams anticipated in the near future are in Region V, the proposed expansion of the present USAID supported Farming Systems Research and Extension Project, and in Region IV with World Bank support.

The purpose of the Mali Farming Systems Research and Extension Project is to provide institutional management support to IER and its Division of Farming Systems Research (DRSPR)[1] by expanding and increasing the effectiveness of its research program. The Project strategy is based on:

- Strengthening of national coordination and improving linkages among nationally oriented institutions for policy setting and planning

- Support and assistance at Division level for management and coordination of technical programs by providing material support and staff assistance to the Division Chief including long-term Technical Advisors (TA's) in research management, financial management, and data processing.

- Support and assistance at the Project level for planning, executing, and evaluating specific technical programs. Long-term Technical Advisors in Agronomy and Socio-Economics are included.

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[1] The Farming Systems Research Division of IER, DRSPR, will be referred to throughout this document as DRSPR or the Division to distinguish it from the Bamako based research team DRSPR/OHV.

The Farming Systems Research and Extension Project Plan visualized and called for a physical and functional separation of DRSPR headquarters from its field units in Region II (present USAID supported project) and in Region V (projected expansion of USAID supported project). This demarcation included a clear distinction of headquarter staff from Field Unit staff, and separate Technical Advisors for each. DRSPR headquarters would receive 3 TA's in the areas of research management, financial management, and data processing while in the Region II Project, two TA's would assist in agronomy and socio-economics.

DRSPR headquarters was to move from Sikasso to Bamako to insure improved coordination and communications among its expanding project activities and between it and other researchers and administrators, in the Mali system. A new Division facility was to be built at the Sotuba site of the National Livestock Research Center.

Findings: At present the Division Chief of DRSPR is also the Director of the USAID FSR/E Project. The headquarters of DRSPR has moved from Sikasso to Bamako but since new buildings had not been constructed, joint facilities were rented for occupancy by both the Division and DRSPR/OHV. New facilities are now under construction in Sotuba, the site of the National Livestock Research Center just East of Bamako and should be completed in the near future.

With the Division Chief of DRSPR serving as Director of DRSPR/OHV, and with the Division headquarters and the DRSPR/OHV research team located in the same building, functional responsibilities and distinctions between staff and TA's for the Division and the research team have been lost. As a result, the functions of DRSPR as the overall management and coordination unit for multiple research teams have only materialized to a limited degree.

The Technical Advisors for financial management and data processing have served almost exclusively at the level and in support of DRSPR/OHV. Financial management processes have been developed for DRSPR/OHV. Accounting, and other monitoring systems have been set up to satisfy GRM and USAID requirements, but no process is available to assist the DRSPR Division Chief in financial management of the several other projects under his jurisdiction. The data processing unit at DRSPR/OHV has been set up and staffed (for other considerations on Data Management see Section 1.5). However, the unit cannot as yet serve other DRSPR Projects with equipment, program operational needs or training of personnel.

The research management TA, although organizationally shown at the Division level has functioned more as Chief of Party and technical specialist at the research team level. This position was described in the project paper as research management advisor to the head of the Farming Systems Research Division (DRSPR). In fact, none of the three TA's in that position have been research management specialists or fulfilled the advisory role at the Division level as foreseen in the project paper. The TA's for agronomy and socio-economics have functioned as intended in the DRSPR/OHV.

Conclusions: There is no question that much has been achieved in the basic organization and functioning of DRSPR and the DRSPR/OHV research team in all areas where the USAID-supported FSR/E Project envisioned to have an impact. The Division and DRSPR/OHV have been sharing common facilities and administrative personnel resulting in program support for strengthening the DRSPR/OHV research team and not for developing a divisional headquarters to manage several research teams on a national basis.

The evaluation team concluded that the Division needs to be strengthened to more effectively perform its national role and that this can be best accomplished by a physical separation of the Division (DRSPR) from its research teams' locations. The new buildings in Sotuba are almost completed and the Division Chief can occupy them along with a core staff in the areas of: program planning, information services, financial services, and data processing. While the evaluation team recognizes the concerns of the GRM and USAID that this move would be too costly and inefficient, the evaluation team feels that the move is essential to developing an effective managerial and coordinating capacity at the Division level to manage an increased number of regional teams.[2]

Three TAs will be needed to provide advisory services. A full-time TA for Research Management, and part time TAs for Financial Management and Data Processing. The latter two can be shared with the present DRSPR/OHV activities, the Research Management TA will have to be a new position. The Research Management TA should be working at the divisional level with a qualified Malian counterpart who is responsible for the technical program and research management planning section of the Division.

This new and separated arrangement will allow the Division Chief to focus his attention and talents on the total array of national FSR/E activities, present and future, and coordinate several international donors. It also will remove the sense of sole USAID domination in the area of DRSPR organization and management.

At DRSPR/OHV, the evaluation team sees no need for major changes. Technical Assistance is now directed at the research program level and should remain so. The TA team and their research counterparts, should have minimal administrative involvement.

RECOMMENDATIONS

A physical separation of the Division (DRSPR) and DRSPR/OHV facilities and staff should be affected in the near future. The facilities now under construction should become the DRSPR headquarters.

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[2] Informal communication with other donors financing regional research teams indicated that there may be interest in multidonor participation in financing a Division headquarters that would then be seen as independent of any one donor.

Technical assistance at the Division level should be provided for technical program and research management planning; financial management; and data processing. The Research Management TA, a new position, should be working at the divisional level with a qualified Malian counterpart appointed by the Division Chief. The data processing TA contract should be extended for three years to adequately handle the needs of DRSPR/OHV, of the Division and of other research teams within DRSPR. This will also give GRM time to fill needed staff positions with adequately qualified and trained personnel.

The GRM should make a greater effort to assign qualified Malian civil servants to fill staff positions at the Division and at the DRSPR/OHV research team.

1.1 NATIONAL COORDINATION

Findings: The success of DRSPR headquarters depends on its ability to effectively coordinate diverse FSR/E research teams, which are supported by several international donors.

With DRSPR sharing facilities with the DRSPR/OHV research team in Bamako, a major share of the director's time has been occupied by DRSPR/OHV activities. He is fully familiar with the other projects presently under his jurisdiction, but has little direct involvement in policy or management issues of their programs.

Conclusions: The evaluation team concluded that there is a need to reinforce a national capacity to manage FSR/E programs in Mali. The physical separation of the Division from its DRSPR/OHV research team may accomplish this if technical and administrative staff have well-defined responsibilities. The emphasis should be on as much administrative uniformity and coordination among research teams as possible.

RECOMMENDATIONS

Division level staff should have clearly delineated technical and administrative responsibilities, to implement uniform procedures for all research teams, including personnel, finance, data processing, and training.

The Chief of Party and the Research Manager should be two separate TA positions: The Research Manager TA and his/her Malian counterpart should assist the Division Chief to better coordinate activities between the different research teams.

1.2 DRSPR/OHV TEAM COORDINATION

Findings: There have been significant changes and turnover in both Malian and TA staff since the DRSPR/OHV team was established. This can account to some extent for the observation that it has not functioned as a fully coordinated working unit.
The TA Chief of Party has not provided the support and advice necessary to increase the management and coordination skills of the DRSPR/OHV coordinator. This is in part due to the dual role of advising both the Division Chief and the Coordinator as well as to the repeated changes of personnel in this position.

Conclusions: The evaluation team feels that there should be more evidence of coordination among the component disciplines of DRSPR/OHV in priority setting, in research planning, and in program execution. This type of coordination will lead to more efficient use of limited research resources and contribute to improving the quality of research results.

RECOMMENDATION

The Chief of Party of the SECID technical assistance team should be designated as the counterpart of the Malian coordinator to help strengthen program planning and coordination at the research project level.

1.3 AREAS OF FORMAL LINKAGES

Findings: Linkages from or to farming systems research and extension can be categorized in the following groups:

a) FSR/E and commodity or subject matter research
b) FSR/E and extension agencies
c) FSR/E and training institutions
d) FSR/E and national planning and policy making agencies
e) FSR/E and regional and international research institutions

a) The linkages between DRSPR/OHV and subject matter or commodity researchers are mostly informal. In the case of collaboration within the IER system (between DRSPR and other Divisions of IER), collaboration appears to be good and functioning well. Between DRSPR and agencies outside IER (Division of Agricultural Mechanization (DMA)) or outside the Ministry of Agriculture (National Institute of Livestock, Forestry, and Hydrobiology Research (INRZFH)), it is subject to interagency management problems related to per diem rates, vehicles, equipment, etc. Since in the former case all personnel and programs are under the direction of IER authority, no formal documents or contracts are considered to be necessary. In the latter, more formal protocols or cooperative agreements may be necessary to spell out obligations and contributions of both parties.

b) There is a formal cooperative agreement between DRSPR and OHV. This collaborative linkage is functional and is the basis for extensive cooperation between DRSPR, DRSPR/OHV and OHV. A recently initiated support project for OHV (DHV) is expected to strengthen this linkage. Other cooperative agreements signed directly between IER and development organizations affect all Divisions within IER including DRSPR.

c) The linkage between the FSR/E Project and training institutions is reported elsewhere (see 3.0 Training).

d) A linkage exists between the Division of Planning and Evaluation (DPE) of IER and the Food Sector Strategy Commission (CESA) and the liberalization of the cereals market project (PRMC). The future ability of DRSPR to have an impact on national agricultural policy will likely be determined by the linkages between DRSPR and DPE and DET of IER.

e) Linkages between DRSPR/OHV and regional and international research organizations will be discussed in a later section (2.9).

Conclusions: At this stage of the Mali FSR/E Project, linkages, both formal and informal, have been established successfully at various levels leading to functional collaborative relationships. A formal protocol has been signed between DRSPR and OHV. Some cooperation has ended due to disagreements on the terms of cooperation (INZRFH) or due to lack of follow up contact.

RECOMMENDATION

IER/DRSPR should establish linkages in the form of written agreements with INRZFH, Center for Livestock Research (CRZ), the Land Resources Inventory Project (PIRT), and the Forestry and Hydrobiology Research Division (DRFH)), National Livestock Direction (DNE), and Central Veterinary Laboratory (CVL), that will facilitate the collaborative research efforts between these institutions and all DRSPR research teams. These cooperative agreements should detail responsibilities and obligations of the concerned parties.

1.4 LIBRARY

Findings: There is no library at either the DRSPR headquarters or DRSPR/OHV team level. The team was informed that a short term consultant had been requested through USAID and the South East Consortium of International Development (SECID) contract to aid in establishing a library in the new DRSPR facilities.

The IER has a very good library and computerized library system already in place. The DRSPR/Sikasso Project has established a library which is linked to the IER system in a functional and satisfactory manner.

Conclusions: The evaluation team considered the desirability and need for a separate library for DRSPR headquarters and concluded the following: A completely separate, independent library at DRSPR headquarters would be costly to establish and maintain. It would be a duplication of existing library facilities and would not be sufficiently complete to meet the needs of all DRSPR research teams.

RECOMMENDATION

Resources available for establishing a Division level library should be used to establish reference and copy services between the IER library, DRSPR headquarters and field locations. Any basic FSR/E reference materials located at the Division and/or field offices should be organized in a manner that is compatible with the IER documentation system.

1.5 DATA MANAGEMENT: ORGANIZATIONAL AND INSTITUTIONAL ISSUES:

Introduction: A basic element in the project strategy was to strengthen DRSPR as a national planning and coordinating division for applied agricultural systems research programs throughout the country.

A key element in this DRSPR strengthening effort was the provision of resources for the establishment of a data management information system, focusing on the synthesis and analysis of applied agricultural research and extension (adoption) data.

The ability of DRSPR to have a positive impact on agricultural policy will be determined by its capacity to provide DPE with information from analyses of DRSPR applied research data.

Findings: Preoccupation with initial implementation of the DRSPR/OHV's research program has focused Data Management Unit activities on providing data entry and analysis support for the research team. The extensive data collection activities and recently implemented Geographic Information System (GIS) mapping have expanded human resource needs of the Unit. Two additional staff members have been requested (overall project staffing already exceeds project projections). To date, few services have been provided to other research teams within DRSPR or other divisions within IER.

Presently, there is one technical assistant managing the unit whose contract is due to terminate in mid-December, 1989, and three support staff, all project contract employees. To date a Malian civil servant counterpart has not been designated.

Conclusions: Data management services have focused on support for DRSPR/OHV. However, it appears that demands for this service will continue to increase in the future. It is unlikely that resources will continue to be available to meet increasing needs. Data management services must be prioritized not only as a function of research program

needs but also as a function of resource availability. In the future, there will be a need to begin developing a data management information system at the Division level and establish more formal linkages with other IER divisions (DET, DPE), adding an additional burden on present staff.

RECOMMENDATIONS

DRSPR management should elaborate a life-of-project program for the development of data management services at the field and at the Division level. This program should define the terms of reference for the extension of the TA position.

The data processing TA position should be extended for at least three years. Initially, priority should be given to consolidating data services at DRSPR/OHV and initiating service and training for other DRSPR research teams. In the future, the TA position and some staff should be transferred to the Division level.

1.6 MONITORING AND EVALUATION OF PROJECT IMPLEMENTATION

Introduction: The monitoring and evaluation system for the Mali FSR/E project was to provide an effective management process for resolving implementation problems and assessing project progress. The system was to include six components: Mission Management Team, USAID Project Committee, Project Task Force, periodic project progress reports, Project Advisory Committee, and project reviews and appraisals. In addition, monitoring activities were to pay particular attention to: the evolving recurrent cost situation, the effectiveness of efforts to strengthen vertical and horizontal communications, the development of programs addressing women's concerns, and the inclusion of consumption/ nutrition aspects in the development of improved crop production technologies.

Findings:

a. Mission Management Team: Monitoring activities of the Mission Management Team have been the responsibility of the Agricultural Development Office (ADO) and have involved the participation of a senior-level direct hire staff member, an FSN agronomist, and a PSC research agronomist engaged as Project Technical Advisor. Activities were to include backstopping implementation support for the project team and implementation of a special economic assessment to determine the potential benefits of expansion of FSR/E activities into the 5th Region (completed by Michigan State University in 1989).

The evaluation team did not find sufficient documentation that would permit a clear picture of the Mission's role in project backstopping or that would permit an assessment of the Mission's monitoring and evaluation process, ie. meetings, decision-making, and follow-up. Discussions with staff and assessments from occasional project reports and

Mission memoranda on the subject imply that perhaps Mission staff became involved in project "micro-management" to resolve, what in essence may have been, personality conflicts and a Mission perception of professional weaknesses on the part of the first technical assistance team members.

b. USAID Project Committee: In order to provide continuity and coordination within the Mission, USAID established a project committee consisting of the project officer, and representatives from other appropriate Mission offices. The function of this committee was to monitor overall project programs and progress, and provide guidance to the project officer in his support activities for project implementation. This committee was to meet once a month, or as needed. The project committee was constituted, though available documentation would indicate that meetings were not held on a fixed schedule, generally much less frequently than once a month.

c. Project Task Force: The USAID Mission and IER were to establish a Project Task Force consisting of the DRSPR Division Chief, Chief of Party of the technical assistance team, and the USAID project officer. Meetings were to be held bi-monthly and were to focus on assessing program progress, resolving implementation problems, and identifying specific actions to be taken by the concerned agencies (IER, the contractor, USAID). Minutes of these meetings were to be prepared, signed, and forwarded to the Director General of IER and the Director of USAID. A Project Task Force was constituted, however, meetings have not been held on a strict bi-monthly basis, nor have formal, signed minutes been routinely prepared.

d. Project Reports: Periodic reporting by the technical assistance team has been done. Although the project paper specifies the submission of six-month and yearly reports, efforts began in mid-1987 to provide the Mission with monthly reports. In general, this procedure has been continued to date.

e. Project Advisory Committee: A Project Advisory Committee, including representation from IER, the Contractor (SECID), and USAID was formed to provide an opportunity for all project implementation partners to meet informally and discuss general project issues and concerns. These meetings have been held twice a year.

f. Project Review/Appraisals: Project review and appraisal meetings have been held at approximately two month intervals between the Mission's ADO and the Director General of IER. These meetings have informally reviewed project progress and involved discussions concerning agricultural research issues on a national level. Formal minutes of these meetings have not been routinely prepared. IER, USAID, and SECID have also conducted semi-annual project reviews, the recommendations of which have been executed by the Project.

Conclusions: The Project's present monitoring and evaluation system has suffered from a lack of formal structure and process. As a result, the roles and responsibilities of each of the parties concerned in the monitoring and evaluation process have not been clearly defined. On occasion, this has lead to confusion and misunderstanding. The number of monitoring and evaluation committees, both as proposed in the project paper and as

implemented by the project, seem to have substituted for implementation of a formal process. An important omission in the present process is the lack of a formal "feedback" system to track the execution of decisions reached in the various committee meetings. The failure to clearly define the responsibility of each party; project, contractor, IER, and USAID may be one of the reasons for the past tendency of the Mission to get involved in project "micro-management".

RECOMMENDATIONS

DRSPR should develop a more formal process for elaborating programs and activities including how decisions are made, and how programs are to be implemented, monitored, and evaluated. This process should include program budgeting and the participation of the financial management office. All concerned parties (IER, contractors, USAID) must be involved to clearly define their roles and responsibilities.

DRSPR should identify specific, quantifiable objectives which would serve as criteria for program monitoring and program and impact evaluation. This would enable a better means of tracking project progress and assist the project in maintaining a clear programmatic focus.

2.0 PROGRAM DEVELOPMENT AND IMPLEMENTATION

2.1 INTERDISCIPLINARITY

Introduction: The purpose of the Mali FSR/E Project is to develop agricultural technology which is relevant to farmers' needs and circumstances. Because farmers' manage and allocate resources among a variety of on-farm and off-farm enterprises, it is important to work as an interdisciplinary team to be able to understand and appreciate the complexity of farming systems.

Findings: The evaluation team notes that integration of component discipline scientists has improved over the last two years of field activities.

The economic unit which had a tendency in the past to be so involved with baseline data collection has contributed significantly to the animal science research program (improved corrals, the conditioning program), and to the ex post analysis of all on-farm research. The ex post evaluation performed by the economists has been praised by the other research teams of DRSPR.

There is also considerable integration between the agronomy and animal science members of the team. Some of their research programs are complementary such as the use of manure from the improved corrals, and the introduction of forage cowpea varieties.

The team sociologist interacted with the agronomist and animal scientist prior to his departure for long-term training. They conducted a series of informal surveys in the form of case studies. From this information, they developed qualitative models to try to describe the system and component interactions to better elucidate the constraints to production.

The personnel changes in both TA and Malian staff have made the development of interdisciplinarity a difficult task. As personnel leave and are replaced, the team must adjust to different approaches to on-farm experimentation and data collection techniques, different working styles and team dynamics. It takes time to reestablish effective working relationships which are critical to interdisciplinary research.

Conclusions: In the past two years there has been significantly more interaction between the disciplines of the DRSPR/OHV research team. In order to establish a coherent, integrated research program in FSR/E, it is essential that the current technical team continue to improve its interdisciplinary skills.

RECOMMENDATION

The DRSPR/OHV team needs to take steps to become a more integrated, interdisciplinary unit. This may be facilitated by an annual retreat and by specific team building activities. Team building activities might include developing qualitative models that integrate the team's knowledge of the predominant farming systems, and group dynamics exercises that may, if necessary, be conducted by the use of a short-term outside facilitator.

2.2 RESEARCH PLANNING

Introduction: On-farm research activities, particularly when conducted by an interdisciplinary team, often require more logistical support than experimental station research programs. For this reason, research planning and coordination become very important to assure the best use of limited research resources.

According to the Project Paper, it was assumed that time would be the most constraining factor in determining the workplan to be implemented. For this reason, it was assumed that the research team would undertake a core set of activities in which all team members would be involved in joint data collection and analysis supplemented by a limited number of thematic studies.

The PP also calls for the team to have established a 2 year research plan by the end of Phase 1 of the project. This plan was to have been based on the results of the analysis of the baseline data.

Because of recognized personnel limitations and the need to establish an integrated workplan, research planning and TA support for this was to be an important part of DRSPR/OHV.

a. Identification of Research Priorities

Findings: The DRSPR/OHV team did an extensive rapid reconnaissance survey in July and August of 1986. Members of each discipline wrote their own report which was synthesized into one document by someone outside the team. While the report contains a list of priority problems, this list was not established as joint priorities across disciplines. It was, however, used to determine research priorities and identify research themes.

With changes in technical personnel, the new team established a baseline survey that when analyzed would provide new orientations for the research program. Extensive data collection and analysis is continuing so that the results will potentially be in a form useful to the rest of the team for identifying researchable issues late in 1990. Between the initiation of the baseline survey, its analysis, and written interpretation, three years of on-farm research will have been conducted without the benefit of input from this database.

As part of a typology survey implemented in 1988, the team asked farmers to prioritize their problems. Much of this typology survey focused on details of animal traction use. The questions preceding those asking farmers to prioritize problems were on animal traction and equipment use. The farmers identified problems related to animal traction as their most important constraint(s). This may indeed be true, but the survey instrument was biased towards producing this result.

It appears that the evaluation of trials and interventions which the team does each year has perhaps been the most important means of identifying priorities. These evaluations and the learning which has obviously taken place from year to year is a very positive aspect of the project.

Conclusions: The DRSPR/OHV team does not seem to have been able to establish research priorities which are directly linked to long-term objectives. The team still needs to establish its own identity and priorities across disciplinary programs.

RECOMMENDATION

The DRSPR/OHV team needs to establish research priorities as an interdisciplinary team. They need to undertake informal reconnaissance activities implemented as an integrated team producing a single report identifying the predominant farming systems of the area and the priority constraints and opportunities for research.

b. Long Term Programming

Findings: The Technical Commission system used by IER for research in Mali requires a very demanding annual report and workplan that takes an enormous amount of time and effort to prepare. However, this annual planning cycle only provides for short term research objectives.

IER does not use or require a multiple year strategic planning process that may be adjusted annually to take into account changing budgets or other factors.

While the Project Paper requires that DRSPR/OHV prepare a two year research plan, this has never been done.

Conclusions: The DRSPR/OHV team needs to establish priorities according to a longer term planning horizon. The team is so preoccupied with the day to day and season to season activities, that little time has been devoted to a longer term perspective.

RECOMMENDATION

DRSPR/OHV needs to establish priorities with regard to a long term, and medium term plan for the research program and project activities.

c. Geographic Dispersion of Research Activities

Findings: Currently DRSPR/OHV is working in eight research villages (two per zone), 5 additional pre-extension villages, and 1 demonstration village. The project paper specified that the team would be working in 3-5 villages after two years.

Because the researchers have chosen to work throughout the entire OHV region, they must travel long distances, sometimes as much as five hours, to the research sites. This reduces their contact with farmers during the cropping season.

This reduced researcher-farmer contact has lead to more reliance on formal data collecting techniques using enumerators. With a hierarchical information gathering system in the field (enumerators to supervisors ("controlleurs") to researchers), there has been a problem with the timely communication of technical information.

In order to cover the current research, pre-extension and demonstration villages, the team presently has 2 1/2 times the staff planned for the OHV region, most of whom are employed on a contractual basis.

Conclusions: The evaluation team has concluded that the research team is spread too thin over a wide geographical area. The quality of research may suffer because the researchers do not spend enough time in the field. While more careful planning and better coordination of field activities might help to increase the efficiency of personnel

in the region, the sheer size of the zone and the large number of villages the research team is working with directly will always pose a problem given realistic resource constraints. Instead of using expanding resources to cover expanding research activities, DRSPR/OHV should prioritize their activities and use their resource constraints as one of the criteria for establishing their work plan.

RECOMMENDATION

The DRSPR/OHV team needs to organize its work so that the researchers have more contact time with farmers during the cropping season.
The DRSPR/OHV team needs to establish a more realistic work program given the level of personnel and financial resources available. The team should consider alternative strategies for working in the field, for example:

- **reducing the number of field sites**
- **integrating the workplan for the north with that of the livestock sector project**
- **organizing fieldwork to better utilize project personnel and equipment**
- **reintegrating the female research assistants into the Bamako research team with the intention of establishing subteams or antennae.**

d. Research Budgeting

Findings: There is no research budget established for individual research trials or interventions in DRSPR/OHV. Equipment and material needs are established across the programs and purchased in large quantities.

There is no research budgeting system in place within IER. This makes it difficult to determine the actual cost of conducting individual research programs in Mali.

Conclusions: There is no way to evaluate the cost effectiveness of conducting on-farm research nor to use resource constraints as a criteria for establishing research priorities.

RECOMMENDATION

DRSPR/OHV should establish a research planning procedure that incorporates cost accounting for each research program.

2.3 ON-FARM RESEARCH

Findings: There has been a significant improvement in the design of on-farm research in the last two years. Early in the research program, the agronomic research trials were focused on testing existing research recommendations. These tended to be comparisons of whole technological packages versus farmer practice. Now, DRSPR/OHV is testing

components of technological packages to determine which factor is responsible for the effects observed.

A very positive aspect of the on-farm research program that is admired by other DRSPR researchers is that there is a good economic evaluation of all on-farm research results. There is currently no ex ante analysis of proposed interventions to determine their feasibility within limited farm resources.

The DRSPR/OHV team has established an effective formal mechanism for collecting feedback from farmers. Both collaborating and non-collaborating farmers are asked their impressions about the on-farm research activities in the presence of extension personnel and researchers. A written summary of these meetings provides guidance for interpreting research results and reorienting the research program.

The DRSPR/OHV team is to be commended for its efforts to move on-farm research onto women's individual fields. Since most of the women collaborators are selected either from the research or the socioeconomic production units, there is potential for evaluating the intrahousehold impacts of the new technologies.

Conclusions: Interdisciplinary team discussions and ex ante evaluation of proposed interventions would assist the DRSPR/OHV researcher in determining the feasibility of proposed technologies. It would also help in the selection of treatment alternatives. Tests and demonstrations should identify the contributions of individual components within technological packages.

RECOMMENDATIONS

The DRSPR/OHV team should conduct ex ante analysis of potential technologies to be tested, and test the individual components within technical packages.

2.4 RESEARCH OTHER THAN TRIALS

The DRSPR/OHV team carries out a number of research activities other than on-farm trials. These are discussed below.

a. Thematic Studies

Findings: The OHV team has been largely absorbed in doing on-farm trials and baseline data collection. Team members have implemented relatively few thematic studies outside these basic activities. Thematic studies in animal science and sociology proposed in the 1987-1988 work plan were not reported out in the 1988 Technical Commission report. It is not, in most cases, possible to identify reports by DRSPR/OHV which relate directly to these proposals. It is not clear to what extent they were actually implemented.

The team has collaborated with or employed personnel outside the team to implement a number of thematic studies. These include the studies done by students doing their thesis work, and by researchers from DRA and CRZ working in collaboration with DRSPR/OHV researchers.

It should also be noted that there has been a strong thematic orientation to most of the on-farm trials which have been implemented by the team.

b. Women's Program

Introduction: The DRSPR/OHV researchers began working with women's activities in their 1988 on-farm research program. At the end of the field season, 1987-88, an interdisciplinary team of women (two agronomists and one sociologist) was hired to develop a program with both short and medium term perspectives. The women's team along with the DRSPR/OHV team sociologist and an IPR trainee conducted an informal survey in April, 1988. This provided a general idea of the role of women as producers in the farming systems of the OHV zone and identified their production constraints.

The women's team then visited the other DRSPR teams to see how their programs were addressing women's concerns. As a result of this information, a program was developed for the 1988-89 field season which described the agricultural calendar of Bambara and Malinke women in the OHV zone. A student also did research evaluating rice varieties in women's fields. In 1989, a female agronomist was hired to work with the research team out of Bamako. The program has expanded to include studies on specific themes, research trials on women's fields, and interventions in the area of food technology and economic activities.

Findings: The Mali FSR/E project is to be commended for the development of a program that is looking at women's role in rural Mali, and in particular, for putting research trials into women's individual fields.

The expansion of the program has followed a logical progression as more knowledge and experience has been gained.

The women's activities were started initially as a separate program with a separate interdisciplinary team. There has been an effort to integrate the on-farm activities of the women's program into the agronomic activities already underway.

Women collaborators were selected mostly from production units participating in research or socio-economic studies. This choice was to facilitate access to women collaborators.

Female personnel have not been very effectively integrated into the research team and the field staff. There is currently one female researcher and three women functioning as field level enumerators. The women working as enumerators have degrees from IPR or equivalent institutions. They have had two field seasons of experience with a lot of

support from the research staff. Since the total research program is extremely ambitious for the technical staff available, there may be some alternative strategies for integrating these women into the technical team.

Conclusions: In general, the progression of activities undertaken to include women's issues in the Farming Systems Research Project has been logical and is expanding as knowledge and experience is gained. The women's program is being integrated into the agronomic programs. Working with women can potentially provide DRSPR/OHV with information that will permit intra-household analyses to be performed. This will provide the opportunity for more integrated work.

RECOMMENDATION

DRSPR/OHV needs to explore more creative ways to integrate women into the research team and field staff.

2.5 DATA COLLECTION

a. History and Sampling

Findings: Data collected by the first DRSPR/OHV researchers have been largely ignored and discounted by subsequent teams. There have been frequent changes in survey instruments, sample villages, and data collection techniques since the initiation of socio-economic studies in DRSPR/OHV.

There has been a strong imbalance towards formal rather than informal data collection techniques.

The team has or has had 4 different series of questionnaires for data collection, each coming from a different disciplinary program. Farmers complained about the time spent responding to multiple series of questionnaires. The field staff has also complained about insufficient time to conduct all the surveys.

DRSPR/OHV was commended for the excellent quality of their data at the 1989 Technical Commission.

The data processing TA has established a system of having the enumerators write information concerning their experiences and their lives in the villages so that the researchers can benefit from the intimate knowledge of the people and villages gained by the field staff.

b. Socio-Economic Studies

Findings: The major activity of the team economists has been the collection and analysis of baseline data. People interviewed, both inside and outside the project,

believe that data quality has improved markedly from previous efforts. The economists have worked hard to make this happen.

Analysis of baseline information will be useful in verifying or refuting researchers' hypotheses. Results from the baseline, expected perhaps at the end of 1990, will arrive too late to have much impact on reorienting agronomic and animal science research, which have already developed a strong organizational and thematic orientation.

There is no socio-economic work being done in the research villages (past and present), the pre-extension villages, and in neighboring villages to determine the level of farmer adoption and adaptation of technologies tested by DRSPR/OHV.

The OHV bases its extension strategy on working with village associations and/or groups of (approximately 15) farmers organized around a contact farmer. There has been no socio-economic investigation of these groups who are the logical targets of demonstrations/verification trials, or how those might be implemented.

Conclusions: The DRSPR/OHV has gone through 3 changes in team, research villages and sample of production units. These changes have increased research coverage across zones in the OHV region and the heterogeneity of the research sample. These changes appear to have hindered the development of in-depth knowledge of the structure and functioning of farming systems in the OHV region. The perceived quality of data collected has increased sharply in the last two years, improving team and project credibility. The lack of an integrated team approach to data collection impedes interdisciplinarity. The economists need to finish the baseline survey so they have time to more fully integrate into other team activities, particularly working in farmers fields with other researchers, extension personnel and farmers. Very limited use has been made of informal data collection techniques. Lack of time and human resources have severely limited the special studies which have been completed in addition to the baseline studies and agronomic tests. The team needs to establish research and data collection priorities leading to a more integrated data collection approach.

RECOMMENDATIONS

The DRSPR/OHV team needs to prioritize data collection according to long, medium, and short term project objectives. Data collection should be limited to that required to meet specific objectives of the research plan, of program monitoring and evaluation.

The DRSPR/OHV should work as a team to develop minimum data sets that will facilitate interpreting research results, refining technology recommendations for extension organizations, and monitoring and evaluating project impact.

The DRSPR/OHV should institute a better balance between formal and informal data collection techniques.

The economists need to get beyond the baseline survey and be more integrated into team activities. For economic studies or for baseline data collection, contracting to outside agencies such as DET and DPE should be considered.

2.6 DATA MANAGEMENT

a. Management of Data Flow

Findings: Data flow within DRSPR/OHV is organized in a very hierarchical manner. This hierarchial system serves the purpose of facilitating data collection over a wide geographical area.

The DRSPR/OHV system for managing data requires that it be handled by several levels of personnel within the project:
village level enumerators, supervisors ("controlleurs") at the zone level, researchers, and data analysis unit personnel. In addition to this internal system, DRSPR/OHV uses extension agents to collect a very limited amount of data in the pre-extension villages.

To facilitate data entry and data management, all data collection has been organized into multiple forms that are filled in and returned to the main office periodically during the season.

It appears that once questionnaires and data collection sheets are developed in Bamako, the procedures for getting them to and from the field are based on a collegial system. The informality of this data flow system has sometimes led to delays in retrieving and processing questionnaires. The same informality in addition to the multiple series of questionnaires has led to the work overload of the enumerators.

Conclusions: The roles and responsibilities of the different personnel in this data management system are not always well planned and clearly defined. The system for getting questionnaires to the field and back to the office for data entry primarily falls on some combination of the researchers and supervisors ("controlleurs"). But on exactly whom is not always clear. The workload of the enumerators indicates that better planning and prioritization of data collection is needed to allow the system to function effectively.

RECOMMENDATION

The DRSPR/OHV needs to develop a well defined system for data flow within the project. Data management should be developed as part of the research program taking into consideration resource limitations.

b. The Larger Role of the Computer/Data Processing Unit

Findings: The computer center/data processing unit was established to provide computerized data processing and analysis services to DRSPR/OHV and DRSPR. This aspect of making the computer center/data processing unit function has been achieved. Large quantities of data are being collected in the baseline survey. The socio-economics staff will not have time to process this data without a lot of help from the data processing staff.

The Sikasso research team has asked for help in establishing their data processing unit and for training in data entry and processing.

The services of DRSPR/OHV personnel in statistical consulting have started to be time consuming. In the absence of a statistician in the data processing unit, the research agronomists have been teaching statistical skills.

Conclusions: There will be increasing demands on the time of the data processing unit for handling baseline data and training both within DRSPR/OHV and within the division. Given the absence of the statistician and the time constraints of the research agronomists, outside help will be necessary for future training in statistics.

RECOMMENDATION

SECID should identify and make available a short term consultant in statistics to help with training in experimental design and analysis.

c. Geographic Information System (GIS) Mapping

Findings: In recent months the data processing unit has become heavily involved in GIS mapping activities. GIS mapping is a useful and exciting technology which is very much in vogue. The use of GIS requires the input of large amounts of data. Data requirements tend to increase exponentially as users desire to generate more maps with increasing levels of detail.

The data used to generate the computerized maps has been solicited from Land Resources Inventory Project (PIRT). PIRT has provided non-computerized mapping services for other research teams of DRSPR.

Conclusions: It is not clear that DRSPR is the appropriate location within the Malian governmental structure for GIS mapping activities. Several other agencies like IPG and PIRT appear to be more appropriate locations. GIS mapping is not central to DRSPR's or DRSPR/OHV's main objectives. Providing data processing services to DRSPR/OHV, training to other DRSPR research teams, strengthening linkages with collaborating agencies via similar training, and inter-regional analysis are the primary functions of the data processing unit. These should be given priority over GIS activities

and GIS activities should be curtailed until these other activities have been satisfactorily achieved.

RECOMMENDATION

The data management unit should give priority to processing DRSPR/OHV data and to providing computer/data processing training for other DRSPR research teams, other divisions in IER and collaborating institutions. GIS activities should be curtailed at least until these priority activities have been achieved.

2.7 MONITORING AND EVALUATION

a. Monitoring Important Decisions

Findings: DRSPR/OHV has not documented many of the important decisions made during project implementation. These decisions include the choice of number and location of the research villages and the number of field personnel employed. This has serious implications for the scope and quality of research, as well as for recurrent costs.

Changes made in the DRSPR and DRSPR/OHV research plans by the Technical Commission have not been documented. The same is true for research results that have not been accepted.

Conclusions: An administrative monitoring system needs to be established to document changes in program implementation and evolution as a result of both internal and external decisions. This will inform people why the team takes certain actions and will be useful in future evaluation.

b. Impact Evaluation

Findings: No one in the project could verbalize a succinct strategy for evaluating project impact. The recently departed Economic TA was the person most likely to have a strategy in mind, but he was not available to the evaluation team.

A rather heavy baseline exists for the 8 research villages but there is no socio-economic data collection presently taking place in the pre-extension and demonstration villages that can be used to determine project impact. Data exists from previous studies but there is no plan to use this information.

There is no data collection taking place in neighboring villages of past and present research villages for use in evaluating spontaneous adoption.

It is not obvious that secondary sources of information are being used for information about the OHV region which could substitute for large-scale data collection by the field teams.

Conclusions: The DRSPR/OHV needs to consider using periodic structured, but informal surveys as a basis for an important part of impact monitoring. Such surveys can identify the percentage of farmers using a particular technique or technology, changes in constraints over time, changes in the farming systems, changes in family status, etc. The OHV is just beginning the start up of its new project phase (DHV). Since this is also an AID financed project, it certainly will have some of the same needs concerning impact evaluation data that DRSPR/OHV has. It should be possible to negotiate collaboration such that a single data collection effort could serve the needs of OHV/DHV and DRSPR/OHV. DRSPR/OHV needs to elaborate an impact monitoring and evaluation plan very quickly, to negotiate a collaborative arrangement before OHV/DHV launches a program which would not serve the needs of DRSPR/OHV.

DET might also be contracted to collect such data at whatever level was deemed most appropriate.

RECOMMENDATION

The Project needs to quickly establish an impact monitoring plan. This plan needs to be based on a minimum of data for a very few essential factors.

DRSPR/OHV should negotiate a collaborative arrangement with OHV/DHV to provide impact monitoring for both projects.

2.8 COMMUNICATION OF RESULTS

a. Reports/Articles

Finding: In general, DRSPR/OHV uses the IER technical commission mechanism of communicating research results. Results of the previous year are discussed informally with collaborating researchers to prepare the "Propositions du Travail". The resultant research plans are presented to a larger forum (Technical Commission) along with the written analysis and interpretation of the previous year's results. Very often results of survey work are not analyzed for the Technical Commission since preparation time is so limited.

b. IER Research Journal

Findings: According to the project paper, an IER research journal would be published to provide an outlet for communication of research results to a wider audience. There has been one volume of the research journal published in early 1989 but there is no copy available at the DRSPR/Bamako office. In the monthly reports of late 1988, the DRSPR/OHV team were reminded to write papers to contribute to the first and subsequent volumes of the Journal. There is no indication that this activity has continued.

c. CNRST Journal

Findings: Researchers in Mali must produce a certain number of publications in order to receive positive personnel evaluations and subsequent pay raises. The Ministry of Education plans to revitalize the CNRST journal and has asked DRSPR to nominate two members to the editorial committee. This Journal will provide the opportunity for DRSPR researchers to have a wider audience for their work.

d. Technical Meetings

Findings: Several DRSPR/OHV team members have presented papers at both the West African Farming Systems Research Network (WAFSRN) Meetings and at the Farming Systems Research Symposium in the United States. Both of these meetings are considered to be professional meetings of FSR/E practitioners with proceedings that are published.

These meetings have provided the opportunity to exchange information with other practitioners but have also been the impetus for the researchers to do more in-depth analysis and interpretation of their research results than is necessary for the Technical Commission.

The DRSPR/OHV team has also presented papers at technical meetings within Mali such as the International Center for Research in the Semi-Arid Tropics (ICRISAT) sponsored meeting on intercropping, the IER technical meeting on soil fertility research at Cinzana, and the DRSPR sponsored seminar on-farm research. These technical meetings are a more effective way to communicate research results than through the Technical Commission.

e. Extension Materials

Findings: To date there have been limited extension materials prepared for OHV. At the end of the most recent research results Technical Commission, there are several pages of recommended varieties and practices which may be considered to be a technical bulletin ("fiche technique"). It appears that OHV takes the research results directly from the Technical Commission reports and then uses these for extension activities.

Conclusions: There needs to be a more popularized form of research results coming out of DRSPR/OHV. The Sikasso team has produced locally several Bambara language documents in collaboration with Malian Company for the Development of Textiles (CMDT) and the Royal Tropical Research Institute as well as a very professional French language document on training animals for animal traction.

Because researchers are evaluated on the number of technical publications they have produced, DRSPR/OHV researchers should prepare papers for publication in journals such as Agronomie Tropicale, Journal of Sustainable Agriculture, Agricultural Systems, and the working paper series of the Overseas Development Institute (ODI) in London.

RECOMMENDATIONS

The DRSPR/OHV team needs to consolidate their research results into documents that can be used by OHV and other development organizations. Financial support should come from funds earmarked for technical publications.

The DRSPR/OHV team needs to prepare papers for publication in technical journals.

2.9 LINKAGES

Introduction: According to the project paper, the Mali Farming Systems Research and Extension project will attempt to strengthen five types of linkages: Within the research system, Between DRSPR and the extension agencies, Between DRSPR and the principal training institutions, With other organizations charged with agricultural policy and long-term developmental planning, and With regional and international research institutions. These can be summarized as research linkages, extension linkages, policy linkages, and training institution linkages.

a. Linkages with research

Findings: The DRSPR/OHV team has established research linkages within IER especially with DRA/SRCVO. Soil fertility research with both mineral and organic fertilizers, field testing new varieties of cereals, and grain and fodder legumes, and field trips to collect local germplasm for evaluation are the areas in which collaboration has been most active to date. This year there are planned interventions in the area of food technology in conjunction with the women's activities.

Both formal and informal discussions occur between scientists on program evaluation and development. Joint field visits are conducted. DRSPR/OHV scientists participate with DRA scientists in technical meetings organized around specific subjects. While there is always room for improvement, a working relationship with the researchers of DRA has been established.

There has been little collaboration to date with IER/DET. The possibility that some of the more intensive data collection activity of DRSPR/OHV might be contracted out to DET or DPE will be discussed in other sections of this report.

Joint research programs have been established with scientists of INRZFH particularly the Center for Animal Science Research (CRZ), the Central Veterinary Laboratory, and the Division for Forestry and Hydrobiology Research (DRFH). Joint field visits have been conducted, and on an informal level there is a lot of information exchange. Logistical problems have recently surfaced that have interrupted the collaboration particularly with CRZ. Formal agreements between IER and INRZFH could provide a framework within which to resolve such problems.

The contacts between DRSPR/OHV and the ICRISAT-Mali activities have been mostly informal--discussions between researchers, field visits to the Cinzana station, or indirect through the varietal programs of DRA, presentation of papers at ICRISAT organized seminars. The important aspect of these interactions is the networking and exchange of information that occurs.

Members of DRSPR/OHV have visited several West African agricultural research systems particularly those which have some type of FSR/E activities. They have brought back not only information on-farm research but also technical information on themes of interest to their programs.

Several team members have also participated in the West African Farming Systems Research Network meetings. These meetings have provided the opportunity to exchange information with other practitioners but have also been the impetus for the researchers to do more in-depth analysis and interpretation of their research results than is necessary for the Technical Commission.

Conclusions: DRSPR/OHV has established functional linkages with other research divisions of IER and to a lesser extent with research organizations outside the Ministry of Agriculture.

b. Linkages with extension

Findings: DRSPR/OHV has established a close working relationship over the years with both field level OHV personnel and those at the central headquarters.

OHV personnel from Bamako are consulted during the preparation of the workplan, participate in training the DRSPR/OHV and OHV field agents, make joint field visits with the researchers during the season and participate in the evaluation of results.

At the field level, the OHV agents help in farmer selection for the tests and have 50% responsibility for the pre-extension trials. They are responsible for the distribution of inputs and assuring repayment after the tests. It is the OHV agents who are in a position to alert DRSPR/OHV to field level problems since they are more regularly in contact with the farmers. They keep field notebooks with certain information about the pre-extension trials.

While the OHV agents have 50% responsibility for the pre-extension trials, there is no clear definition of roles and responsibilities--who does what, where, and when.

Conclusions: DRSPR/OHV has established strong functional linkages and a close working relationship with both field and office personnel of OHV. There is room for improvement particularly in the delineation of roles and responsibilities in joint field activities.

c. Linkages with policy

Findings: DRSPR has a potential policy role to play that has not been operational to date.

Conclusions: DRSPR has data taken at the farming system level that could be analyzed to determine the effects of policy decisions on farm families. This could be accomplished particularly by cross regional analyses. With the establishment of the Division level data processing unit, the ability of DRSPR to provide this type of information will be greatly enhanced.

d. Linkages with training institutions

Findings: Since the field season of 1986-1987, the DRSPR/OHV team has had students from IPR/Katibougou working on thesis topics in socio-economy, animal science and agronomy. Each of the research topics is part of the on-farm or thematic research programs of DRSPR/OHV. The topic and organization of work is designed to give field experience to the student as well as provide to the project pertinent information about the farming systems in the OHV region. As of the field season 1989-1990, 15 students are in the process of or have completed thesis work within the project.

In addition, several faculty members of Katibougou and CAA have been selected for long-term training on project scholarships. It is anticipated that after their return, these faculty members will integrate farming systems research concepts into the course work at IPR and CAA.

There was a proposal at one point to have DRSPR/OHV team members give occasional lectures at the training institutions but there is no indication that agreement on this type of activity has ever been reached.

Conclusions: The primary link DRSPR/OHV has with the agricultural training institutions is through student field work at the research villages. Until the faculty members sent on long-term training return, there will be no impact on the educational programs of the institutions.

RECOMMENDATION

For each collaborative arrangement (both research and extension) that is established, roles, responsibilities, and resource contributions of the collaborators must be clearly defined. A calendar of joint activities should be established and agreed upon.

3.0 TRAINING

Introduction: The success of the project will ultimately depend on the quality of research conducted by the Malian staff of DRSPR and cooperating agencies. Strengthening the technical capacity of research staff is fundamental to this goal. As envisaged in the project paper, the project will provide three types of training: (1) in-country training; (2) short-term, overseas training; and (3) long-term, overseas training.

3.1 IN-COUNTRY TRAINING

Introduction: The in-country training program envisaged in the project paper contained three main components; (1) daily, on-the-job training; (2) formal seminars and workshops; and (3) training staff and students from local agricultural training institutes in basic agricultural research and FSR/E methodologies.

On-the-job training, requiring the continuous interaction between experienced research staff and less-experienced staff, is the core of a local training program. Such activities must be programmed into the daily execution of research program activities, and therefore, require a coherent and effective program management process and a stable and cooperative research team effort.

Findings: There has been in-service training in the use of computer soft-ware--word processing, data base management, statistical software and various utilities. DRSPR/OHV researchers, administrative staff, accountants and secretaries routinely use the project's microcomputers in their work. In addition, a field staff of about two dozen people has been trained to collect socioeconomic and agronomic data and monitor trials.

Frequent changes DRSPR/OHV staff have not provided have not provided the stable and cohesive environment, which is essential for effective on-the-job training.

The yearly research and extension staff meetings at Samako have been the principal form of on-the-job training for field staff. Discussions with field staff indicated a desire on their part for further thematic and theoretical training.

Formal local training seminars and workshops (such as the statistical analysis workshop conducted in 1988 and the on-farm research seminar in 1988) have not played an important role in the training program to date. Also, limited effort has been made to solicit the expertise of scientists and researchers from other agencies to assist the project in developing a formal, in-country training program.

The local training program has lacked coherence and organized planning. No one has been responsible for planning and without a designated person to do this, no one takes time to establish a plan.

To date approximately 15 students from agricultural training institutions have completed research projects associated with specific aspects of the DRSPR/OHV research program.

These students have benefited from project facilities and resources and have gained experience in data processing techniques.

Conclusions: Improved research program management and a more stable technical staff should provide for a more effective and organized on-the-job training program. Formal local training seminars and workshops have not played an important role in the training program to date. A distinction needs to be made between program implementation meetings and formal seminars and workshops to upgrade the technical skills of project and cooperating agency staff. Study/research training program for students of agricultural training institutions have been quite successful.

RECOMMENDATIONS

A senior research team member should be responsible for coordinating local training activities for DRSPR/OHV.

DRSPR/OHV should elaborate a local training plan as part of its annual workplan. Local training should be based on technical program as well as research and extension staff needs.

DRSPR/OHV needs to develop a more formal system of on-the-job training to upgrade the technical skills of its personnel. This might include a series of mini-courses on different topics.

3.2 SHORT TERM TRAINING AND STUDY TRAVEL

Introduction: The project's short term training program was designed to provide both research and middle and upper-level extension staff with training opportunities at international agricultural research institutions, U.S. universities, and other research organizations. Particular attention was to be given to International Agricultural Research Centers (IARC) to strengthen professional linkages between Malian researchers and IARC staff.

A second aspect of short-term training activities is study/observation tours. This component was to provide senior researchers and GRM decision-makers with an opportunity to visit applied research projects in other African countries. These tours would increase contacts and relationships with counterparts in other countries.

Findings: Approximately 11 person-months of overseas short-term training have been used by the project. All the DRSPR/OHV researchers and some field staff have successfully participated in short-term training courses in the U.S. and third countries. The training has primarily centered on FSR/E methods, financial management, and relevant statistical software programs. None of the short-term training to date has utilized training resources from IARCs. No senior researchers or GRM staff from outside DRSPR have benefited as proposed in the project paper.

Conclusions: Only DRSPR staff have benefitted from limited short-term overseas training and study observation tours. No training opportunities have as yet been identified at IARCs.

RECOMMENDATIONS

Active collaborators with DRSPR/OHV should be involved in identifying short-term training needs and have the opportunity to participate.

DRSPR/OHV needs to identify short-term training opportunities at IARCs (ICRISAT, ICARDA, IITA, ILCA).

DRSPR/OHV should support study/observation tours of African applied research programs for senior IER research and administrative staff and senior staff of other appropriate GRM institutions.

3.3 LONG-TERM OVERSEAS TRAINING

Introduction: The long-term overseas training program was to provide a critical mass of trained personnel in farming systems research in the academic areas of agronomy, livestock, agricultural economics, anthropology/sociology, and agricultural extension. In addition, faculty members from IPR and CAA were to receive training in their respective disciplines to provide agricultural training institutions with the capacity to incorporate FSR/E concepts and methodologies into their curricula.

Findings: Seventeen participants are presently in the U.S. and represent a projected 708 person-months of formal degree training (according to the VPI and SU training schedule report, October, 1989).

While the project paper specified the number of participants by discipline and by institution, this has not been respected in the training program. Only 7 of the 10 projected DRSPR scientists will be trained under the present schedule. Other IER divisions will have benefited from four more scholarships than planned.

The amount of time allocated for advanced degree training has been insufficient resulting in costly extensions. While the residual training budget contains sufficient funds to cover the costs of students currently in the US, as well as the last two participants who have not yet been sent, long-term training will absorb approximately 93 percent of all training budget funds.

There is a lack of sufficient financial management information about the training program at the project level. While the contractor is responsible for implementation of the program, management of the program is clearly the responsibility of the project.

Conclusions: It is clear that effective implementation of the training program is critical to achieving project objectives. Each component of the program, degree training, short-term overseas training, study/observation tours, and local training are intended to fulfill specific training, institution building needs and objectives. With the long-term training absorbing approximately 93 percent of all training budget funds, no funding would be available for additional short-term training abroad or in-country. This would mean that a significant portion of the short-term training objectives would not be accomplished

Project management must have adequate financial information in order to establish training priorities in a fiscally sound and responsible manner. The contractor has been quite effective in implementing the degree training program, but improvements in the flow of financial information among the project, the contractor, and USAID are essential if the project is to effectively manage the training program in response to evolving program needs.

RECOMMENDATIONS

DRSPR management should review the present training schedule and update anticipated staffing needs.

IER needs to assign an adequate number of returned participants to DRSPR.

USAID, SECID, and DRSPR/OHV project management need to make budget adjustments to ensure that long-term participant training does not jeopardize other aspects of project training activities.

SECID should provide DRSPR with timely financial and participant progress information in order for DRSPR to effectively manage the DRSPR/OHV training program.

The evaluation team recommends that an additional scholarship be added to the long-term training program or the scholarship being allocated to DET (one of the two remaining scholarships in the training budget) be designated for a woman who would be assigned to DRSPR upon completion of her studies.

3.4 SPOUSE TRAINING PROGRAM

Introduction: A proposal for a spouse training program for Mali FSR/E project participant trainees was submitted by VPI/SU in 1989. This proposal was discussed with the GRM and USAID/MAli representatives and was endorsed.

There has been increased awareness of the significant role Malian women play in the development process at all levels of society. Many of the spouses of Malian technical personnel already work outside the home and are contributing not only to the social well-being of the household, but also to its economic status.

Many participants obtain permission for their wives to join them in the States. The costs of transportation, maintenance, and insurance are born by the participant. The cost of providing educational opportunities for wives would be minimal compared tc the long-term benefits of such human capital development.

A spouse training program associated with the FSR/E project but using USAID Human Resource Development Funds would provide an excellent opportunity for USAID to increase women's access to continuing education while increasing the number of trained personnel necessary for development efforts in Mali. This program could serve as a model for similar programs to be associated with future AID projects in Mali and throughout Africa where women's access to training opportunities has to date been limited.

RECOMMENDATION

USAID Human Resource Development Funds should be allocated to support the spouse training program that was proposed by VPI and SU.

4.0 FINANCIAL MANAGEMENT

Introduction: The evaluation team performed a brief examination of the accounting system and records, the derived financial reports and control mechanisms. Except as noted below, the system appears to be very well-designed and maintained. The review conducted by the evaluation team concluded that the internal controls in place at the project accounting office are adequate to insure the proper recording of transactions and the protection of project assets. There is a proper audit trail which allows that transactions be traced to the source entry and which facilitates the location of supporting documentation. The financial manager and his staff are to be commended for their efforts in setting up a useful system and in creating a body of expertise within the organization that is capable of properly managing the project's daily operations. The team was generally pleased with the results achieved in this area by the project.

4.1 OPERATIONAL ISSUES

a. Delays in Processing Transactions

Findings: It was brought to the attention of the evaluation team that certain controls instituted by the Financial Management Section have resulted in delays in the processing of routine transactions and thus allegedly interfered with the timely execution of some project activities. The processing of travel advances and requests for vehicle utilization were noted as being the most troublesome for teams travelling to the field on project missions.

Conclusions: After a review of the administrative procedures and internal controls in place in this area, it was the conclusion of the evaluation team that these controls are necessary in order to insure the proper safeguarding of project assets. In short, sound financial management practices dictate the requirement for official approval regarding all commitment of project resources.

RECOMMENDATION

The users of goods and services should be reminded of the importance of allowing sufficient lead time for the examination and approval of expenditures. At a minimum, a period of 48 hours should be allowed in order to provide time for examination and approval and other logistical considerations, such as obtaining funds from the bank and fuel for vehicles.

b. Other Factors Contributing to Delays

Findings: One possible contributing factor to delays in the processing of some transactions is the fact that one permanent GRM member of the accounting staff is presently in the United States for training and will not return for three more years. This person was briefly replaced with another temporary GRM accountant who also departed shortly thereafter on a three-year training period in Canada sponsored by another donor. This position continues vacant and the work load has been distributed to the remaining staff.

Conclusions: This has created particular difficulties in that at present, the same individual is responsible for the cashier's function, including the processing of travel requisitions and the preparation of the budget. This work load is excessive for a single person and may contribute to delays in processing routine transactions.

RECOMMENDATION

The GRM should temporarily replace the individuals who are overseas for long-term training. If this is not possible, the project director should consider the possibility of filling the position with a contractual employee for the duration of the training.

c. Cashier Function

Finding: At present, the cashier's function is not clearly separated from other aspects of general accounting.

Conclusion: This has resulted in some delays in the processing of cash transactions due to the other tasks assigned to the individual responsible for the cash function.

RECOMMENDATION

The project director should consider the possibility of establishing a separate cashier's function, staffed by a person whose exclusive responsibility it is to handle all transactions involving cash.

d. Financial Management Software

Findings: The computerized system that presently controls all project disbursements and consolidates them with expenditures originated externally by USAID and SECID is running on an integrated spreadsheet program known as SMART. This spreadsheet provided an excellent development platform for refining the system during the various stages of its development. However, it is inappropriate as a long-term means of processing accounting data. This is due to the many complex manual operations that are required in order to summarize the activity during the period and to make the transition to the subsequent month. In this sort of a system, there is always a risk of error, although a number of safeguards have been incorporated into its design to provide checks and balances. It is also undesirable in that it requires significant training for its proper operation. There is insufficient documentation and backup support for the system to be learned in the absence of experienced users.

RECOMMENDATION

The project management should consider the alternative of replacing this system with a another one which more closely fits the accounting system's requirements.

OPTION 1

A custom application can be developed using a procedural language contained in one of the many relational databases on the market, such as dBASE IV. The project is currently using PARADOX, and this would certainly be an option, considering that there is some in-house expertise with this package. However, the evaluation team prefers to recommend dBASE IV due to its wider acceptance as a worldwide standard.

ADVANTAGES

1) There is currently an abundance of reference materials, pre-packaged financial routines, case generators and compilers on the market.

2) It is easy to find dBASE programmers in the U.S. and abroad. Many TDY consultants have expertise in dBASE programming.

3) The system will be tailored exactly to the project's needs and will be modifiable when future developments require modification or expansion.

4) All screens and menus can be written in French.

DISADVANTAGES

1) Creating a custom application is a time-consuming process. Identifying and fixing bugs requires patience and perseverance.

2) It will cost a lot more than a canned shelf accounting package.

OPTION 2

The project can buy a canned software package and attempt to configure it in a way that adequately covers its needs. There are many accounting software packages on the market that are sold complete with dBASE source code. These packages can be modified and recompiled. The names of some of them are: SBT, AccountMate, Champion, Lake Assistant Controller and TAS Advanced Accounting. All but the latter are written in dBASE.

ADVANTAGES

1) The most complex part of the code, the data capture screens and the summarization and closing routines are already done.

2) The system is likely to include many powerful features while not necessarily essential to the project, may be useful and therefore desirable.

3) The program will come complete with thorough documentation and tutorials.

4) Since the existing system is well-designed, it may be quickly integrated into the new packaged software and put into operation while the refinements are developed over a period of time.

5) Most software developers and marketers have technical assistance departments to help with problems. Many of them can provide trained consultants who can perform turnkey installations, including customization.

DISADVANTAGES

1) The modification process may turn out to be more complex than originally contemplated. Trying to unravel source code written by another person can turn into a nightmarish experience.

2) The system may be awkward to implement and may never quite meet the project's complete needs.

3) It may be cluttered with features that are meaningless in a public sector development environment.

These are the major arguments governing the choice of software for the management of the accounting system. The project managers can discuss the various alternatives, but ultimately, the final decision should be taken by the person or persons who will be responsible for the complete implementation of the new system.

e. Training of Accounting and Financial Management Personnel

Finding: The team found the level of training in this area to be quite good. A number of people were competent in the operation of the accounting system, which adds depth to the knowledge base within the organization. There appeared to be an adequate level of expertise in word processing in the office. However, various staff members expressed a desire to increase their knowledge of data base and spreadsheet applications software.

RECOMMENDATION

In light of the fact the short-term and local training budgets are underspent, the project should identify a number of persons in the project accounting office who might benefit from further training in software such as SMART, LOTUS 1-2-3 and dBASE IV. This training should focus on developing skills that will be applicable to the sort of activities conducted by these persons in the course of preforming their assigned duties.

4.2 FINANCIAL REPORTING AND CONTROL

a. Consolidated Budgeting and Reporting

Finding: It was noted by the evaluation team that the original SECID contract contained a line item in the amount of $US 1,372,720 for participant training. According to official SECID reports as of February 1989, total expenditures charged against this line item amounted $US 504,726. However, the USAID Controller's report dated October 31, 1989 shows a total cumulative disbursement for training of US$ 7,060 and total obligations of only $205,060.

This has resulted because the USAID Controller's Office has charged training expenditures incurred under the SECID contract to other line items, primarily technical assistance, in spite of the fact that SECID's report segregates all expenditures into 12 different categories. This understates the actual total cost of training as reflected in the pipeline report, which will not ever be comparable to the figure of US$ 1,836,000 allocated in the Project Paper for training activities.

Conclusion: The detailed isolation of the different types of training costs is fundamental for the proper management of the project. However, the evaluation team recognizes

that in most cases, USAID Controller's Office reports are not designed to be management tools, a view not held by the USAID/Mali Controller's Office, but rather serve the purpose of integrating project expenditures into a larger framework of Mission activities.

RECOMMENDATION

The USAID Controller's office should evaluate whether it would be useful to have its pipeline report expenditures classified in such a fashion that would be useful for comparing actual expenditures to the amounts budgeted in the Project Paper. If so, the items charged incorrectly to technical assistance should be analyzed and the appropriate adjustments made. Subsequently, formal procedures for correct account classification can be drawn up.

b. Budgeting Issues

Findings: The team noted that there is no consolidated budget for the entire project which includes planning of yearly expenditures by USAID local funds, the project operating funds, SECID U.S. funds, SECID local funds and the GRM contribution. Furthermore, there are three different fiscal periods presently employed by the above organizations. The budget categories do not group expenditures according to activity, which diminishes the value of the budget as a management tool.

The zero-base system created to develop the local operating budget provides an excellent framework for the estimation of overall yearly project expenses. However, this methodology needs to be adopted by all disbursement centers mentioned in the previous paragraph if it is to be useful for project-wide financial management purposes.

RECOMMENDATIONS

USAID, SECID, the GRM and the project management should agree on a format acceptable to all parties and implement a zero-based budgeting mechanism which encompasses all project activities. This budget should be established on a uniform fiscal year that best reflects the timing of project activities and monthly actual budget reports should be prepared and distributed to project management.

The existing budget line items need to be analyzed and regrouped into more meaningful categories which reflect the different types of activities undertaken by the project. This would allow program managers to be responsible (and held accountable) for their own budgets.

Even though the project paper remains as the official financial basis for the project, the operating budget should be reviewed and revised on an annual basis,

so that it accurately reflects the economic reality of the project as it continues to evolve over the years.

c. Transmittal of Information by USAID to the Project

Findings: Up until February 1989, the USAID Controller's Office sent a monthly detailed report of expenditures effected by USAID on behalf of the project. This report, entitled "Summary of Disbursements by Project", contained a full description of each voucher, including payee, purpose amount and date. In addition, copies of the actual vouchers and supporting documents accompanied the above listing. This report was necessary to the project account distribution and subsequently record the individual transactions in order to prepare a consolidated report of expenditures on a project-wide basis.

In March of 1989 this report was discontinued and replaced with a different report which does not provide the same level of detail. The effect of this change was an interruption in the recording of expenditures by the project as sufficient detail to classify expenditures was no longer readily available. Furthermore, this report has not been arriving regularly at the project accounting office. The reason cited for discontinuing the forwarding of voucher copies was the need for reducing the administrative burden on USAID and the elimination of duplicate work, since the project has copies of all vouchers which have passed through its approval process. It was suggested that the project request voucher copies on an exception basis. However, the evaluators obtained copies of vouchers that originated at USAID and were processed for payment at that level without ever passing through the project's approval mechanism or being picked up on its books. This sort of exception underscores the need for a formal reconciliation process.

Conclusions: The evaluation team recognizes the need to minimize the administrative burden for the USAID Controller's Office, especially since funds are budgeted by the project for the purpose of accounting for these transactions. Nevertheless, a certain degree of collaboration between the two organizations is necessary in order to provide for proper control over transactions and accurate reporting.

RECOMMENDATION

USAID should provide the project accounting office with a monthly detailed listing of all disbursements which includes the payee and purpose of each expenditure. This report should be promptly analyzed by the project accounting office. A monthly work session should be scheduled on a regular basis between a project accountant and a member of the USAID controller's staff in order to identify and resolve any differences arising from the reconciliation of the project disbursement accounts with the amount recorded by USAID.

This mechanism has already been discussed by the evaluators with all parties concerned and there is tentative agreement on a routine procedure which will eliminate the above referenced problem.

d. Timeliness of SECID Reporting

Finding: Information regarding expenditures effected by SECID in the United States are not reaching the project accounting office on a timely basis. As of the first week in November 1989, the most recent report received from SECID covered expenditures through the month of February 1989. A similar search at the USAID Controller's Office revealed that the most recent report from SECID was dated June 1989. These delays should be considered excessive and have resulted in the understating of global SECID expenditures on the books of both USAID and local project. Consequently, the figures regarding SECID expenditures are not useful for the purpose of preparing consolidated expenditure reports for the overall project.

Conclusion: In the age of the microcomputer, the modem and the fax machine, it should be possible to process and transmit this information in 45 days or less.

RECOMMENDATION

SECID should report all disbursements and other relevant financial information required by the project on a timely basis in order to allow for prompt preparation of consolidated financial statements. Since time is of the essence, a line item summary may be sent by fax or telex and may be followed up later with detailed support data.

SECID should provide the project accounting office with all information necessary to bring the records up to date so that a current consolidated financial statement can be prepared.

e. Supporting Detail for SECID Expenditures

Finding: The SECID U.S. report to the USAID/Mali Controller's Office and the project accounting office is not accompanied by any supporting documentation or analysis that provides information regarding the nature or propriety of the expenditures. While this system complies with contract specifications, all parties in Mali that rely on this information must accept its accuracy on faith alone, as there is no local mechanism through which expenditures incurred in the U.S. can be questioned by local project managers. The SECID contract is subject to audit by various U.S. government authorities, however that is of little comfort to the project managers who have no real recourse after they discover that expenditures in the U.S. have not been under control and that their budgets have been prematurely depleted.

RECOMMENDATION

USAID should require SECID to furnish a detailed analysis along with its monthly report of expenditures. This supporting documentation should include a listing of all disbursements made with project funds. In the event of allocations of overhead, the formulas for allocation should be made available to the project accounting office in Bamako.

f. Tracking of SECID Training Expenditures

Findings: A recent estimate of expenditures by SECID, revealed that by March of 1990, approximately $ 1,014,629 will have been disbursed for the purpose of supporting all training activities contemplated under the SECID contract. This represents 55.3% of the total training budget of $1,836,000 as per the Project Paper.

The evaluation team performed an analysis of the departure and return dates of all 17 students currently on project-sponsored long-term training at U.S. universities. It was calculated that by March of 1990, 385 out of 708 months of training will have been completed. The 708 months includes the anticipated extensions for some students who require additional degree training or language training. The percentage of completion of training is approximately 54.4%, which closely corresponds to the percentage of funds to be disbursed by that date. Superficially, this appears to be adequate. However, the evaluation team was at a loss to explain how SECID intends to fund the training of the two additional students who have not yet been selected.

More significantly, it would appear that there would be insufficient funds available to complete the short term training and the observation/study training that are also part of the SECID contract with USAID. This is perhaps a more serious situation, since percentage of completion of these two items by March of 1990 is estimated to reach only 11% and 20 %, respectively.

The repeated requests for additional funding by SECID to USAID suggest that controls over budgets and expenditures in the area of overseas participant training are inadequate and are in urgent need of review and overhaul.

RECOMMENDATION

USAID should request SECID to prepare an analysis of the various training activities required under the contract that remain to be completed. SECID should provide USAID with a schedule that shows the source of the funds that will be used to complete these activities.

g. GRM Support of Recurrent Costs

Findings: At present, GRM contribution to recurrent costs has consisted entirely of personnel. For the purpose of this recurrent cost calculation, the value of the land contributed for the construction of the new DRSPR headquarters building is not taken into account, as this is considered to be a capital investment item.

The most recent consolidated projection available indicates that as of the end of the third year of the project life, the GRM will have contributed US$ 87,376 of the total recurrent cost of $1,290,513 which represents 6.8% of total expenditures. The Project Paper calls for a level of support of recurrent costs on the part of the GRM of 15.7% for the same period ($209,730 divided by $1,333,120). Therefore, the GRM has failed to meet even half of its commitment as set forth in the Project Paper, which ultimately calls for the GRM to support 25% of all recurrent costs over the total life of the project. In the annual report dated September 30, 1988, the financial manager noted that if present trends were to continue, the GRM would only meet about 15% of its commitments for supporting recurrent expenditures and that USAID's share would increase by 35%.

The main reason for the shortfall is the GRM's inability to provide sufficient civil servants for project operations. This has in turn increased USAID's share of projected costs as these employees had to be hired on a contractual basis. Besides increasing the cost of operation, this situation is undesirable because it runs contrary to USAID's objective of institution- building within the GRM.

At present, there are 15 vacant positions which are either unfilled or which have been vacated temporarily by persons on long-term training in the United States:

POSITION	ANNUAL SALARY
Statisticians (1)	U.S. $2,847
Sociologist (1)	2,456
Accountants (3)	5,354
Secretaries (2)	4,146
Drivers (5)	3,470
Watchmen (3)	2,082
Total estimated salaries	U.S. $20,355

According to the Project Paper, these positions should have been filled by the 48th month of project activities. If they had been filled from the beginning according to the original implementation plan, the GRM's contribution would have reached about 70% of its required level.

It is also important to point out two other reasons why the GRM failed to achieve its budgeted share of personnel costs: 1) There were some positions that were vacant for several months while suitable replacements were found for persons who had been transferred or left for training in the United States and 2) The salaries contained in the original Project Paper budget were higher than those actually disbursed by the GRM. This is attributable to the fact that the GRM has had a salary increase freeze in effect for civil servants for some years now. For example, the Project Paper budget for an accountant was established at US $3,450 per annum. However, the expenditure reports disclose that the actual salary is only $1,785 per year, or about half of the budgeted amount. Another contributing factor may be the fact that the salaries were originally budgeted in Malian francs @ 750 FM = $ 1.00.

Conclusions: It is important to note that to date, the GRM's total contribution has consisted almost entirely of personnel and land. These are items that have no real incremental cash flow implications, since the land already belonged to the government and the civil servants salaries were already encumbered as part of the permanent national budget for recurring expenditures. When the project begins calling on the GRM to begin disbursing actual cash to meets its commitments for construction and subsequently for its share of fuel and other operating expenses as agreed in the project paper, it is likely that USAID will again have to reach into its pockets to cover these items in order to avoid an interruption in project activities. The present economic situation in Mali will constrain the GRM from disbursing funds for many discretionary activities.

The evaluation team could not conceive of any plausible scenario under which the GRM could assume the entire burden of this expensive project after the termination of donor support in 1994.

RECOMMENDATION

USAID should enter into further discussions with the GRM to see if there is any way that the number of civil servants provided can be increased to the levels laid out in the Project Paper.

h. Overall Project Financial Situation

Findings: Due to the lack of timely financial information from outside sources noted earlier, the project has not yet prepared a consolidated financial statement for all activities and sources as of September 30, 1988. However, it was possible to make the reasonable accurate estimates based on past historical performance that would allow the evaluation team to draw some conclusions regarding the overall financial health of the project. This estimate is available for review at the project accounting office.

Aside from the concerns expressed earlier regarding probable insolvency of the training activities currently being undertaken by SECID, the team found no other evidence that

points to a potential shortfall of financial resources, provided that the expansion to Region Five is postponed for a minimum period of two years.

There are several areas of potential over and underspending which appear to be largely offsetting. The only major area of overspending, aside from SECID training, appears to be the construction costs of the new project headquarters in Bamako, which may run a half million dollars over budget. However, this amount is more than compensated for by other line items which have not reached their budgeted levels. Among these are the installation of the financial management system, English language training, Region V building construction and equipment, Koporo station furnishings and equipment and reference library materials and publications.

RECOMMENDATION

USAID, the GRM and project management should review all line items which show significant variances against budget and prepare a new updated budget which reflects the latest developments in the evolution of the project.

5.0 EXPANSION INTO REGION V

Introduction: The Project Paper envisioned the expansion of farming systems research and extension activities in the Mali FSR/E Project into two zones of operation, Region II from the beginning of the project and Region V four years later.

An economic feasibility study for the Region V expansion was conducted in 1987-1989 by Michigan State University. This study showed potential for positive economic impact. There are ample reasons to favor a sound FSR/E program for Region V. It is already a major food grain supplier; there are some research facilities and programs in the area; there is a regional development organization, the Mopti Livestock Development Agency (ODEM), from whose experiences the program can benefit, and a Dutch sponsored land use management project.

There are, however, modifying circumstances which should be considered before embarking on a major expansion of FSR/E activities into Region V. Some of these are discussed below.

Available resources, both Malian and USAID, are limited. With a number of Malian professionals returning from training in the U.S. within the next three years, a careful evaluation of present and future technical manpower needs must be accomplished. Staffing priorities for ongoing programs and new projects must be determined since the GRM will need specialists in both thematic disciplines and farming systems research in the future.

Current proposals include strengthening the Bougouni team and establishing a new team in the zone of the Office du Niger. A potential, long-term proposal for an FSR/E team

at each regional center could raise the total number of teams to 8. Besides qualified scientific staff, corresponding administrative personnel would be needed to support these teams. In order to coordinate and manage the resources of multiple donors, it will be even more important to have a strong Division that can assume the managerial and technical responsibility of this task.

The more immediate consideration is the expansion into Region V which will require additional personnel at DRSPR headquarters and at DRSPR/Region V. The project's staffing pattern for Region V calls for four GRM scientists and two long-term TA's. This evaluation team considers it necessary to raise the GRM staff to five by assigning two agronomist to properly cover the lowland and upland farming conditions. Project projections do not consider competing but complementary professional staff needs at research stations in the region (Koporo and Mopti). Both these stations will need to have competent thematically oriented researchers to provide the principal technology for and linkages with, farming systems research.

The expansion to Fifth Region will add another dimension of complexity to the management of the FSR/E Project. Due to the physical distance from Bamako and the poor quality of communications, the evaluation team feels it will be necessary to replicate the entire existing management structure of Region II and make it operational in Region V. This is likely to be an expensive and time-consuming undertaking, as it will involve additional personnel and equipment and considerable technical assistance for its implementation. In view of past contributions, it appears that it would be unlikely that any significant contributions would be forthcoming from the GRM in order to support the additional costs of operating the Region V office. The most likely outcome of the expansion will be that it will only add to the recurrent cost burden to be shouldered by the GRM, which is already clearly beyond its ability to sustain.
It is not clear how the Division office in Bamako will provide adequate management support to the Region V office, particularly in light of the weaker physical infrastructure in that area.

Conclusions: The evaluation team found interest and determination to proceed with expansion of FSR/E activities into the Fifth Region. There also was concern regarding resource availability, particularly regarding the availability of qualified staff, facilities, and operational needs.

The evaluation team did not have an opportunity to visit Region V and make an on-the-ground assessment. The following conclusions are based on a careful review of secondary information available to team members regarding Region V, personal communication with the author of the feasibility study, as well as the evaluation team's assessment of the present situation and future needs of DRSPR (Division) and DRSPR/OHV. Therefore, the team can only conclude that the expansion of FSR/E activities to Region V should not be pursued at this time as planned in the project documents, an opinion not held by the GRM. The following considerations lead to this conclusion:

- The GRM is under severe financial constraints. It is not expected to be able to assume an increasing share of recurrent costs of the present FSR/E project in

Region II, let alone the burden of additional costs of an expanded program. This raises a serious question about the ability of the GRM to assume full operational responsibility for FSR/E activities in Mali in the reasonably near future when expatriate assistance may cease.

- At present, DRSPR staff and resources focus on the Sikasso and OHV research teams. There are project proposals being considered to strengthen the Bougouni team and establish a new research team in the Office du Niger. This will require additional staff, and managerial and coordinating capacity at the Division level.

- There are indications that present FSR/E project costs and resource use are greater than planned. The levels of contractual personnel working in DRSPR/OHV are almost twice that anticipated in the project paper. Current cost projections for long-term training seem to include much of the budgetary resources allocated for short-term training, when less than 20% of those proposed in the Project Paper have been accomplished.

- The IER, DRSPR, and DRSPR/OHV are in need of additional trained and qualified staff. The GRM's restrictions on hiring in the civil service system is leaving many positions filled with contractual personnel, a situation incompatible with sustainable, long term programs.

- Thirty years of commodity research exist for the region. According to the MSU Region V study, economic feasibility was found to be critically dependent on adoption rates, and the time necessary to move technologies from research to extension. Therefore, it is not entirely clear that there are commodity research results in dryland agriculture that can be moved into extension rapidly enough to provide a positive economic impact for the project.

- Improvements of the Koporo Research Station, a key DRA facility for thematic and subject matter research, were a key output of Phase One of the present FSR/E Project but have not yet been accomplished.

- Projections indicated that qualified, U.S.-trained professional staff would become available starting in 1988 but few will be returning before late 1990. Adequate staffing of existing research teams would require using all the returning scientists leaving few available to staff new research teams.

- Mopti is a remote location and it will not be first choice of highly qualified technical advisors, particularly those with families, who have the option of working in other areas. Therefore, US based contractors may have difficulty recruiting top caliber technical personnel.

RECOMMENDATIONS

The expansion into Region V should not be undertaken at the expense of efforts to strengthen operational capabilities of DRSPR (the Division) and DRSPR/OHV as recommended in this evaluation. These activities should have priority claim on remaining technical assistance resources of the project.

The evaluation team cannot recommend expansion into Region V at this time. If at a future date the following conditions are met, as determined by the GRM and USAID, then expansion should occur with a carefully considered, phased implementation plan.

- The management system at DRSPR must be in place to be able to manage and coordinate present and future research teams.
- There must be a team of qualified research personnel and support staff to move to Region V.
- The GRM needs to meet its recurrent cost obligations as laid out in project documents.
- An effective research planning, coordination, implementation, monitoring, and evaluation system, including effective budgetary planning, must be functional at DRSPR/OHV.
- It needs to be clearly demonstrated that there is sufficient commodity research experience in dryland agriculture to have technologies ready to move rapidly from on-farm research through pre-extension to large scale diffusion.

ANNEXES

ANNEX A

SCOPE OF WORK

Background: The Farming Systems Research and Extension Project (FSRE) in Mali was authorized in March 1985 for US $19,493,000 over a ten year period. The Project Assistance Completion Date (PACD) is September 30, 1994.

Research activities range from baseline surveys to specific studies in agronomy, livestock and socio-economics. The project also addresses issues of agricultural sustainability (natural resources conservation, integration of crop and livestock), women in development, and institution-building.

The goal of the FSRE project is to improve the productivity and incomes of rural households. The purpose is to provide institutional support to the Institute of Rural Economy (IER), to expand and increase the effectiveness of its farming systems research program in Mali in order to develop agricultural technologies which are relevant to farmers' needs and circumstances and to promote the effective transfer of such technology. The first phase of the project was to extend FSRE activities from CMDT (Compagnie Malienne de Developpement des Textiles) zone to OHV zone, and the second phase is to be the extension to the fifth region of the country. The extent of FSRE activities to be supported in the fifth region will depend on, among other factors, the results of the present evaluation.

On May 6, 1986, A.I.D. signed a technical assistance contract with the South East Consortium for International Development (SECID). The contract objective is to assist the Government of Mali to accomplish the goals and purposes of the FSRE project. The terms of the second and final five-year period of the contract will be determined, in large measure, by the recommendations of this evaluation.

The concept of farming systems research (FSRE) was introduced relatively early into the Malian national agricultural system. In May 1975, the national Committee for Agricultural Research recommended that a colloquium on FSRE should be organized to study ways and means of better directing existing research towards development goals. Such a colloquium was organized in November 1976, and, as a result, IER was requested to pursue the elaboration of a farming systems research program with the appropriate institutions, including donors. In 1977, a socio-economic studies program was begun in Fonsebougou, a village outside of Sikasso, with Dutch support (the Royal Institute for Tropical Research: IRRT).

In late 1977, a team of eminent expatriate and national researchers spent several months designing a larger Farming Systems Research project for the Mali - Sud Region (in which Sikasso is located and where the CMDT is the active regional development organization. Three donor agencies agreed to finance this project, with the major funding and all technical assistance coming from Canada through the International Development Research Center (IDRC). A.I.D. and the Ford Foundation also made limited financial contributions to operating costs and training, respectively.

The Government of Mali then created the Farming Systems Research Division (DRSPR), within IER in 1979 and brought both the Dutch and other projects under the Division. DRSPR was given three objectives:

A. - Adaptation of research to the objectives of integrated rural development by application of multidisciplinary research;

- Improvement of existing research efficiency by taking into account real production environment constraints, and keeping different agro-climatic zones in mind, distinguishing among farm families with different means and objectives.

B. Development of an appropriate methodology for study of the production environment.

C. Training a national staff in multidisciplinary research and farming systems research.

The USAID FSRE project to be examined in this evaluation is one of the major activities conducted by DRSPR.

The Evaluation Team: The required specialists are:

- Research manager
- Farming systems agronomist
- Farming systems socio-economist
- Financial expert
- Farming systems research animal scientist.

The specialists should have a proficiency level of FSI S-3, R-3 in French.

With the exception of the financial expert, who will spend seven workdays in Mali during the performance period, all other team members will remain in Mali for the full performance period, three weeks, working six-day weeks.

One team member, preferably, the farming systems socio-economist, should interview Michigan State University staff who assessed DRSPR capacity to conduct in Region Five, and who undertook cost/benefit assessment of such an extension. Interview could be conducted in person in E. Lansing - preferably, and, if time permits - or, by telephone.
Telephone: 517-353-1720; telex: MCI 650-277-3148 ISP.

The contractor is free to designate the team leader, the principal writer of the reports, and the division of responsibilities in research, analysis, and reporting of the various evaluation issues.

Description of work :

A. General: This evaluation will:

1. assess the extent to which the Phase I project outputs have been attained. If the outputs have fallen short of planned outputs, identify constraints hindering the achievement of planned outputs;

2. assess the project objectives and determine whether they remain realistic and appropriate; that is, can they be accomplished within the time and resources allotted and are they likely to have the desired farm-level impacts?

3. based on the experience of implementation to date in the OHV zone, suggest mid-course corrections, if any are required, to increase the likelihood of obtained Phase II outputs and of meeting project objectives;

4. provide guidance regarding better integration of the various research components during Phase II; and

5. based on experience to date, recommend changes or corrections relating to staffing patterns, level of resources coordinating mechanisms, etc., needed for expansion into Region Five.

B. Specific: The contractor will examine the following issues cutting across research, training, management and organizational matters. Specifically, the contractor will complete the following tasks:

1. Review the FSRE methodology followed and evaluate its farm-level impact to date and its likely ability to generate and diffuse appropriate technologies. The contractor will assess:

- Extent to which secondary information and previous FSRE experience (e.g. DRSPR/Sikasso) were used in research program formulation;
- Relevance of survey (reconnaissance, baseline, subject matter, etc.) data in planning by the FSRE team. Specifically, note adequacy of information, timeliness of analysis, use of the data in research elaboration, and the extent to which data collected are either insufficient or more than needed;
- Representativity and criteria of experiment site selection;
- Appropriateness of collaborative farmer identification;
- Number of technologies field-tested and validated;
- Appropriateness of technologies identified and/or evaluated vis-a-vis production problems and constraints;
- Progress in DRSPR capacity to elaborate and adjust a research program on an on-going basis;
- Relevance and diffusion of FSRE information to clients, i.e., research, extension, and policy-making agents.

2. Assess the data collected in the project in terms of a) utility and need, b) quality, c) completeness (whether it will permit a clearer description and understanding of the production systems targeted for development) and d) whether proper records are maintained to permit measurement of project progress. Make recommendations on the type of data that should be collected (if not available) to permit measurement of progress (increased production, productivity and income) during the next evaluation. With completion of agricultural economics baseline data collection and analysis, what is likely evolution of data analysis capacity during Phase II. Recommend future role of ADP computer unit vis-a-vis ADP tasks undertaken by researchers.

3. Evaluate the overall performance of the research team (both the technical assistants and their counterparts), including inter-disciplinary integration, intra-team relationships, and relationships between technical assistants and their counterparts. Also identify steps to ensure greater continuity and length of assignment by both TA and national researchers.

4. Assess the nature and quality of the following FSRE linkages to collaborating agencies .

- FRSE - thematic/commodity research linkages
- Use of technology and information from projects/programs for on-farm testing and/or demonstration to farmers
- Feedback of on-farm test results to thematic researchers
- Mechanisms for communication, coordination and interaction - planned vs. actual vs. potential
- FSRE - policy linkages. Potential and/or actual contribution of FSRE in influencing agricultural policy.
- Mechanisms of communication between FSRE and policy-making authorities, e.g., Cereal market Restructuring Project.
- Complementarity of FSRE activities to those of thematic research, extension and development. Identify areas of complementarity and duplication and recommend appropriate measures, e.g., FSRE agronomic trials vis-a-vis DRA multilocational tests.
- Examine FSRE current and potential work addressing integration of crop/livestock enterprises on the farm.
- Examine existing and potential modalities of collaboration between agronomists and animal scientists within the respective Malian institutes to execute the program.

5. Evaluate extent to which FSRE addresses the relationship between food production and consumption/nutrition issues and implications for research and/or policy actions to be undertaken to achieve project purpose.

6. Assess extent to which womens' issues have been considered in the project in the following areas:

- Collection and disaggregation of data by sex and targeted analysis on womens' issues;
- Improvement of crop production systems that involve women and participation of women farmers in on-farm tests;
- Women farmers' access to credit, land and information on technology; and their participation in agricultural decision-making at the village level;
- Participation of women in FSRE research process directly and/or indirectly through collaborative arrangements.

7. Examine the training component under the project. Assess progress and make recommendations for training programs (long-term, short-term, monitoring tours, workshops, in-country, etc.).

8. Assess extent to which financial and administrative management services provided in the project were effective in insuring timely provision of inputs, services, logistic support to staff, communications and other project needs.

9. Assess the performance of the Data Processing unit of the project:

- Organization and equipment
- Role in the design of data collection, analysis, storage and retrieval; overall support to the research team and training
- Size and effort relative to data needs.

10. Indicate whether or not the library of the project is adequate and describe its relationship to IER documentation division facilities.

11. Evaluate to what extent the three parties to the implementation - IER, TA contractor and USAID - have been responsive to the emerging issues in the project implementation. Make an over-all assessment of the three parties' performance in management, monitoring, and support and suggest steps, if needed, to improve project implementation.

12. Assess extent to which internal project review (project task force, bi-annual IER-Grm review and annual reviews) have been effective in timely identification of key research issues and/or implementation problems and in taking corrective action. Recommend steps, if needed, to be taken for improvement.

13. Evaluate the project structure - size of staff, organization, responsibilities and authority delineation, etc. -for effectiveness in project implementation. Examine whether the job delineation within DRSPR administrative structure facilitates project execution.

14. Examine the project design assumptions, i.e., logical framework, and assess their continued validity.

15. Recommend changes in the project design features:

- In light of evolving concerns in natural resources conservation, suggest feasible areas of investigation for the project;
- Identify any project design features which might have been over-ambitious or inappropriate in view of a) the level of resources and effort required and b) the institutional set-up of the project;
- Suggest ways and means to ease routine activities and focus research on targeted topics.

16. Based on the experience of the two FSRE teams (DRSPR/OHV, DRSPR/Sikasso), DRSPR staffing and existing economic studies, advise on the desirability, prospects, and possible time schedule for launching the FSRE activities in Region Five.

17. Assess financial status of local and offshore project expenses vis-a-vis PP financial plan. Specifically, examine evolution of project recurrent costs, likely recurrent local costs levels during project Phase II, and GRM progress in meeting a growing share of recurrent costs. Recommend A.I.D. and GRM actions required to conform with PP projections and/or ensure a sustainable level of project activities.

Timetable/reports requirements:

A. General time frame: The assessment will take place in-country during a 21-day period, from approximately October 23 through November 13, 1989.

B. Work days ordered.

Research/manager	18
Farming systems agronomist	18
Farming systems socio-economist	18
Financial expert	7
FSRE animal scientist	18
Team leader	+ 1
Total workdays	80

C. Reports:

a) Five working days prior to the departure of the contractor from Mali, a five page summary will be provided to USAID/Bamako. USAID/Bamako will provide any comments on the summary in one day.

b) Two working days prior to the departure of the contractor from Mali, the following reports will be provided to USAID/Bamako:
- 15 copies of draft complete evaluation report in English
- 15 copies of revised five-page summary in English
- 15 copies of revised five-page summary in French.

c) Within three weeks of contractor departure from Mali, the following reports will be sent by express air courier to USAID/Bamako:
- 30 copies of final report reflecting USAID comments in English
- 30 copies of final report in French.

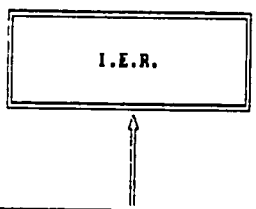
Logistical support: USAID/Bamako will provide office space and equipment, transportation within Mali, and official vehicles. Check cashing privileges will be given to U.S. citizens or Green Card holders upon written approval of the management office. Medical facilities of the Embassy will be available conditional upon the following: Travellers to USAID Mali should be covered by a valid medical evacuation insurance policy, not just a medical health benefits insurance plan. Upon arrival in Mali, the name, address and telephone/telex number of the insurance company and the policy number must be provided to the USAID Mali Management Office. Access to the Embassy Health Unit is subject to the written approval of the Ambassador.

The contractor will supply housing; transportation to and from Mali; interpreter services/secretarial services; travel arrangement and tickets. Suppliers must bring and use their own portable computers, but may rely on USAID printers and other equipment.

ASSESSMENT OF INSTITUTIONAL/ORGANIZATION OUTPUTS BASED ON PHASE I OUTPUTS AS INDICATED IN THE PROJECT PAPER

ORGANIZATIONAL CHART
(AS INTERPRETED FROM THE PROJECT PAPER)

A. INSTITUTION LEVEL



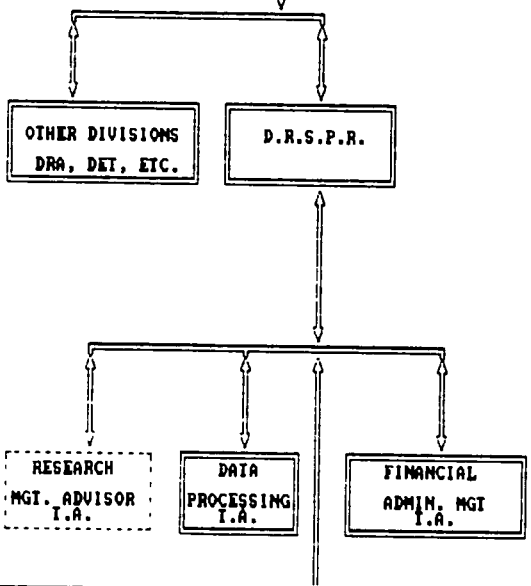
EXPECTED OUTPUTS

1. RELATIONSHIPS ESTABLISHED WITH POLICY GROUPS USING D.R.S.P.R. TECHNICAL RESULTS
2. HUMAN RESOURCE DEVELOPMENT/TRAINING COORDINATION
3. FOCUSING OF COMMODITY RESEARCH
4. I.E.R. & U.S.A.I.D. REVIEW PROCESS ESTABLISHED
5. DECISION MADE ON REGION V PROGRAM

ACHIEVED OUTPUTS

1. POLICY INTERACTIONS: NO NATIONAL AGRICULTURAL POLICY INITIATIVES HAVE TAKEN PLACE TO DATE.
2. U.S. TRAINING PROGRAM IMPLEMENTED. IN-COUNTRY TRAINING PROGRAM UNDERWAY BUT NOT FULLY FORMULATED OR PLANNED.
3. INFORMAL DIALOGUE AND COOPERATION BETWEEN FSR/E STAFF AND D.R.A. BUT NO FORMAL PLANNING AND FOCUSSING STRATEGY BEYOND TECHNICAL COMMISSION PROCEDURES.
4. REVIEW TAKING PLACE THROUGH INFORMAL CHANNELS AND SEMI-ANNUAL FORMAL MEETINGS.
5. NO FINAL DECISION MADE ON IMPLEMENTATION OF REGION V EXPANSION

B. DIVISION LEVEL



EXPECTED OUTPUTS

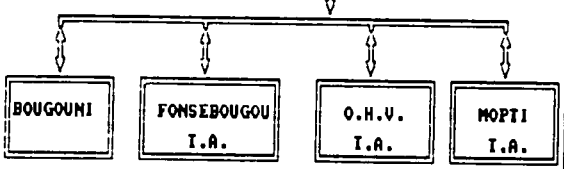
1. D.R.S.P.R. HEADQUARTERS MOVED TO SOTUBA
2. D.R.S.P.R. HEADQUARTERS FULLY STAFFED
3. D.R.S.P.R.-O.H.V. RESEARCH TEAM CONSTITUTED
   - PARTICIPATION OF SIKASSO STAFF
4. U.S.A.I.D. LONG-TERM T.A.: RESEARCH MGT. ADVISOR; FINANCIAL MGT. ADVISOR; DATA PROCESSING SPECIALIST
5. DATA PROCESSING UNIT ESTABLISHED; ONE MALIAN (CIVIL SERVANT) TRAINED AND ASSIGNED FULL-TIME
6. LIBRARY AT D.R.S.P.R. H.Q. ESTABLISHED
7. D.R.S.P.R. ANNUAL REPORTS DISCUSSED WITH OTHER I.E.R. DIVISIONS FOR JOINT FORMULATION OF RESEARCH PRIORITIES
8. D.R.S.P.R.-O.H.V. FORMAL COLLABORATIVE AGREEMENT NEGOTIATED
9. FORMAL FSR/E RESEARCH COORDINATION COMMITTEE OPERATIONAL
10. COOPERATIVE RESEARCH AGREEMENT ESTABLISHED WITH:
    - S.R.C.V.O.
    - D.M.A.
    - I.N.R.Z.F.H.

    ⟹ FOCUSING OF COMMODITY RESEARCH
11. FINANCIAL MANAGEMENT/INVENTORY CONTROL SYSTEM ESTABLISHED

ACHIEVED OUTPUTS

1. DRSPR HEADQUARTERS MOVED TO BAMAKO FROM SIKASSO
2. DRSPR H.Q. STAFFING NEEDS A FOCUS OF PRESENT EVALUATION, NOV. '89
3. DRSPR-OHV RESEARCH STAFF CONSTITUTED AND OPERATIONAL. NO U.S. TRAINED MALIAN STAFF HAS YET RETURNED
4. U.S.A.I.D. LONG-TERM T.A. TEAM ON BOARD
5. DATA PROCESSING UNIT ESTABLISHED AND FUNCTIONAL. NO MALIAN CIVIL SERVANT HAS BEEN ASSIGNED FOR LONG-TERM TRAINING ESTABLISHED. T.A. POSITION TO TERMINATE IN DECEMBER, 1989.
6. LIBRARY AT DRSPR HEADQUARTERS NOT YET ESTABLISHED.
7. DRSPR ANNUAL REPORTS INFORMALLY DISCUSSED WITH APPROPRIATE IER DIVISIONS AND STAFF. ONE FORMAL WORKSHOP WAS HELD IN JANUARY 1988.
8. FORMAL AGREEMENT (PROTOCOLE D'ACCORD) BETWEEN IER AND OHV SIGNED IN MAY 1987.
9. NO FORMAL FSR/E RESEARCH COORDINATING COMMITTEE HAS BEEN FORMED
10. NO FORMAL RESEARCH AGREEMENTS WITH RESEARCH ORGANIZATION OUTSIDE I.E.R. HAVE BEEN NEGOTIATED. INFORMAL COLLABORATION TAKING PLACE
11. FINANCIAL MANAGEMENT AND INVENTORY CONTROL/RECURRENT COSTS- SYSTEM IN PLACE & OPERATIONAL, RECURRENT COSTS PRESENTLY WITHIN P.P. BUDGETARY PROJECTIONS, GRM CONTRIBUTION LESS THAN PROJECTIONS

C. VOLET LEVEL



EXPECTED OUTPUTS

1. FINANCIAL MANAGEMENT AND INVENTORY CONTROL SYSTEM ESTABLISHED
2. LONG-TERM T.A.: AGRO-ECONOMIST - OHV
   AGRONOMIST - OHV
3. DATA PROCESSING SYSTEM FUNCTIONAL
4. RESEARCH - FARMER LINKAGES STRENGTHENED

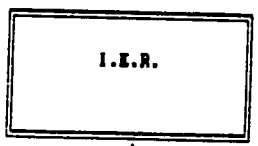
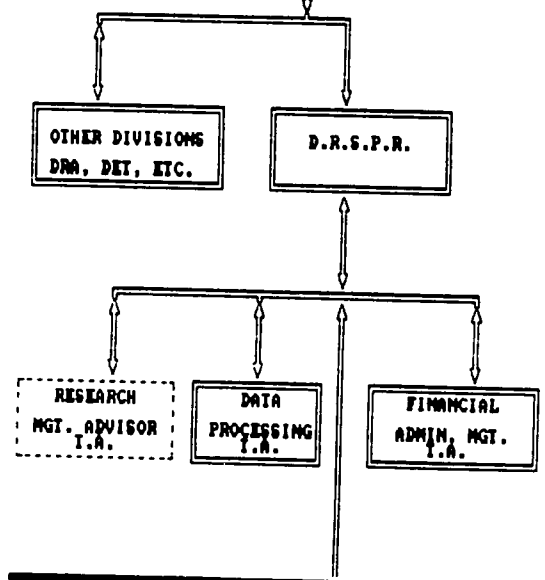
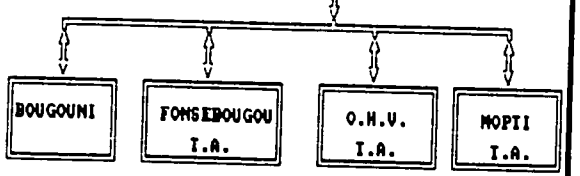
ACHIEVED OUTPUTS

1. FINANCIAL MANAGEMENT AND INVENTORY CONTROL (SEE 11 ABOVE)
2. LONG-TERM TAs ON BOARD AND FUNCTIONAL IN DRSPR-OHV. NO DECISION ON EXPANSION TO REGION V HAS BEEN MADE AND TAs DESIGNATED.
3. DATA PROCESSING UNIT IN PLACE AND FUNCTIONAL IN DRSPR-OHV. LONG TERM PERMANENT STAFFING AND FUNCTION OF UNIT AT DRSPR OR OHV VOLET LEVEL NEEDS TO BE DETERMINED BY DRSPR MANAGEMENT
4. RESEARCH-FARMER LINKAGES ARE BEING STRENGTHENED THROUGH DRSPR-OHV AND OHV COLLABORATIVE PROGRAM. INCREASED EFFORT NEEDED ON RESEARCH STAFF - FARMER INTERACTIONS

ASSESSMENT OF PROGRAM DEVELOPMENT AND IMPLEMENTATION OUTPUTS BASED ON PHASE I OUTPUTS AS INDICATED IN THE PROJECT PAPER

ORGANIZATIONAL CHART (AS INTERPRETED FROM THE PROJECT PAPER)	EXPECTED OUTPUTS	ACHIEVED OUTPUTS
A. INSTITUTION LEVEL I.E.R.	1. RESEARCH RESULTS FROM D.R.S.P.R./O.H.V. PROGRAM	1. RESEARCH RESULTS HAVE NOT BEEN GENERATED TO DATE FOR I.E.R. USE 1. After only three seasons of on-farm research, it is too early for the agronomic trials to have affected IER. The economic analysis of on-farm trials has however been incorporated into other IER research efforts.
B. DIVISION LEVEL OTHER DIVISIONS DRA, DEI, ETC. D.R.S.P.R. RESEARCH MGT. ADVISOR I.A. DATA PROCESSING I.A. FINANCIAL ADMIN, MGT I.A.	1. DRA/SRCVO SCIENTISTS AND DRSPR DESIGNED AND SUPERVISED AT LEAST ONE SEASON'S TRIALS 2. SRCVO PLANT IMPROVEMENT PROGRAM AT KOPORO EXPANDED UPON COMPLETION OF ADDITIONAL FACILITIES 3. DRSPR PREPARED PAPERS ON FINDINGS TO DATE AND JOURNAL HAS PUBLISHED THEM 4. TWO ISSUES OF IER RESEARCH JOURNAL WILL HAVE BEEN PUBLISHED 5. DRSPR WILL HAVE DEVELOPED A VALIDATION PROGRAM WITH SRCVO/SAFGRAD	1. THREE YEARS OF TRIALS HAVE BEEN DESIGNED AS OF 1989 2. NO CONSTRUCTION WITH PROJECT FUNDS TO DATE. ICRISAT EXPANSION OF ACTIVITIES HAS OCCURED 3. THERE HAS BEEN PUBLISHED WORK ON ANIMAL TRACTION FROM SIKASSO VOLET. THE OHV VOLET HAS PREPARED FOR PRESENTATION AT FSR SYMPOSIUM AND AT REGIONAL MEETINGS 4. THE IER JOURNAL HAS NOT BEEN REGULARLY PUBLISHED 5. FINANCING PROVIDED FOR MULTI-LOCATIONAL TRIALS. UNCLEAR IF PROGRAM IS FOR VALIDATION OR GENERAL BIOPHYSICAL APPROPRIATENESS
C. VOLET LEVEL BOUGOUNI FONSEBOUGOU I.A. O.H.V. I.A. MOPTI I.A.	1. VILLAGE RECONNAISSANCE SURVEYS IN OHV ZONE 2. 3-5 VILLAGES SELECTED FOR INTENSIVE COLLABORATION 3. BASELINE SURVEYS, ON-FARM TRIALS, THEMATIC AND OTHER APPROPRIATE STUDIES CONDUCTED FOR 1-2 YEARS 4. ANNUAL REPORTS; BASELINE DATA TABULATION AND ROUGH ANALYSIS;2-YEAR RESEARCH PLANNING DOCUMENT BASED ON BASELINE DATA 5. FARMERS/OHV AGENTS/DRSPR DISCUSSIONS ON TRIALS; WRITTEN FEEDBACK 6. REVISED ECONOMIC ANALYSIS BASED ON OHV DATA; REVISED ECONOMIC ANALYSIS BASED ON 5TH REGION DATA.	1. RAPID RECONNAISSANCE SURVEY CONDUCTED IN 43 VILLAGES (160 p.u.) IN OHV ZONE, 1986 2. 8 RESEARCH VILLAGES, 5 PRE-EXTENSION VILLAGES, AND 1 DEMONSTRATION VILLAGE AS OF 1989 3. BASELINE SURVEYS, ON-FARM TRIALS, & THEMATIC SURVEYS CONDUCTED 4. ANNUAL REPORTS FOR TECHNICAL COMMISSION; BASELINE DATA TABULATED IN AGGREGATE FORM;ROUGH ANALYSIS OF AGGREGATE DATA;ROMINDO TABULATION AND ANALYSIS OF INDIVIDUAL FARMS; NO PRESENT USE OF BASELINE DATA FOR LONG-RANGE PLANNING 5. FARMERS, OHV AGENTS & DRSPR MEET AT LEAST BI-ANNUALLY; TO PLAN INTERVENTIONS AND EVALUATE TRIALS. WRITTEN FEEDBACK FOR FRAMER EVALUATIONS OF TRIALS 6. ECONOMIC ANALYSIS HAS BEEN COMPLETED FOR THE 5TH REGION, NOT FOR OHV ZONE

ASSESSMENT OF TRAINING PROGRAM OUTPUTS
BASED ON PHASE I OUTPUTS AS INDICATED IN THE PROJECT PAPER

ORGANIZATIONAL CHART (AS INTERPRETED FROM PROJECT DOCUMENT)	EXPECTED OUTPUTS (PHASE I)	ACHIEVED OUTPUTS (OCT. 1989)
A. INSTITUTION LEVEL  	1. AT LEAST 6 PROFESSIONALS FROM I.E.R. OR OTHER RESEARCH INSTITUTIONS COMPLETED STUDY/OBSERVATION TOURS OF FSR/E PROJECTS 2. APPROVAL OF 19 LONG-TERM PARTICIPANTS FROM I.E.R. DIVISIONS - D.R.S.P.R.-7; D.R.A.-2; I.P.R.-1; C.A.A.-3: FOR M.S. DEGREE - D.R.S.P.R.-3; D.R.A.-2; I.P.R.-1: FOR PH.D. DEGREE 3. APPROVAL OF SHORT-TERM PARTICIPANTS: TOTAL 96 PERSON-MONTHS	1. NO FORMAL OBSERVATION/STUDY TOURS HAVE BEEN IMPLEMENTED TO DATE FOR SENIOR I.E.R. OR G.R.M. DECISION-MAKING STAFF 2. 19 LONG-TERM PARTICIPANTS APPROVED (12%); - D.R.S.P.R.-4; D.R.A.-2; I.P.R.-2; C.A.A.-3: FOR M.S. DEGREE - D.R.S.P.R.-3; D.R.A.-3; I.P.R.-0; D.E.I.-2; FOR PH.D. DEGREE 3. NO SHORT-TERM PARTICIPANTS APPROVED FROM OUTSIDE D.R.S.P.R., I.E., EXTENSION SERVICES
B. DIVISION LEVEL  	1. D.R.S.P.R. ORGANIZED AT LEAST 2 SEMINARS ON FSR/E APPROACHES 2. D.R.S.P.R. ORGANIZED AT LEAST 2 EXTENSION-RESEARCH WORKSHOPS TO IMPROVE RESEARCH PRIORITIZATION 3. D.R.S.P.R. DIRECTOR AND RESEARCH MANAGEMENT ADVISOR WILL ASSESS P.R.S.P.R. FIELD STAFF CONDUCTING ON-FARM TRIALS 4. AT LEAST 6 D.R.S.P.R. RESEARCHERS RECEIVED SHORT-TERM TRAINING IN FSR/E APPROACHES AND METHODS 5. ALL D.R.S.P.R. RECEIVED REFRESHER/INTRODUCTORY TRAINING IN DATA COLLECTION, PROCESSING, AND MANAGEMENT 6. SELECTION OF SHORT-TERM PARTICIPANTS, INCLUDING MIDDLE AND UPPER EXTENSION PERSONNEL: TOTAL 96 PERSON-MONTHS 7. SELECTION OF PARTICIPANTS FOR 3RD-COUNTRY STUDY TOURS: 16 P-M 8. ORGANIZATION OF WORKSHOPS/SEMINARS FOR STAFF AMONG RESEARCH VOLETS 9. ORGANIZATION OF JOINTLY-SPONSORED IN-COUNTRY TRAINING ACTIVITIES WITH I.C.R.I.S.A.T. AND I.L.C.A. 10. AT LEAST 11 LONG-TERM PARTICIPANTS WILL HAVE DEPARTED FOR GRADUATE TRAINING	1. ONE FSR/E SEMINAR ORGANIZED IN 1987 2. NO FORMAL RESEARCH-EXTENSION WORKSHOPS ORGANIZED TO DATE OTHER THAN RESEARCH PROGRAM IMPLEMENTATION MEETINGS 3. FIELD STAFF/ON-FARM TRIALS PERIODICALLY ASSESSED BY D.R.S.P.R. DIRECTOR AND C.O.P.s 4. 2 D.R.S.P.R.-O.H.V. STAFF RECEIVED FORMAL S-T TRAINING IN FSR/E METHODOLOGY: 2 PERSON-MONTHS 5. A TRAINING PROGRAM IN COMPUTER USE, DATA ENTRY AND PROCESSING HAS BEEN IMPLEMENTED BY THE DATA PROCESSING UNIT FOR DRSPR-OHV STAFF. TRAINING IS PLANNED FOR SIMRESO STAFF. 6. 15 D.R.S.P.R.-O.H.V. (18.9 P-M) STAFF HAVE UNDERTAKEN FORMAL S-T OVERSEAS TRAINING. NO EXTENSION STAFF HAVE PARTICIPATED TO DATE. 7. APPROX. 2 P-M FOR DRSPR-OHV STAFF ONLY;NIGER, GAMBIA, SENEGAL 8. FORMAL INTER-VOLETS WORKSHOPS HAVE NOT BEEN IMPLEMENTED TO DATE 9. FORMAL, JOINTLY-SPONSORED TRAINING WORKSHOPS WITH I.C.R.I.S.A.T. AND I.L.C.A. HAVE NOT BEEN IMPLEMENTED TO DATE 10. 17 LONG-TERM PARTICIPANTS HAVE DEPARTED FOR GRADUATE TRAINING IN THE U.S. TWO CANDIDATES SCHEDULED TO DEPART IN 1990
C. VOLET LEVEL  	1. PROVISION OF ON-THE-JOB TRAINING FOR STAFF IN DATA PROCESSING AND MANAGEMENT, FSR/E METHODS, ON-FARM EXPERIMENTATION 2. D.R.S.P.R. PROVIDED INTERNSHIPS TO I.P.R. & C.A.A. STUDENTS AND STUDIES ARE AVAILABLE 3. PROVIDE ON-FARM TRAINING FOR EXTENSION AGENTS 4. ORGANIZED WORKSHOPS, 1-3 DAYS, TO IMPROVE PROFESSIONAL SKILLS OF STAFF	1. ON-THE-JOB TRAINING HAS BEEN PROVIDED TO D.R.S.P.R.-O.H.V. STAFF IN COMPUTERS, DATA PROCESSING, FSR/E METHODS 2. INTERNSHIPS HAVE BEEN PROVIDED TO I.P.R. AND C.A.A. STUDENTS - 15 I.P.R. STUDENTS; - 1 C.A.A. STUDENT; 3. D.R.S.P.R.-O.H.V. ROUTINELY WORK WITH O.H.V. EXTENSION AGENTS 4. NO FORMAL TRAINING WORKSHOPS HAVE BEEN ORGANIZED FOR D.R.S.P.R.-O.H.V. OR O.H.V. EXTENSION STAFF TO DATE

ANNEX C

ORGANIZATIONAL ISSUES

1.1 INSTITUTIONAL/ORGANIZATIONAL ISSUES

The FSR/E Project was intended to provide 10 years of support to strengthen the capacity of Mali's national agricultural research institutions to develop and promote the transfer of agricultural technologies which are relevant to farmers' needs and circumstances. This long term commitment envisaged: (1) improving the overall effectiveness of the national agricultural research system, especially in relation to extension organizations and farmers, and (2) promoting the development of a long term national agricultural research strategy. The focal point for this institution strengthening effort was seen to be the division of Farming Systems Research (DRSPR) one of six Divisions of the Institute of Rural Economy (IER), which is charged with the planning, coordination, and implementation of national agricultural research, as well as having direct input into the formulation of national agricultural policy.

The basic strategy to achieve this project purpose was to strengthen DRSPR as a national planning and coordinating division for applied agricultural systems research programs throughout the country, as well as to expand applied research activities in two additional Regions; Region II- Operation Haute Vallee, and later in Region V- Mopti. DRSPR was implicated as well as an appropriate means to strengthen IER, both in focusing national commodity research programs and in contributing to the formulation of national agricultural policy through the provision of nation wide field/extension research data.

A second aspect of this strategy was to strengthen DRSPR as a source of expertise and training for professional staff from educational institutions and other agriculturally related research agencies, as an effective means to begin institutionalizing applied agricultural concepts and methodologies in agricultural training curricula. The institutional focus is supported in the Project Paper by the specific outputs envisioned for the project, at the policy level, at the national level for the coordination and expansion of farming systems programs, and at a specific technical level. In addition, the project was to provide resources at each of these institutional levels in order to generate the outputs envisioned. However the Project Paper was not clear in defining a strategy as to how project resources were to be allocated to achieve expected institutional outputs. Consequently, the evaluation team had to make a number of assumptions in developing its analysis methodology.

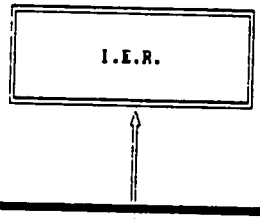
The institutionalization of a farming systems approach into Mali's national agricultural research system requires:

(a) Effective collaboration and the establishment of formal managerial and technical linkages among commodity and farming systems research programs (national farming systems program coordination-DRSPR); and

ASSESSMENT OF INSTITUTIONAL/ORGANIZATION OUTPUTS BASED ON PHASE I OUTPUTS AS INDICATED IN THE PROJECT PAPER

ORGANIZATIONAL CHART
(AS INTERPRETED FROM THE PROJECT PAPER)

A. INSTITUTION LEVEL



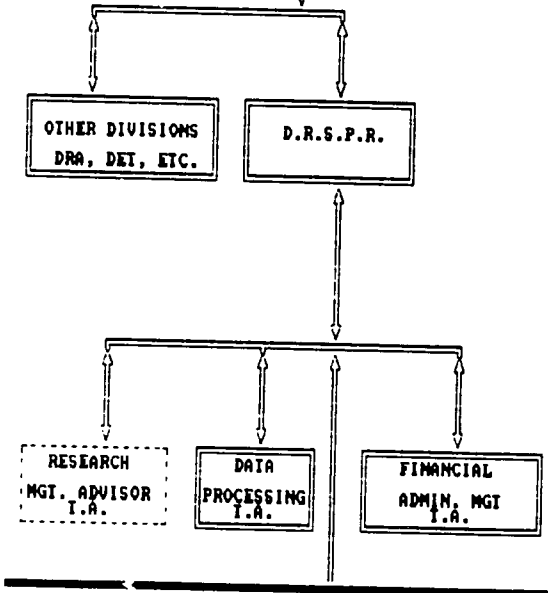
EXPECTED OUTPUTS

1. RELATIONSHIPS ESTABLISHED WITH POLICY GROUPS USING D.R.S.P.R. TECHNICAL RESULTS
2. HUMAN RESOURCE DEVELOPMENT/TRAINING COORDINATION
3. FOCUSING OF COMMODITY RESEARCH
4. I.E.R. & U.S.A.I.D. REVIEW PROCESS ESTABLISHED
5. DECISION MADE ON REGION V PROGRAM

ACHIEVED OUTPUTS

1. POLICY INTERACTIONS: NO NATIONAL AGRICULTURAL POLICY INITIATIVES HAVE TAKEN PLACE TO DATE.
2. U.S. TRAINING PROGRAM IMPLEMENTED. IN-COUNTRY TRAINING PROGRAM UNDERWAY BUT NOT FULLY FORMULATED OR PLANNED.
3. INFORMAL DIALOGUE AND COOPERATION BETWEEN FSR/E STAFF AND D.R.A. BUT NO FORMAL PLANNING AND FOCUSSING STRATEGY BEYOND TECHNICAL COMMISSION PROCEDURES.
4. REVIEW TAKING PLACE THROUGH INFORMAL CHANNELS AND SEMI-ANNUAL FORMAL MEETINGS.
5. NO FINAL DECISION MADE ON IMPLEMENTATION OF REGION V EXPANSION

B. DIVISION LEVEL



EXPECTED OUTPUTS

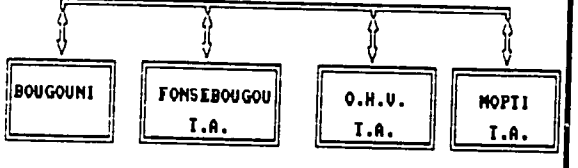
1. D.R.S.P.R. HEADQUARTERS MOVED TO SOTUBA
2. D.R.S.P.R. HEADQUARTERS FULLY STAFFED
3. D.R.S.P.R.-O.H.V. RESEARCH TEAM CONSTITUTED
   - PARTICIPATION OF SIKASSO STAFF
4. U.S.A.I.D. LONG-TERM T.A.: RESEARCH MGT. ADVISOR; FINANCIAL MGT. ADVISOR; DATA PROCESSING SPECIALIST
5. DATA PROCESSING UNIT ESTABLISHED; ONE MALIAN (CIVIL SERVANT) TRAINED AND ASSIGNED FULL-TIME
6. LIBRARY AT D.R.S.P.R. H.Q. ESTABLISHED
7. D.R.S.P.R. ANNUAL REPORTS DISCUSSED WITH OTHER I.E.R. DIVISIONS FOR JOINT FORMULATION OF RESEARCH PRIORITIES
8. D.R.S.P.R.-O.H.V. FORMAL COLLABORATIVE AGREEMENT NEGOTIATED
9. FORMAL FSR/E RESEARCH COORDINATION COMMITTEE OPERATIONAL
10. COOPERATIVE RESEARCH AGREEMENT ESTABLISHED WITH:
    - S.R.C.V.O.
    - D.M.A.
    - I.N.R.Z.F.H.

    ⟹ FOCUSING OF COMMODITY RESEARCH
11. FINANCIAL MANAGEMENT/INVENTORY CONTROL SYSTEM ESTABLISHED

ACHIEVED OUTPUTS

1. DRSPR HEADQUARTERS MOVED TO BAMAKO FROM SIKASSO
2. DRSPR H.Q. STAFFING NEEDS A FOCUS OF PRESENT EVALUATION, NOV. '89
3. DRSPR-OHV RESEARCH STAFF CONSTITUTED AND OPERATIONAL. NO U.S. TRAINED MALIAN STAFF HAS YET RETURNED
4. U.S.A.I.D. LONG-TERM T.A. TEAM ON BOARD
5. DATA PROCESSING UNIT ESTABLISHED AND FUNCTIONAL. NO MALIAN CIVIL SERVANT HAS BEEN ASSIGNED FOR LONG-TERM TRAINING ESTABLISHED. T.A. POSITION TO TERMINATE IN DECEMBER, 1989.
6. LIBRARY AT DRSPR HEADQUARTERS NOT YET ESTABLISHED.
7. DRSPR ANNUAL REPORTS INFORMALLY DISCUSSED WITH APPROPRIATE IER DIVISIONS AND STAFF. ONE FORMAL WORKSHOP WAS HELD IN JANUARY 1988.
8. FORMAL AGREEMENT (PROTOCOLE D'ACCORD) BETWEEN IER AND OHV SIGNED IN MAY 1987.
9. NO FORMAL FSR/E RESEARCH COORDINATING COMMITTEE HAS BEEN FORMED
10. NO FORMAL RESEARCH AGREEMENTS WITH RESEARCH ORGANIZATION OUTSIDE I.E.R. HAVE BEEN NEGOTIATED. INFORMAL COLLABORATION TAKING PLACE
11. FINANCIAL MANAGEMENT AND INVENTORY CONTROL/RECURRENT COSTS- SYSTEM IN PLACE & OPERATIONAL. RECURRENT COSTS PRESENTLY WITHIN B.P. BUDGETARY PROJECTIONS. GRM CONTRIBUTION LESS THAN PROJECTIONS

C. VOLET LEVEL



EXPECTED OUTPUTS

1. FINANCIAL MANAGEMENT AND INVENTORY CONTROL SYSTEM ESTABLISHED
2. LONG-TERM T.A.: AGRO-ECONOMIST - OHV
   AGRONOMIST - OHV
3. DATA PROCESSING SYSTEM FUNCTIONAL
4. RESEARCH - FARMER LINKAGES STRENGTHENED

ACHIEVED OUTPUTS

1. FINANCIAL MANAGEMENT AND INVENTORY CONTROL (SEE 11 ABOVE)
2. LONG-TERM TAs ON BOARD AND FUNCTIONAL IN DRSPR-OHV. NO DECISION ON EXPANSION TO REGION V HAS BEEN MADE AND TAs DESIGNATED.
3. DATA PROCESSING UNIT IN PLACE AND FUNCTIONAL IN DRSPR-OHV. LONG TERM PERMANENT STAFFING AND FUNCTION OF UNIT AT DRSPR OR OHV VOLET LEVEL NEEDS TO BE DETERMINED BY DRSPR MANAGEMENT
4. RESEARCH-FARMER LINKAGES ARE BEING STRENGTHENED THROUGH DRSPR-OHV AND OHV COLLABORATIVE PROGRAM. INCREASED EFFORT NEEDED ON RESEARCH STAFF - FARMER INTERACTIONS

(b) Effective coordination and collaboration among ongoing farming systems technical activities (technical program implementation-DRSPR/OHV).

Therefore the operational, institutional, research management analysis was structured as follows: a clear organizational structure was developed (IER-DRSPR-OHV), expected projected outputs as identified in the Project Paper were separated according to the organizational structure; and resource allocation by organizational structure was examined. Based on this information the institutional performance of the various structures involved in the implementation of the Project was assessed.

After extensive review of the Project Paper, it was clear that the FSR/E Project was intended to provide support for institution building at the national organizational level as well as for specific research program execution. However the implementation of Project activities has focused in the first phase on the development of the DRSPR/OHV research project and considerably less so on the institutional organization and role of DRSPR as a Division responsible for multiple programs on a national basis. Several observations support this finding.

DRSPR headquarters was moved from Sikasso to Bamako. This move was intended to bring the Division Chief and his staff into the national organization (IER) for closer coordination of policy formulation, planning, and interaction with other Divisions. Although this has been accomplished to limited degree, the greatest effect of the move has been to provide staff for DRSPR/OHV. It was officially established that the Division Chief of DRSPR would also serve as Project Director for DRSPR/OHV. This, in essence meant that either there would be two separate organizational structures, DRSPR (Division) and DRSPR/OHV (Project), but one individual would wear two separate and distinct hats as the Director of each, or the management division and the project execution would become indistinguishable and basically function as one.

The latter occurred. This merger was further enhanced by having the Division and Project occupy the same office facilities and sharing equipment, vehicles, etc. With the immediate need, in the first phase of the Project, to get staff in place and programs formulated and operational, emphasis on the less pressing aspects of institutional management became secondary in importance. The TA team was research program oriented. Even though a research management specialist was to have been provided to assist the Division Chief in setting up a management system on a national basis, this function has not been filled in the first phase of the Project. The TA's for financial management and data processing have also served almost exclusively in support of the DRSPR/OHV Project.

Although it might appear, therefore, that FSR/E Project objectives regarding institutional organization at levels above the DRSPR/OHV Project have not been accomplished this is not entirely true nor are the consequences, at this stage of project operation serious. The move of the Division from Sikasso to Bamako has strengthened its role within IER, and with other research and extension agencies.

It is likely that the leadership and technical assistance emphasis in the first phase has contributed to strengthening the ability of the DRSPR/OHV research team to move ahead in the second phase as a strong, productive farming systems research and extension program. Looking towards the future however, it appears clear that the merger of DRSPR headquarters and DRSPR/OHV research team should not continue. They have separate and clearly different goals, objectives, and procedures that cannot be met by a common staff in a single facility.

The DRSPR/OHV team must execute a specific research and extension program in definite geographic region (Region II). This requires expertise in specific subject matter areas and research management abilities for program coordination, resource allocation, and program planning. It requires personnel, facilities, budgets, vehicles, etc specifically for the execution of the program. The Division will have a major role in providing policies, leadership, coordination, and monitoring activities. These functions will become more important with the projected expansion of activities by the Bougouni team and the establishment of a team in the Office du Niger region.

The second phase of the FSR/E Project is the time to bring about this separation. With new facilities nearing completion these should not be used to accommodate both the DRSPR (Division) and the DRSPR/OHV research team. They will be too small for both in a short time anyway and should therefore be used for the Division only. Both USAID and IER do not feel that physical separation should be accomplished at this time because of financial considerations and the efficient utilization of resources between the Division and the DRSPR/OHV team. While the evaluation team sympathizes with this view, they feel that the future effectiveness of DRSPR as a Division will depend on strengthening its management capabilities now in light of the projected increases in the number of research teams that will be within the Division in the future.

It is quite important that the research management TA position be filled as envisioned and described in the Project Paper. This will entail the separation of the Research Manager and Chief of Party positions adding a new TA position. This is because to date, none of the three TAs in that position have been research management specialists or served in that capacity. As DRSPR becomes physically separated from DRSPR/OHV there will distinct need for assistance and advice in management procedures for a national organization. Someone is needed who has experience in management of large, multidisciplinary, multi-location research programs, such as a Director of an Agricultural Experiment Station in a US University or an Area Director of the Agricultural Research Service of USDA. Such persons have expertise in research planning, budget planning and allocation, priority setting regarding program needs and resource allocation, personnel management, monitoring and evaluation processes, coordination among locations and programs, reporting and publishing of research results, etc. The research manager's role at the divisional administrative level is significantly different from that of the coordinator/project leader at DRSPR/OHV level. The latter is concerned with day-to-day project activities, number of trials, staff needed and available, resources for salaries, equipment, vehicles and travel, etc. The coordinator's concerns deal mostly with hands-on, daily activities of an ongoing project.

The DRSPR research manager's role is broader and less specific. His/her concerns deal with needs of specific projects under his/her responsibility, how to provide for their needs, how to coordinate them, and have them interact. This person is also responsible to be the liaison of link between the projects and related activities outside the Division, both within and outside IER. The research manager must report to and influence policy and program decisions at higher levels. As the number of FSR/E projects in DRSPR increases, several international donors will likely be involved, requiring the research manager to deal successfully across a range of diverse conditions.

As the Division develops and is staffed, the financial management and data processing functions, which thus far have supported primarily DRSPR/OHV activities, should shift emphasis to Division support. Again the function will be broader and more general than providing financial record systems and data analysis to a specific project, but a national organization requires good financial management systems, oversight over and coordination among projects. Data processing and management activities, as a function of DRSPR is discussed in detail in a separate section of this report and ANNEX D.

The separation of the Farming Systems Research Division from DRSPR/OHV will require additional resources, including financial and personnel. It will require that the GRM provide financing and staffing positions to adequately support, at a sustainable level both DRSPR and DRSPR/OHV research team as well as other projects it plans and hopes to implement. If this cannot be accomplished USAID and the GRM would be well advised to reevaluate their positions regarding resources and program priorities and determine the primary need to develop and sustain a strong FSR/E Project in DRSPR/OHV before embarking on bigger national endeavors which cannot be supported and sustained.

RECOMMENDATIONS

A physical separation of DRSPR (Division) and DRSPR/OHV facilities and staff should be effected in the near future. The facilities now under construction should become the Division headquarters. Technical assistance at the Division should be provided for technical program and research management planning; financial management; and data processing. The research management TA should be working at the divisional level with a qualified Malian counterpart appointed by the Division Chief. The data processing TA contract should be extended for three years to adequately handle the needs of DRSPR/OHV, of DRSPR and of other research teams within the Division. This will also give GRM time to fill needed staff positions with adequately qualified and trained personnel. The GRM should make a greater effort to assign qualified Malian civil servants to fill staff positions at the Division and DRSPR/OHV.

Divisional level staff should have clearly delineated technical and administrative responsibilities, to implement uniform procedures for all research teams, including personnel, finance, data processing, and training.

The Chief of Party and Research Manager should be two separate positions: the research manager TA and his/her Malian counterpart should assist the Division Chief to better coordinate activities between the different research teams.

The Chief of Party of the SECID technical assistance team should serve as the counterpart of the Malian coordinator to help strengthen program planning and coordination at the research project level.

1.2 DATA MANAGEMENT

A key element in the DRSPR strengthening effort was the provision of resources for the establishment of data management information systems, focusing on the synthesis and analysis of applied agricultural research and extension (adoption) data.

In order to assess the progress achieved to date by the Data Management Unit a development process needs to be defined for the institutional evolution of this Unit during the course of the project. Such an assessment needs to be made on both institutional/organizational level, as well as on a technical level. In this section of the evaluation report only institutional and organizational issues will be addressed (a technical assessment can be found.

The development of this unit, through the effective training of Malian counterpart staff, could be envisaged to evolve from a data and statistical support service at the DRSPR/OHV team level, to one that becomes increasingly involved in providing the Division with data analysis and statistical support services for all existing research teams (Bougouni, Office du Niger, Fonsebougou, and OHV). In addition, this Unit would provide the Director with applied research data across research zones, as well as establish close linkages with other divisions within IER.

The ability of DRSPR to have a positive impact on the focusing of commodity-oriented research and the formulation of national agricultural policy will be determined by its ability to strengthen IER's information network. DRSPR must have the capability to provide analyses of reliable, applied research data across its zones of intervention to DRA, which is the national division responsible for coordinating on-station agricultural research to influence the focus of commodity research programs on a national level, and to IER's Divisions of Planning and Evaluation (DEP) and Technical Studies (DET) to influence national agricultural planning and policy.

This perspective is not detailed in the project document, and accordingly, has not been intended to be used as a basis for evaluating the impact of the Data Management Unit as an institutional building effort. It represents, however, in general terms, how the evolution of this Unit could directly contribute to achieving end-of-project objectives. This analysis has been an attempt to provide a long-term perspective as a means to better assess achievements to date and provide orientations for the future.

Data Management Unit/Implementation Status

Preoccupation with initial implementation of the project has focused Data Management Unit activities on providing data entry and analysis support for the DRSPR/OHV research team. In addition, formal training has been initiated for team members in the basic use of computers, basic word processing, and some basic statistical analysis procedures, although the majority of training for researchers in this area has been through the use of short-term overseas training. The Unit has designed data structures, entry forms, and procedures in order to standardize data entry and facilitate data verification, as well as developing a data archive and coding system. The program, documentation, and procedures manual for this system are expected to be completed in December, 1989.

Presently, there is one technical assistant managing the unit whose contract is due to terminate in mid-December, 1989, and support staff, all project contract employees. To date a Malian civil servant counterpart to the expatriate TA has not been nominated. Present activities include the management and maintenance of equipment, training, establishment of a data base for the Geographic Information System (GIS), and ag-economic baseline data entry and archiving. The work load appears to be in excess of what current staff can reasonably manage, since a request was made in the 1989-1990 work plan for the recruitment of two additional staff members. In addition, the Data Management Unit has begun to receive requests from the Fonsebougou team to assist them in putting into operation a data management unit. DRSPR management also expressed the need to begin providing data analysis support to other Division teams.

Data management service should be a permanent support activity at the research team level. However, it appears that demands for this service will continue to increase in the future, and it is unlikely that resources will continue to be available to meet increasing needs. Data management requirements must be prioritized not only as a function of research program needs but also as a function of resource availability. The need to begin developing a data management information system at the division level will add an additional burden on present staff.

RECOMMENDATIONS

The data management technical assistant position should be extended for at least an additional 3 years.

DRSPR management should elaborate a life-of-project program for the development of data management services at the research team level and at the division level. This program should define the terms of reference for the extension of the TA position.

Training should be a high priority activity of the data management service.

Efforts to prioritize data management services needs to be made by the DRSPR/OHV research team. Data management constraints should be considered when elaborating research program activities.

Greater efforts should be made to recruit Malian civil servants to fill staff positions in the data management unit.

1.3 MONITORING AND EVALUATION OF PROJECT IMPLEMENTATION

Functionally, the monitoring and evaluation of project implementation was to include six components; Mission Management Team, Project Committee, Project Task Force, periodic project progress reports, and project reviews and appraisals. In addition, the project paper indicated that monitoring activities would pay particular attention to the evolving recurrent cost situation, the effectiveness of efforts to strengthen vertical and horizontal communications, the development of programs addressing women's concerns, and the inclusion of consumption/nutrition aspects in the development of improved crop production technologies.

Present System for Project Monitoring and Evaluation

Mission Management Team: Monitoring activities of the Mission Management Team have been the responsibility of the Agricultural Development Office and have involved the participation of a senior-level direct hire staff member, an FSN agronomist, and a PSC research agronomist (Project Technical Advisor). Activities were to include backstopping implementation support for the project team and implementation of a special economic assessment to determine the potential benefits of expansion of FSR/E activities into the 5th Region.

The subject of possible expansion into Region V is discussed in a separate section of the report. The effectiveness of Mission backstopping of project implementation is unclear and has likely been somewhat obscured by problems experienced by the first technical assistance team during the period of project implementation. Discussions with staff and assessments from periodic projects reports and Mission memoranda on the subject imply that perhaps Mission staff became involved in project "micro-management" to resolve what in essence appear to have been personality conflicts and Mission-perceived professional weaknesses among the early technical assistance team members. During the first 18 months of project implementation it appears that efforts were concentrated on trying to build a technical research team and develop and appropriate research program focus.

Changes in the original technical assistance team and at the level of DRSPR project management appear to have resolved many of the basic personal problems experienced during initial stages of project implementation and indications are that an effective research program planning, implementation, and evaluation process is evolving.

USAID Project Committee: In order to provide continuity and coordination within the

Mission, USAID established a project committee composed of the Project Officer, and representatives from other appropriate Mission offices. The function of this committee was to monitor overall project progress and provide guidance to the Project Officer in his support activities for project implementation. This committee was to meet once a month, or as needed. The project committee was constituted, though available documentation would indicate that meetings were held much less frequently than once a month. Indications are that initially this committee became pre-occupied with daily implementation and project management issues and consequently was not able to focus on broad program issues.

Project Task Force: The USAID Mission and IER also established a Project task Force consisting of the DRSPR head, Chief of Party of the Technical Assistance Team, and the USAID project officer. Meetings were to be held bi-monthly and focus on assessing program progress, resolving implementation problems, and identifying specific actions to be taken by the concerned agencies (IER, the contractor USAID). Minutes of these meetings were to be prepared, signed, and forwarded to the Director General of IER and the Director of USAID. The Task Force was constituted as foreseen, however, meetings have not been held on a strict bi-monthly basis, nor have formal, signed minutes been routinely prepared as foreseen.

Project Reports: Periodic reporting by the Technical Assistance team has been done. Although the project paper specifies the submission of six-month and yearly reports, efforts began in mid-1987 to provide the Mission with monthly reports. In general, this procedure has been continued to date.

Project Advisor Committee: A Project Advisory Committee, including representation from IER, the Contractor (SECID), and USAID was formed to provide an opportunity to all project implementation partners to meet informally and discuss general project issues and concerns. These meetings have generally been held once or twice a year.

Project Review/Appraisals: Project review and appraisal meetings have been held at approximately two-month intervals between the Mission's ADO and the Director General of IER. These meetings have informally reviewed project progress and involved discussions concerning agricultural research issues on a national level. Formal minutes of these meetings have not been routinely prepared. IER, USAID, and SECID have also conducted semi-annual project reviews the recommendations of which have been executed by the Project.

Management Information: As noted above and indirectly referred to in other parts of this evaluation report, no formal process had been implemented for the diffusion of management information among the different parties involved in project implementation. This process will not take place spontaneously, and in its absence effective management decision-making cannot take place. DRSPR, the technical assistance team, IER, SECID, and USAID all have critical roles to play in the implementation of this project. Often timely decision-making has not occurred because the parties concerned have not been aware of the problem, or have not had the necessary information to make a decision. To date this has been a particular problem with the management and monitoring of the

project's participant training program. It has also been a problem for the Mission in terms of identifying how to effectively monitor project progress and provide effective project support. In the future, it will likely also be a problem for DRSPR in terms of monitoring and coordinating applied research programs in its different regions of intervention.

Conclusions: The project's present monitoring and evaluation system has suffered from a lack of formal structure and process. As a result the roles and responsibilities of each of the parties concerned in the monitoring and evaluation process have not been clearly defined. On occasion this has lead to confusion and misunderstanding. The number of monitoring and evaluation committees, both as proposed in the proposed project paper and as implemented by the project, seem to have substituted for implementation of a formal process. An important omission in the present process is the lack of a formal "feedback" system to track the execution of decisions reached in the various committee meetings. The failure to clearly define the responsibility of each party; project, contractor, IER, and USAID may be one of the reasons for the past tendency of the Mission to get involved in project "micro-management".

RECOMMENDATIONS

DRSPR Management should develop a more formal structure for the implementation of project programs, including a planning, monitoring, and evaluation process . This program implementation process should then be used by IER and USAID for a fixed time schedule in an effective, formal monitoring program.

The role and responsibility of each party involved in project monitoring and evaluation process should be clearly defined and agreed to by all concerned.

A formal monitoring and evaluation proces should involve the minimum number of meetings necessary, but all meetings soled be conducted with agendas. Minutes, indicating decisions taken and implementation responsibility, should be taken at all meetings and distributed to all participants.

Organization of meetings and the follow up of implementing decisions should be the responsibility of DRSPR management.

DRSPR management should identify specific, quantitative (if appropriate) project program objectives which should serve as program monitoring and evaluation criteria. This would enable a better tracking of project progress and assist the project in maintaining a clear programmatic orientation.

Informal meetings among all parties directly involved in project implementation should be encouraged. However, formal decisions regarding specific program matters committing project resources, implicitly or not should be discouraged outside of the formal, agreed-to process.

ANNEX D

PROGRAM DEVELOPMENT AND IMPLEMENTATION

2.1 INTERDISCIPLINARITY

The purpose of the Mali Farming Systems Research and Extension project is to develop agricultural technology which is relevant to farmers' needs and circumstances. Because farmers' manage and allocate resources among a variety of on-farm and off-farm enterprises, it is important to work as an interdisciplinary team to be able to understand and appreciate the complexity of farming systems.

The evaluation team notes that integration of component discipline scientists has improved over the last two years of field activities. The economic unit which had a tendency in the past to be so involved with baseline data collection has contributed significantly to the animal science research program (improved corrals, animal conditioning), and to the ex post analysis of all on-farm research. The ex post evaluation performed by the economists has been praised by the other research teams of DRSPR.

There is considerable integration between the agronomy and animal science members of the team. Some of their research programs are complementary such as the use of manure from the improved corrals, and the introduction of forage cowpea varieties.

The team sociologist interacted with the agronomist and animal scientist prior to his departure for long-term training. They conducted a series of informal surveys in the form of case studies. From this information, they developed qualitative models to try to describe the system and component interactions to better elucidate the constraints to production.

The changes of personnel in both TA and Malian staff have made the development of interdisciplinarity a difficult task. Out of the three scientific TA team members, only one has been in Mali for more than six months. Out of the original Malian scientists appointed to DRSPR/OHV, there is only one agronomist who is still working on the team because the others have left for long-term training. As personnel leave and are replaced, the team must adjust to different approaches to on-farm experimentation and data collection techniques, different working styles and team dynamics. It takes time to reestablish an effective working relationship which is critical to interdisciplinary research.

As stated earlier, there has been significantly more interaction between the disciplines of the DRSPR/OHV research team. In order to establish a coherent, integrated research program in FSR/E, it is essential that the current technical team continue to improve its interdisciplinary skills.

With so many new team members, both TA and Malian, this is an opportune time to take steps to increase team interactions. Following the example of the Sikasso team,

DRSPR/OHV could designate a central area for a daily coffee break. Those who are not out in the field could meet informally and discuss a wide range of issues.

The annual retreat initiated last year provides a more formal setting for team discussions. Since this was so successful the first time, it should become institutionalized and made part of the yearly work plan. This might also be a time when an outside facilitator could work with the researchers on team building exercises.

The TA team should spend some time together so they can determine their roles and responsibilities as technical advisors to DRSPR/OHV. Part of the problem in years past was the conflict between the expatriate team members. With new personnel in place, it would be a good idea to have some discussions before everyone gets too busy with field activities.

The entire DRSPR/OHV research team has accumulated a lot of knowledge about the farming systems in the OHV region. Because they are so busy on their individual projects, they have not taken the time to synthesize all the information they have gathered by both formal and informal techniques. Working together to develop models of the farming systems is another way that the scientists can get an appreciation for each other's disciplinary expertise. It will also help them to identify where they need to gather more information which may lead to more integrated research plans.

RECOMMENDATION

The DRSPR/OHV team needs to take steps to become a more integrated, interdisciplinary unit. This may be facilitated by an annual retreat and by specific team building activities. Team building activities might include developing qualitative models that integrate the team's knowledge of the predominant farming systems, and group dynamics exercises that may, if necessary, be conducted by the use of a short-term outside facilitator.

2.2 RESEARCH PLANNING

On-farm research activities, particularly when conducted by an interdisciplinary team, often require more logistical support than experimental station research programs. For this reason, research planning and coordination become very important to assure the best use of limited research resources.

According to the Project Paper, it was assumed that time would be the most constraining factor in determining the work plan to be implemented. For this reason, it was assumed that the research team would undertake a core set of activities in which all team members would be involved in joint data collection and analysis supplemented by a limited number of thematic studies.

The PP also calls for the team to have established a 2 year research plan by the end of Phase 1 of the project. This plan was to have been based on the results of the analysis of the baseline data.

Because of recognized personnel limitations and the need to establish an integrated work plan, research planning and TA support for this was to be an important part of DRSPR/OHV.

a. Identification of Research Priorities

The DRSPR/OHV team did an extensive rapid reconnaissance survey in July and August of 1986. The heads of 160 farm families in 43 villages were interviewed during the survey, along with holding a group interview in each of the villages. A multi-stage purposive sampling procedure was used to pick the villages. Representative rural zones of expansion (ZER) were chosen in each sector, representative base sectors (SB) were chosen in each ZER, and representative villages were chosen in each SB. Where possible, the team interviewed 4 production units in each of the 43 villages, selected according to criteria related to animal traction use: well equipped, moderately equipped and manual production units.

Members of each discipline wrote their own report which was synthesized into one document by someone outside the team. This outside person combined and edited the disciplinary reports to achieve a joint report and establish a list of priority problems. Although this reconnaissance survey was used to determine research priorities and identify research themes, it is unclear that the team ever established joint priorities across disciplines.

In 1987, almost all the TA field staff were replaced, and in 1987 and 1988 all but one of the Malian researchers who participated in the reconnaissance survey, left the project for long term training.

With changes in technical personnel, the new team established a baseline survey that when analyzed would provide new orientations for the research program. Questioning data collected in 1988, a year of heavier rainfall than any of the recent years, the baseline data collection was extended for another year. The 1988 data has been tabulated, but only limited analysis has been done as of November 6, 1989. It does not appear that the team will finish the analysis of 1989 data and combined 1988-89 data before the end of 1990. Between the initiation of the baseline survey, its analysis, and written interpretation, three years of on-farm research will have been conducted without the benefit of input from this database. Multi-year formal surveys are a good way to verify priorities already established, but are typically not very useful in actually setting a research team's priorities.

As part of a typology survey implemented in 1988, the team asked farmers to prioritize their problems. Much of this typology survey focused on the use of animal traction. The questions preceding those asking farmers to prioritize problems were on animal traction and equipment use. The farmers identified problems related to animal traction

as their most important constraint(s). This may indeed be true, but the survey instrument was biased towards producing this result.

The constraint survey was not developed to give information on possible constraints throughout the farming system but was oriented toward equipment and cereal production. The survey got at farmers perceived constraints but there are technical issues that may not be within the grasp of farmers (microelement deficiencies, insect problems, weed problems etc) or that may not be perceived as problems by them. Constraint identification should also include field visits with thematic researchers during the cropping season. The problems identified by the researchers and a determination of their importance would complement and potentially verify the prioritization determined by the farmers.

It appears that the evaluation of trials and interventions which the team does each year has perhaps been the most important means of identifying priorities. These evaluations and the learning which has obviously taken place from year to year is a very positive aspect of the project. One can trace, for example, how fertilizer trials which did not produce economic results, led directly to the search for more economic forms or doses of fertilizer as well as the investigation of manure use and composting. (This also demonstrates one very important and productive aspect of the integration of agronomic and economic information.) This is the type of learning and change in research orientation that one desires to see from year to year. But the question remains whether the team has been able to establish global priorities, and where the components of the ongoing research program would fit within those priorities.

The DRSPR/OHV team does not seem to have been able to establish research priorities which are directly linked to long-term objectives. The team still needs to establish its own identity and priorities across disciplinary programs.

RECOMMENDATION

The DRSPR/OHV team needs to establish research priorities as an interdisciplinary team. They need to undertake informal reconnaissance activities implemented as an integrated team producing a single report identifying the predominant farming systems of the area and the priority constraints and opportunities for research.

b. Long Term Programming

The technical commission system used by IER for research in Mali requires a very demanding annual report and work plan that takes an enormous amount of time and effort to prepare. The Technical Commission is usually held in March or early April. This means that as soon as the work plan is accepted, the team needs to start selecting cooperating farmers, visiting proposed test sites, procuring inputs for tests, collecting data of field activities already begun, etc. There is no time to lose if the team is to be

ready to start the new cropping season. This annual planning cycle only provides for short term research objectives.

Given the intensity of the preparation and the time constraints, it is little wonder that people often lose sight of the fact that a one year planning horizon is not sufficient for a quality research program. Most experts would agree that research should be planned on a 4 or 5 year basis. Such a long term plan should not go into great detail, but should lay out major themes and research priorities for this period.

Within this plan, researchers should have some flexibility. They need to have the possibility to follow up on important findings from on-going research or to take advantage of a research opportunity that appears. In most institutions, research plans have to be adjusted yearly within the scope of the 5 year plan to take into account the changes in the annual budget and other factors. In most cases research institutions and programs will have long term, medium term and short term plans which establish priorities as well as season to season activities. Unfortunately, at present, the IER does not use or require this type of strategic planning process.

The Project Paper calls for the team to have established a 2 year research plan by the end of Phase 1 of the project. This plan is to be based the results of the analysis of the baseline data. Analysis of the baseline data is not likely to be completed before the end of 1990. The evaluation team accepts that given the slow startup of this project, it effectively is finishing the second year of an 8 year project. But the project needs a long term plan for the project as well as for research activities, and probably can not afford to wait another year or two to develop it. Among other things, the team needs to establish a firm basis for monitoring and evaluation that does not appear to exist at present. It is unlikely at this point in the project that analysis of the baseline data will make a crucial contribution to developing research/project priorities or a long term plan.

A long term research plan is one demand on the researchers time which should help them prioritize and rationalize their activities, rather than spending all their time fighting fires.

The DRSPR/OHV team needs to establish priorities according to a longer term planning horizon. The team is so preoccupied with the day to day and season to season activities, that no time has been devoted to the longer term perspective of the project. The team needs to plan to accomplish certain things within the next several years, before the TA team leaves, and before the end of the project, in order to have a successful project.

RECOMMENDATION

DRSPR/OHV needs to establish priorities with regard to a long term, and medium term plan for the research program and project activities.

c. Geographic Dispersion of Research Activities

According to the project paper, the DRSPR/OHV team would be working in 3-5 villages after two years of activities. They are currently working in eight research villages (two per zone), 5 additional pre-extension villages, and 1 demonstration village. Activities expanded into four OHV zones with the signing of a five year collaborative agreement with OHV in 1987. The original agreement signed in 1985 was for work in two of the four zones, Bancoumana and Ouelessebougou.

This level of activity has far exceeded the expectations of the project paper and is to be commended. However, there are some serious implications of this rapid expansion on the quality of research and extension activities in the OHV region and on future expansion into Region V.

There is no doubt that the OHV region is very heterogenous and that the technologies developed for the southern part may not be directly applicable in the north. The production constraints and the potential opportunities to increase farmer well-being may also be quite different across the region. Therefore, the strategy of working in several parts of the OHV region makes sense.

However, the distance researchers must travel, sometimes as much as five hours to the research sites, limits the amount of time researchers can spend in the field. The overall division of project activities into research, pre-extension, and demonstration villages within a zone also contributes to the large amount of time that researchers spend in vehicles as opposed to visiting with farmers in their fields or in the villages. This reduced researcher-farmer contact leads to more reliance on formal data collecting techniques using enumerators.

The information gathering system in the field (enumerators to controllers to researchers) is very hierarchical (Description and discussion in Section 2.6). Due to this cumbersome communication process, problems identified at the field level may not be addressed by researchers in time to evaluate their importance and effects on production. For example, during the evaluation team field visits, farmers mentioned a serious insect problem on the millet inflorescence. One of the enumerators had noted it on his field observation sheets, but the sheets had not yet made it through the system to reach the attention of the agronomists. Meanwhile, the millet had been harvested. It was too late to determine, in the field, the extent of the attack and the amount of crop loss due to the infestation. It was also too late to collect live samples of the insect to give to the plant protection unit of IER and solicit their assistance.

Because the agronomic field trials are dispersed over a wide area, the agronomists have split supervisory responsibility in order to assure better followup. This is possible due to the fact that there are three Malian agronomists/assistant agronomists on staff at Bamako, although one of them is more occupied by administrative matters. For the economic and animal science personnel, this is not possible. There is only one person in each section to work throughout the OHV region. When the agronomists do field work, the economist and animal scientist must choose with which team to go, leaving the other

without support. This reduces the field level contact between the disciplines thus limiting the development of team integration.

While better coordination of field activities out of the Bamako office might help to increase the efficiency of personnel travelling in the region, the size of the region and the large number of villages which host interventions will always pose a problem with the current staffing levels of research personnel. Another economist has been requested, but no one has been assigned to date. If additional personnel is assigned to the DRSPR/OHV team, either from current IER personnel or from returning students, this could potentially reduce the pool of people available for the Region V expansion.

Although the GRM would like FSR/E to expand rapidly to cover the entire country, it is unlikely that the GRM will be able to absorb a significant part of the recurrent costs of the Region II and Region V teams, as scheduled for year 8 of the project. In order to cover the current research, pre-extension, and demonstration villages, the team presently has 2 1/2 times the staff planned for the OHV region, most of whom are employed on a contractual basis.

Because of the issues raised above, there are a series of questions that need to be addressed as DRSPR/OHV defines its future activities. Should the work load be reduced to a more realistic level or should the DRSPR/OHV team be strengthened by assigning additional technical personnel? What are the implications for future expansion? If the team functioned as a more interdisciplinary unit establishing joint research priorities, could the geographic area covered remain the same with better coordination of activities out of the Bamako office? Or does DRSPR/OHV need to synthesize their current knowledge of the farming systems and agroecologic zones of the OHV region to reduce their activities to one or two representative village clusters or zones (north and south)? If there were more integration in the work plans of the livestock sectoral project in the north, would this free up personnel time for more work in the south?

The research team is spread too thin over a wide geographical area. DRSPR/OHV needs to address the above questions as an interdisciplinary team to determine a realistic solution consistent with their goals and objectives. Instead of using expanding resources to cover expanding research activities, DRSPR/OHV should prioritize their activities and use their resource constraints as one of the criteria for establishing their work plan.

RECOMMENDATION

The DRSPR/OHV team needs to organize its work so that the researchers have more contact time with farmers during the cropping season.

The DRSPR/OHV team needs to establish a more realistic work program given the level of personnel and financial resources available. The team should consider alternative strategies for working in the field, for example:

- **reducing the number of field sites**
- **integrating the work plan for the north with that of the livestock sectoral project**
- **organizing fieldwork to better utilize project personnel and equipment**
- **reintegrating the female research assistants into the Bamako research team with the intention of establishing subteams or antennae.**

d. Research Budgeting

It appears that there is no research budget established for individual research trials or interventions in DRSPR/OHV. Equipment and material needs are established across the disciplinary programs and purchased in large quantities. This means that there is no way to do accounting by activity to determine the financial and human resources being used for each research intervention. There is no way to evaluate the cost effectiveness of conducting on-farm research nor to use resource constraints as a criteria for establishing research priorities.

This lack of planning and management of research seems to be a problem throughout IER also. The Interstate Commission for Drought Control in the Sahel (CILSS) has a regional project--AGIR, "Amelioration de la Gestion des Institutions de Recherche", which is working with the Institute to develop a system of research planning that can be used at all levels. Forms, which may also include information on budgeting, have been developed to help organize the information needed in research planning . There was a training session for representatives of each division within IER to learn how to use this planning tool. Representatives of DRSPR also participated. It is unclear that this tool is currently being used anywhere in IER, but it seems that it would provide a mechanism for more effectively planning and managing research at the Institute.

RECOMMENDATION

DRSPR/OHV should establish a research planning procedure that incorporates cost accounting for each research program.

e. Conclusions

Just as DRSPR/OHV has been in the forefront of data analysis and computerization of data from agronomic trials within IER, it can play this same role with research planning. The planning tool proposed by CILSS could be used for the next research planning cycle to see if it meets the needs of DRSPR. If not, it should be modified.

The types of information that have been used in planning on-farm research interventions in other countries and that have been incorporated into the protocols include the following:

Title of the research trial;

Justification for conducting the research;

Hypothesis to be tested;

Methodology: experimental design and duration of experiment; agricultural practices to be followed (experimental and non-experimental variable definition); site selection (including number and characteristics); type of followup (including how often visits will be made and when, what type of data sheet, etc); what type of analysis will be conducted.

Materials and logistical support needed: source of materials, equipment, etc.and who will provide it; what personnel will be needed, at what point in time, to do what; and an estimated budget.

Activity calendar (detailed calendar from conceptualizing the study, to the final report).

Some of this information is already included in the research plan presented to the Technical Commission or in the protocols used by the field personnel. It was unclear to the evaluation team that the detail proposed above particularly in terms of the materials and logistical support needed and the activity calendar are part of the planning process as it is currently conducted in DRSPR/OHV. The activity calendar is particularly important because when this is compiled graphically as in a time line for the whole team including the field staff, labor bottlenecks become apparent. This then can be discussed and used to refine priorities given limited research resources.

2.3 ON-FARM RESEARCH

The evaluation team was asked to address many specific aspects of the on-farm research program. To avoid a lengthy, detailed discussion, certain key aspects will be considered: on-farm research process, research design, economic analyses, feedback mechanisms, and farmer selection.

a. On-farm Research Process

Within the OHV region, the research process is divided into tests, pre-extension trials, and demonstrations. This distinction was reconfirmed during a seminar on on-farm research in 1988.

For the tests, DRSPR/OHV field personnel is responsible for installing and collecting data on the trials. The OHV agents are involved predominantly at this stage to select collaborators. DRSPR/OHV provides all inputs necessary for the field plot, both experimental factors and non-experimental factors.

In the pre-extension trials, DRSPR/OHV provides the inputs to the OHV agents who assure their distribution and their repayment. The agents keep an activities notebook where they note their field level observations. At this point the field activities are supposed to be divided 50% DRSPR, 50% OHV. Exactly who does what, when, and where, is determined informally.

In the pre-extension trials, there does not seem to be any systematic data collection. The research team therefore loses the ability to refine the concept of recommendation domains to earmark technological recommendations for specific groups of farmers.

Data collection should occur at all levels of the project. The types of information and the amount should vary by stage of activity. Data collection should be more intensive at the test stage so that the results can be analyzed. In pre-extension trials, besides minimum information to describe the field, socio-economic considerations and farmer acceptability may be more important than multiple agronomic criteria beyond yield. At the demonstration level, farmer acceptability and yield are really the only types of information needed.

Demonstrations are the mechanism by which verified technologies are extended over wide areas. In the recent work plans of DRSPR/OHV, several technologies are being put on farmers fields in both pre-extension and demonstration mode simultaneously or directly into demonstration without ever passing through the test stage. One example of the former situation, composting, has been rejected at both levels. Farmers did not easily find sufficient plant material to fill the pits and complained about the difficulty of digging them. It is unclear that there has ever been any research into improved methods of composting or development of on-farm trials that would permit farmers to evaluate the effects of compost on crop production prior to putting it into demonstrations. While composting is a proven technology, rates of decomposition and compost production will vary by region because of rainfall and availability of vegetation. More structured testing and evaluation within the context of a farming systems research approach is needed.

Another example of a misplaced demonstration is the herbicide demonstration. The results indicated that in intercrop situations the maize production increased while the sorghum and millet production decreased with the use of herbicide. The researchers and extension agents don't know if the problem was a result of poor seed or aftereffects of the herbicide.

The research process besides being divided into specific activities, is divided by village and within village. There are research villages, pre-extension villages, and demonstration villages. This contributes to the dispersion of field activities described above under research planning.

The research villages, selected for their representativity, are divided into research and socio-economic production units. This division came about because the farmers felt that they were being bothered by too many questionnaires. Rather than identifying the minimum information necessary to describe the farming system from an interdisciplinary

perspective, DRSPR/OHV disciplinary units worked with different groups of farmers. This has limited their ability to analyze the effects of their interventions on the system.

More recently, as farmers have stopped participating in project activities, new participants have been chosen from the socioeconomic production units so that there are now several production units for which a complete set of production and socioeconomic information is being collected.

Currently, demonstration activities are limited to two villages in the region. DRSPR/OHV expects people who are interested in these demonstrations to go to these villages. Some farmer visits are planned within the context of the project.

The process of developing technologies can be perceived as ever expanding concentric circles with increasing numbers of people being involved. By the demonstration stage, the concentric circles should split off to many nuclei taking advantage of the contact farmer and farmer group system of the OHV extension system.

b. Research Design

There has been a significant improvement in the design of on-farm research within the last two years. Early in the research program, the agronomic research trials were focused on testing existing research recommendations. These tended to be comparisons of whole technological packages versus farmer practice. For example, in the early fertilizer trials, planting in rows, interline spacing, multiple weeding were considered to be recommended practices which were used in conjunction with fertilizer dose. These were compared to farmer practice which generally differs in several respects from the recommended practice. When the tests were evaluated, they were evaluated in relation to the fertilizer response but any one or combination of the recommended agricultural practices could also have been responsible for yield increases. With the simple two plot, one repetition per farmer design, it was impossible to determine which experimental factor was responsible for the effects observed.

When the evaluation team talked with farmers who are no longer participating in trials, they asked farmers what part of the package that was tested they continue to use. Farmers often responded that they have adopted one of the no-cost factors such as interline distances--not even the principal factor the researchers were trying to test. Now, DRSPR/OHV agronomists are testing components of technological packages because they have recognized that farmers are more likely to adopt technology in a stepwise fashion and they want to determine which factor is responsible for the results observed.

There is still room for improvement, particularly with the animal science trials testing the improved corrals and livestock feeding. For example, if one objective of improved corrals is to reduce the amount of wood being cut, would treating the wood used in the traditional corrals be a cost effective alternative to using wire? How much wood would be saved over a two or three or five year period? How much difference would there be financially and in labor savings between the improved corral and this partial solution?

Interdisciplinary team discussions and ex ante evaluation of proposed technologies would help to answer these questions and help in the selection of treatment alternatives.

Another aspect of the improvement in research design .hat should be commended is the use of two controls: farmer practice and common farmer practice. The common farmer practice is the average practice of the farmers in the research village as determined by the socioeconomic and agronomic surveys. By using common practice in addition to individual farmer practice, the researchers have a consistent control from farm to farm, they can determine the applicability of this average practice over a range of environments and can compare it to what individual farmers are doing as well as to the test plot. By keeping individual farmer practice, the researchers can determine the range of conditions under which the improved technology performs better or worse than what farmers are currently doing. They also have the possibility of identifying farmer derived improved practices that can be used in future research and extension activities.

c. Economic Analysis

A very positive aspect of the on-farm research program that is admired by DRSPR researchers from the other teams is that there is a good economic evaluation of all on-farm research results. This information has been used to modify future research activities especially in the area of soil fertility and livestock feeding. The socio-economic team members have even been asked to provide this service for other research programs within IER.

Both ex post and ex ante evaluation of proposed solutions are important aspects of Farming Systems Research. It does not appear that DRSPR/OHV is conducting ex ante evaluation of proposed solutions as part of the planning process. This can help to determine the feasibility of technologies within limited farm resources and can give an indication of the potential success of a technology. Using this information, the team can modify the treatments that will be tested in the field. Some may prove to be unacceptable or not feasible a priori if examined more closely. The evaluation team encourages the socioeconomists to become more involved in ex ante evaluation of proposed solutions.

d. Feedback

Feedback is an important element in determining a research program. The DRSPR/OHV team has established an effective formal mechanism for collecting feedback from farmers. Using a topic guideline to orient the discussion, the DRSPR/OHV researchers along with extension personnel conduct a meeting with farmers. Both collaborating and non-collaborating farmers are asked their impressions about the on-farm research activities. The results of this meeting are written up, as directed by the project paper, and this provides guidance for interpreting the research results and reorienting the research program.

Feedback from DRSPR to researchers who have been actively involved with the DRSPR research program has been good. The previous year's results as well as planned

activities are discussed with those most implicated in the technology development. During the field season, collaborating scientists make field visits with the DRSPR/OHV team and there are many informal discussions. But scientists who are not directly collaborating may not be involved in the communication process. For example, in doing fertility research on sorghum and millet, weed incidence may increase. In working with different tillage systems, these may have effects on striga. While the soils group may be involved in discussions on interventions and profit from the field experience of DRSPR, the weed scientists may not.

In general, feedback from DRSPR/OHV to DRA has had limited impact on DRA research agendas. The team has only three years of research results and it is too early to expect the on-farm research program to have an influence on DRA. To date, the major impact of DRSPR/OHV on research within IER is the economic analysis of on-farm trials done by the economics unit of DRSPR/OHV. One area where a farming systems research team has changed the research orientation of DRA is the intercropping results of DRSPR/Sikasso demonstrating the usefulness of FSR/E. Since a large number of farmers plant some form of intercrop--cereal-cereal, cereal-legume, researchers are now testing technologies in the intercrop and are determining the best densities of crop mixes.

Feedback from DRSPR/OHV to extension is both informal and formal. Because the two institutions work so closely together in the field, there is a lot of information that passes between them on a regular basis. In planning future activities, there is a yearly meeting to discuss the work plan. At this time, DRSPR/OHV researchers have often changed their research protocols in response to input from OHV. The OHV agents participate with the field personnel of DRSPR/OHV in a yearly training course to prepare the field personnel for the cropping season's activities. This is another way in which OHV becomes informed of research activities.

In general, feedback from DRSPR/OHV to extension and from farmers to DRSPR/OHV and extension is good. It is in the area of feedback to other researchers where there is room for improvement. This is discussed more in the linkages section of this annex.

e. Farmer Selection

It appears that collaborating farmers are selected by OHV field agents in conjunction with DRSPR/OHV field personnel. Initially, the primary criterion was the ownership of draft animals or machinery. When the researchers realized that farmers who don't own traction equipment tried to rent or borrow it, the criterion became the use of traction. Now, the researchers prepare a list of criteria for collaborating farmers including soil type and texture, cropping history of the field, tenure status, location of field on the landscape, drainage. In some cases, the criterion is specified such as an upland field or a bottomland field. When it is not important for a particular trial, the choice is left up to the field agents. A major determinant of participation is that the farmer be willing and able to perform the test. For the women collaborators, to facilitate access, most of them have been associated with either a socio-economic or agronomic production unit.

It appears that some of the collaborators have been working with the research team for several years and have tested several different interventions. Since the researchers provide all the inputs for the trials, this represents a significant investment into these farming operations. While there is some concern about loss of status and bad feelings if a collaborator is "dropped", at least one member of the evaluation team questioned this policy.

There are pros and cons with working with individual farmers over an extended period of time. Certainly for multi-year trials, the test should not be moved after one year. Also some farmers are highly respected in the community and with them participating consistently, this gives the field team credibility in the community. This credibility might be damaged if the farmer stopped participating in the on-farm research program. On the other hand, the level of technical ability of participating farmers and the resource base of participating farmers may change over time. They may not remain representative of the farmers in the area. The research team needs to take this into consideration when choosing farmer-collaborators.

The research team expressed reservations about their current methods of selecting collaborating farmers. They plan to work on this aspect of on-farm research in the future. They have used and plan to refine the application of cluster analysis to farmer selection. They should also consider ways of using the farmer groups organized to facilitate extension. This would be particularly useful in the pre-extension and demonstration activities. Also, the DRSPR/OHV researchers need to collect sufficient information and perform the analyses necessary to determine under what conditions the technologies they are testing perform well, and which groups of farmers are accepting them.

RECOMMENDATION

The DRSPR/OHV team should conduct ex ante analyses of potential technologies to be tested, and test the individual components within technical packages.

2.4 RESEARCH OTHER THAN TRIALS

DRSPR/OHV carries out a number of research activities other than on-farm trials. These are discussed below.

a. Thematic Studies

The DRSPR/OHV team has been largely absorbed in doing on-farm trials and baseline data collection. Team members have implemented relatively few special studies to collect information about identified problems at the field level. Surveys used to characterize aspects of the system, particularly in the areas of animal science and sociology, have been conducted. But even these have not been reported out in the Technical Commission documents. In some cases these studies may have led to other

reports, but in most cases it is not possible to identify reports by the DRSPR/OHV team which relate directly to these proposals. It appears that given time constraints and an ambitious program, the team did not find time to report on these studies, considered to be of lower priority than the trials and baseline. It is not clear to what extent they were actually implemented.

The team has collaborated with or employed personnel outside the team to implement a number of thematic studies. These include the studies done by students working in the project (discussed below), and by researchers from DRA and CRZ working in collaboration with DRSPR/OHV researchers. Examples of this type of study include the collection of local cereal germplasm in the OHV region done in collaboration with the plant improvement section of DRA/SRCVO; and the work on forage species done by CRZ/Livestock Sectoral Project in Banamba. This type of collaboration with students and thematic researchers is desirable and it is very appropriate that much of the teams thematic studies be implemented in this manner. The lack of reports on internal thematic studies is more a comment on time constraints and the human resources available than a criticism of implementation.

It should also be noted that there has been a strong thematic orientation to most of the on-farm trials which have been implemented by the team. It would be very useful if reports contained the multi-year perspective which the team is beginning to obtain on certain themes like fertilization trials, crop diversification and varietal improvement, livestock feeding, and livestock corrals.

b. Student's Studies

Since 1986, nine students have completed studies in association with DRSPR/OHV. This year there are six students completing their thesis work.

The areas of study have included socio-economic topics, animal science topics, and agronomic topics. Each of the subjects has contributed to the project's overall understanding of the farming systems in the OHV region. Student work has been particularly useful in orienting the on-farm research activities in women's fields.

While about one-third of the topics have been related to agricultural economics, much of actual work has involved an economic analysis of some aspect of the livestock system. In some cases, the student's work has involved using some innovative techniques for describing farming systems that are not widely used by the researchers themselves.

There is a time commitment on the part of the researchers to supervise this work but in general, it seems to be a profitable exercise for those involved.

c. Women's Program

The Mali FSR/E project is to be commended for the development of a activities that are looking at women's role in rural Mali, and in particular, for putting research trials into women's individual fields.

This program has been evolving over the last two years. At the end of the field season, 1987-88, an interdisciplinary team of women (two agronomists and one sociologist) was hired to develop a program with both short and medium term perspectives to address rural women's needs. These women had the qualifications of researchers but were brought in as Research Assistants. They were not hired by the project using the same recruitment procedures as for other personnel and the women had no field experience.

The women's team along with the DRSPR/OHV sociologist and an IPR trainee conducted an informal survey in April, 1988, to get a general idea of the role of women as producers in the farming systems of the OHV region and to identify constraints and opportunities to production that would become the basis of future activities with women.

The women's team then visited the other DRSPR teams to see how their programs were addressing women's concerns. As a result of this information, a program was developed for the 1988-89 field season that included the determination of the agricultural calendar of Bambara and Malinke women in the OHV region as well as an evaluation of rice varieties in women's fields (conducted as a student thesis).

In order to implement the 1988-89 program, the women were moved to the field where they have stayed functioning as enumerators. A female assistant agronomist was hired to work out of Bamako and the program has expanded in 1989-90 to include studies on specific themes, research tests on women's fields, and interventions in the area of food technology and economic activities.

The expansion of the program has followed a logical progression as more knowledge and experience has been gained. The DRSPR/OHV team sociologist seems to have given leadership to their activities until he left for training in the United States.

The women's activities were started initially as a separate program with a separate interdisciplinary team. There has been an effort to integrate the on-farm activities of the women's program into the disciplinary activities already underway.

Most of the women collaborators are attached either to a research or a socioeconomic production unit. This choice was to facilitate access to women collaborators. Having information about women's enterprises and their use of time will be useful for intrahousehold studies. This will enable DRSPR/OHV to evaluate technologies in terms of their effects on the entire farming system as well as determining the constraints to the introduction of new technologies. This could provide a series of research activities which would facilitate the integration of the whole DRSPR/OHV into an effective interdisciplinary unit.

Integration of women into FSR/E should be viewed at two levels: the integration of the research program which is well on the way, and the integration of the personnel. Female personnel have not been very effectively integrated into the research team and the field staff. There is currently one female researcher and three women functioning as field level enumerators. The women working as enumerators have degrees from IPR or equivalent institutions. They have had two field seasons of experience with a lot of

support from the research staff. There are currently no female controllers. Since the total research program is extremely ambitious for the technical staff available, there may be some alternative creative strategies for integrating these women into the technical team and field staff.

One of the women is a sociologist. This young woman could become a technician under the TA sociologist to continue the adoption studies that were started by the Malian sociologist before his departure. Another alternative for integrating this social scientist into the technical team is to assign her to work under the supervision of the team economists to relieve the pressure on the socio-economics group. The two agronomists could have different responsibilities: one in food crops and one in forage crops with supervisory responsibility divided between the agronomists and the animal scientist. Or alternatively, one of the agronomists could be responsible for food crop production and the other for the food technology interventions.

Another alternative would be to replace departing controllers with one or more women who had performed well. It appears, however, that there is no system within DRSPR for advancement even with a large number of enumerators, both men and women, having the same educational background as the researchers.

All of the women currently working with the DRSPR/OHV team are contract personnel. They are therefore excluded from long-term degree training within the project. Some have already profited from short-term training and others are scheduled to go to short-term courses or on training visits. Without long-term advanced degree training, women will not be able to join the professional ranks of IER in any division or section nor will they be able to get into decision-making positions in the future. If additional scholarships are allocated to the project, they should be allocated to women selected by the DG of IER with the understanding that these women would then be integrated into the teams of DRSPR. If not, one of the remaining scholarships (that allocated to DET) should be reserved for a woman who would then work with DRSPR upon her return from training.

RECOMMENDATIONS

DRSPR/OHV needs to explore more creative ways to integrate women into the research team and field staff.

The evaluation team recommends that an additional scholarship be added to the long-term training program or the scholarship being allocated to DET (one of the two remaining scholarships in the training budget) be designated for a woman who would be assigned to DRSPR upon completion of her studies.

2.5 DATA COLLECTION

In effect, the DRSPR/OHV program has had 3 teams[1] which did research on 3 different samples of villages and implemented 3 different baseline surveys. Each team has considered the village sample of its predecessor as inadequate and has discounted the quality and usefulness of the preceding team's baseline survey. While the evaluation team did not have an opportunity to study past data, it is not clear that it is useless or should be ignored.

a. History of Sampling and Data Collection within the DRSPR/OHV

Data collection in the project began in 1985, a year before the start of the USAID FSR/E project. The OHV contracted with the DRSPR to have members of the Sikasso-Bougouni team undertake a study in the Southern part of the OHV region. The team (the 1st DRSPR/OHV team) consisted entirely of experienced Malian researchers. This 1st team and OHV agreed on 4 basic criteria which would serve in the selection of villages and PUs[2].

- (increasing) cereal production
- (water control) proximity to the Niger river, opportunities to grow lowland rice, and irrigated crops like tobacco and garden crops
- presence of village associations
- integration of livestock and cropping, measured primarily by different levels of animal traction equipment ownership.

Twenty-one villages were surveyed and 7 were chosen as research villages. Five of the 7 were upland villages in the Bancoumana area, and 2 were villages near the river around Ouelessebougou. An inventory of PUs was done in these 7 villages, and 126 production units (of 397) were chosen for a year-round formal survey. It appears that this survey, with some modification, was continued through 1986 and into 1987.

When the TA team arrived in May, 1986 a 2nd DRSPR/OHV team was formed consisting of relatively green TA and experienced Malian counterparts. Regardless of the fact that the Malian team members had much more experience than the TAs at doing farming systems surveys and working in Mali, the 1st team's surveys were discounted and ignored. Their approach and the quality of the data generated were considered inadequate. Their sample of villages in the Southern Zone of OHV was considered insufficient for a project with regional responsibilities.

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[1] The DRSPR/OHV program (some of it prior to the USAID FSR/E project) has been implemented by 3 different sets of personnel with different characteristics which for practical purposes are referred to here as 3 different DRSPR/OHV teams.

[2] Production Unit (PU): The PU is defined as a family group which produces and consumes together. In most cases, this is the same as the compound, which may consist of a single nuclear family or an extended family composed of multiple nuclear families.

A reconnaissance survey was done across the entire OHV region. The region was divided into 4 zones and 2 new research villages were chosen in each of the 4 zones. But this reconnaissance survey was not finished until well into the cropping season. In the meantime, research was continued in the 5 villages chosen by the 1st DRSPR/OHV team, but complemented by the addition of 3 villages in the Northern Zone of OHV. On-farm testing was conducted in this set of 8 research villages so that a year of research would not be lost.

Methodological and personality conflicts came to a head during the period in which the reconnaissance survey was being implemented. The reconnaissance report was contested and finally revised, finalized and published by US based SECID staff. These conflicts resulted in changes in the TA team. Most of the TA team was replaced in 1987 after only a little over 1 year in the field.[3] By the time that a new TA team arrived, all but one of the experienced Malian team members from the 1st DRSPR/OHV team had been sent on long term training.

The present (3rd DRSPR/OHV) team originally consisted of the replacement TA team and a majority of relatively inexperienced Malian researchers. This team also considered the village sample and baseline surveys of its predecessor as inadequate. It continued trials and intervention in the (8) research villages of the preceding team through 1987. In 1988 it changed the village sample to the 8 widely dispersed villages identified by the 2nd DRSPR/OHV team in the course of its reconnaissance survey.

The present DRSPR/OHV team has also largely discounted and ignored the data collected by preceding teams. It is normal for researchers to be distrust data collected by others. There may have been data quality problems with earlier surveys, even serious data quality problems; yet it seems unfortunate that this experience is forgotten and seems to be almost totally unknown to the present team. Whatever its shortcomings, the participants undoubtedly learned a great deal about the farming systems of the areas surveyed and the performance of certain technologies under those conditions.

The Reconnaissance Survey

The reconnaissance survey done in July and August of 1986 by the 2nd DRSPR/OHV team was also based on a multi-stage, purposive sampling procedure. In collaboration with the OHV:

- representative Rural Expansion Zones (ZER) were chosen within each of the 6 OHV sectors
- representative Base Sectors (SB) were chosen within the ZERS retained
- representative villages were chosen within the SBs retained
- 43 representative villages were surveyed

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[3] Paraphrased from: "Document de Synthese des Resultats du Projet de Recherche sur les Systemes de Production Rurale et Vulgarisation", DRSPR, October 19, 1989, pp. 7-8.

- within each of the 43 villages researchers attempted to survey 4 PUs, chosen on the basis of criteria with regard to animal traction equipment ownership (only), a total of 160 PUs were interviewed:

  1 well equipped PU
  2 moderately well equipped PUs
  1 manual PU

- The OHV region was divided into 4 zones (from the original 6 sectors), labeled simply the North, South, East and West zones.

Originally the 2nd DRSPR/OHV team chose 16 research villages. This included 5 villages in the South, 4 in the East, 4 in the West, and 3 in the North. (Technical Commission Report, April 1987). This was later reduced to 14 because of perceived problems with 2 of the villages (Denis: 1988).

The 1988 Technical Commission Report (on 1987 research) of DRSPR/OHV is based on research in 8 villages, 5 in the South and 3 in the North. The on-farm trials and typology survey were both based on research in these 8 villages. It also appears that livestock and sociological studies, for which there is very little documentation, were based on this sample. (This information may well appear in the guise of long term training participant theses.)

The 1988 and 1989 research activities of the present DRSPR/OHV team are based in the 8 new research villages, 2 in each of the 4 zones. This change in research villages has greatly increased the dispersion of the research activities. The decision to spread research across all 4 zones has very important implications for human resource needs, the amount of time spent traveling, recurrent cost, and very possibly research quality.

The evaluation team has not seen any documentation on how and why these decisions to change villages were made. Reducing the number of research villages to 8 was certainly a good decision. The 1987 village sample, concentrating research activities in the North and South, helped focus the research program and ease logistical problems. It is questionable whether the decision to disperse research effort over the 4 zones was a good idea for a team which already faced problems concerning human resources, logistics, integration of the team, and recurrent costs. These same human resource, logistical and recurrent cost constraints may require the team to reconsider this decision. Concentrating the research effort and establishing a Northern antenna in conjunction with the Livestock Sectoral Project researchers, and a Southern antenna would be one way to overcome some of the present constraints.

The Present Data Collection Situation

The present sample is based on two research villages chosen within each zone, but which differ by at least one important factor:

South: Balanzan - located along the Niger river, grows both rice and upland crops
Lande - grows only upland crops

East: Gouani - formerly part of the Malian Company for the Development of Textiles (CMDT) extension region, cotton is important
Moutoungoula - influenced by its close proximity to Bamako markets

West: Yekebougou - formerly part of the Peanut and Cereal Production Integrated Development (ODIPAC) extension region
Konita - influenced by its close proximity to Bamako markets

North: Kanika - population is primarily Sarakholle
Dorebougou - population is primarily Bambara

Within each of these 8 villages, 10 PUs were chosen to be a representative sample of the villages. This produced a sample of 80 PUs representing the entire OHV region, and 20 PUs were representing each zone.

In 1987, the research carried out used the same PUs for both agronomic and socio-economic surveys. This had the advantage of providing information about those PUs approaching the level of a case study. In 1988 when the team moved to the new research villages, separate samples of PUs were chosen for the baseline survey and to participate in the on-farm trials and interventions. Farmers in the old research villages complained that participating in both activities took too much of their time. Researchers also felt that the baseline should not be based on farmers influenced by participation in the on-farm trials. Although the separated samples had certain advantages, unfortunately the case study effect of having both agronomic and socio-economic information for the same UPs was lost.

In 1989, researchers began to integrate the two samples again. Some farmers have decided not to continue participating in the research activities, and as they drop out, they are replaced by PUs from the other sample. At present, perhaps 2 PUs per village now participate in both the agronomic tests and baseline surveys.

In 1989 the sample size for the baseline survey has been reduced from 10 to 7 PUs per village, to alleviate the workload of the enumerators. Most of the questionnaires are only used once during the year, but labor data is collected weekly. Enumerators follow a schedule under which they return to any given UP on the same day every week.

Originally, PUs were stratified according to ownership of animal traction equipment. During 1987, the team learned that ownership and use of animal traction equipment were often very different. The sample of 80 PUs for the baseline survey is stratified according to use of animal traction equipment.

The team has 4 different series of questionnaires which are sent out to the enumerators to fill out. One series is for the baseline data collection handled by the economists. The second series is data collected on research trials, handled by the agronomist. There

is a 3rd series for sociological studies and a 4th series for livestock studies. The agronomic, livestock and sociological surveys appear to relate to a single basic sample. The economic studies relate largely to a second sample. This data collection situation begs the question: Where is the team integration and interdisciplinarity? One of the major criticisms of the 2nd DRSPR/OHV team was that it could not agree on priorities across disciplines. It is not clear the 3rd and present DRSPR/OHV team has completely resolved this problem.

The DRSPR/OHV team was commended for the excellent quality of their data at the 1989 Technical Commission. Such praise is difficult to achieve and has an enormous impact on team and project credibility. Having achieved this quality and credibility, the team needs to look very hard at whether this can be maintained with the increased dispersion of the research effort, and how this data collection fits into long term priorities.

Malian research has always had a very strong penchant towards formal data collection techniques and a hierarchical data management system. This imbalance towards formal data collection techniques is typically not efficient and less appropriate in a farming systems research program. Year to year changes in the project show that the team has learned a lot. But since the results of the analysis of the formal surveys are not yet available (except for test results), it appears that researchers have gained most of the knowledge informally by supervising formal surveys and participating in on-farm trials and activities. This learning curve strongly reinforces the position that the team could learn more efficiently and be more effective if it made greater use of reconnaissance activities and informal surveys.

RECOMMENDATION

The team needs to establish long term and interdisciplinary priorities, implement a more integrated data collection and research approach, and institute a better balance between formal and informal data collection techniques.

b. Socio-Economic Studies

The major activity of the team economists has been the collection and analysis of baseline data. People interviewed, both inside and outside the project, believe that data quality has improved markedly from previous efforts. The economists have worked hard to make this happen. The belief that data collected in 1985 and 1986 was of relatively low quality has led the team to discount and largely ignore the data collected in those years.

The baseline information was collected from 10 PUs in each of the 8 new research villages for 1988 and is being collected from 7 PUs in each of the research villages for 1989. The baseline data collection effort was repeated in 1989 due to fears about the representativity of data collected in the relatively high rainfall year of 1988. Data is

collected using a number of questionnaires (typology, demography, field and parcel identification, field activities including labor use, acreage by crop, harvest, etc). Labor data is collected weekly, while other forms need to be filled out only once a year. This activity occupies 1 enumerator in each of the 8 research villages full time. The 4 controllers also spend more than half of their time working on the baseline data effort.

Analysis of this baseline information will be very useful in verifying what researchers already believe about different problems, opportunities, hypotheses, etc. It is likely to help reorient research only to the extent that it allows researchers to refute existing hypotheses. The agronomic and animal science research has already developed a strong organizational and thematic orientation which will not easily change in the immediate future. Results from the baseline, expected perhaps at the end of 1990, will arrive too late to have much impact on these orientations. As yet, the economists have been too busy with the baseline to achieve any orientation other than collecting baseline data and doing good ex post analyses of test results.

The economists are solicited to participate in many activities other than just the baseline survey. They should spend more time working with other researchers, extension personnel and farmers, in farmers fields. They should be more involved in planning tests and doing ex ante analysis on proposed tests and activities. Proposed reconnaissance surveys and special studies have not been implemented because the baseline survey did not leave the economists much time for other activities. One type of survey which needs to be done is a study of progressive farmers/better producers by both technical researchers and socio-economists to identify potential solutions already employed by some farmers in the zone.

No socio-economic work is presently being done in the pre-extension villages or other villages used as research villages in 1985-87. Many of the present pre-extension villages are villages on which the 1st and 2nd DRSPR/OHV teams did baseline surveys. The evaluation team did not have time to study these surveys in detail. But the original baseline data should be evaluated to see if it can provide a basis to assess adoption rates and adaptation of promoted technologies, changes in the farming system related to recommended technologies, etc.

There is as yet no monitoring in any village of whether cooperating farmers continue to use technologies tested, whether other farmers in the village adopt tested technologies, or how farmers adapt tested technologies over time. There is as yet no plan for either a simple baseline for monitoring in villages in close proximity to new or old research villages and pre-extension villages.

The OHV bases its extension strategy on working with village associations and/or groups of (approximately 15) farmers organized around a contact farmer. There has been no socio-economic study of farmer groups in the research, pre-extension or neighboring villages. These groups are the next logical targets for demonstration/verification trials. They provide a possible vehicle of extending pre-extension activities to a more realistic scale and for verifying trial results across the zone.

Surely, the team, including the economists, can think of any number of special studies which it would be important to implement. No reports are available on those special studies proposed in previous years; either the baseline has not been analyzed to the point where the information can be extracted or there was not time for additional work. Special studies might also include collaborating with the women's program for more and better socio-economic analysis of women's activities.

Obviously, the economists can not do all these things by themselves, nor should they. Once again, the team needs to establish priorities and implement them as a team.

If the team can not handle the amount of socio-economic data collection and activity that needs to be done, perhaps some studies which require less interdisciplinary integration can be contracted to DET.

RECOMMENDATION

The economists need to get beyond the baseline survey and integrate more fully into team activities. Interdisciplinary team activities should receive a higher priority than more disciplinary activities. Contracting economic studies to outside agencies such as DET or DPE should be considered.

2.6 DATA MANAGEMENT

a. Management of Data Flow

Data flow within DRSPR/OHV is organized in a very hierarchical manner. This hierarchial system serves the purpose of facilitating data collection over a wide geographical area, and which does not require the constant presence of the researchers. One of the results of this process is that the enumerators are the team members which end up with an intimate knowledge of the villages and farming systems. The responsibilities of supervising such a system over a wide area often keeps researchers so busy that they do not find time to develop much farmer contact of their own. Under these circumstances, the enumerators end up with the knowledge that the researchers should have, often without any way to communicate that knowledge, because it does not conform to the questionnaires.

The DRSPR/OHV system for managing data requires that it be handled by several levels of personnel within the project:

- village level enumerators
- controllers (1 for each zone and 1 for pre-extension)
- researchers
- the data entry and analysis unit.

In addition to this internal system, DRSPR/OHV uses extension agents to collect a very limited amount of data in the pre-extension villages.

Enumerators

The team has 16 village level enumerators, 2 in each of the 8 research villages. These enumerators have the primary responsibility for interviewing farmers to fill out questionnaires and for supervising/collaborating with the farmers executing on-farm trials. They are the team's primary interface with farmers for either formal data or trials. In principle, village responsibilities are divided so that one enumerator has primary responsibility for collecting baseline data and one monitors the on-farm research. Some activities require participation of both enumerators.

The project spends a week at the beginning of each year informing the enumerators about the results of the previous years research and how to fill out any new questionnaires. They receive very little training in principles and techniques of farming systems research, extension or research in general. They have the lowest status, the least training and are the lowest paid of the project staff, but research and outreach results depend very much on their effectiveness.

Controllers

The team has 1 controller to supervise the enumerators in each of the 4 research zones, and a 5th controller who collaborates with OHV personnel in the pre-extension and demonstration villages. Most of the controllers are now experienced research technicians who can help enumerators who have difficulty with some aspect of their work. They perform an initial quality control of research data and interact directly with enumerators to correct any errors found. Controllers supervise special activities like field measurements and taking yield samples. They have been trained to enter data directly in portable data entry machines for the field measurements. They interact much more regularly with enumerators than do researchers, and often serve as the means of communication between the office and enumerators in the field. They often carry new questionnaires out to the enumerators and insure that the enumerators understand how to fill them out.

One of the controllers did attend the 1986 regional farming systems workshop and one recently returned from an extension methodology workshop in Holland. However once again, training in principles and methods of farming systems research, extension or general research has been far from universal.

Researchers

The researchers design the original questionnaires as well as the tests and on-farm activities. Researchers often consult with the data entry people to design questionnaires which lend themselves to efficient data entry and processing. Researchers determine the schedule by which questionnaires will be sent out to the villages to be filled out. They are largely responsible for arranging to have copies made, and to send the copies to the

villages at the proper time. Researchers are responsible for a second quality control on their own questionnaires, after they are returned by the controllers. They then pass them on to the data processing unit for data entry.

When additional errors or problems of data entry are found by the data processing people, the researchers are responsible for taking/sending the questionnaires back to the field for resolution with the controllers and/or the enumerators.

The Data Processing Unit

Personnel of the data processing unit have taken the approach that they should not do any data interpretation. Their function is only to lift data off questionnaires and place it on the computer form for that questionnaire. If data is not coded or in the form necessary for easy transcription, the data unit sends the questionnaire back to the researchers for correction and verification.

Member of the processing unit staff have become very good at helping researchers and students design questionnaires and in designing computer forms in Paradox for the entry of data from any specific questionnaire. These forms can then be read by SPSS, SAS and other statistical programs for analysis. The Malian staff is now able to guide Malian students working in the project through the whole process of questionnaire design, computer form design, data entry and basic analyses.

Processing unit personnel are often the first to notice that a particular questionnaire has not been received from one of the villages or zones, and bring this to the attention of the researchers. The data processing TA has also established a system of having enumerators write information in notebooks concerning their experiences and life in the villages. He is in the middle of getting these writings into word processing so they can be reproduced and made available. This is one of the ways of benefiting from the intimate knowledge of the people and villages which the enumerators have gained, but which until now has not been available to the team.

OHV Village Agents

In the pre-extension villages, OHV agents are collecting whatever data is being collected. Each agent keeps a notebook and is asked to note specified agronomic data concerning the trials. The pre-extension controller then comes around and fills out a form which provides a resume of the data noted. The only formal questionnaire established and filled out by the agents is the harvest questionnaire. Apparently, no other data is being collected in the pre-extension villages.

The roles and responsibilities of the different personnel in this data management system are not always well planned and clearly defined. The system for getting questionnaires to the field and back to the office for data entry primarily falls on some combination of the researchers and controllers. But exactly whom is not always clear. Reports of questionnaires not arriving in the field when necessary, and being found missing by the

data processing people long after they were scheduled to arrive, indicate that these responsibilities need to be more clearly defined.

The second problem observed in data management is the large total work load of the enumerators. This is in part a function of having 4 different series of questionnaires to fill out from the 4 different disciplines. The total quantity of work required by these surveys, field measurements, crop yield samples, on-farm trials and livestock interventions has not always been realistically estimated. Better planning and prioritization are needed to avoid enumerator overload and allow the system to function effectively.

RECOMMENDATION

The DRSPR/OHV needs to develop a well defined system for data flow within the project. Data management should be developed as part of the research program taking into consideration resource limitations.

b. The Larger Role of the Computer/Data Processing Unit

The computer center/data processing unit was established to provide computerized data processing and analysis services to the DRSPR/OHV and the DRSPR. This required bringing in and setting up computers, selecting and getting software to run, training personnel to use the computers and software, and training personnel to repair the hardware. Personnel also had to be trained in data entry, how to set up computer forms with a program like Paradox, how to do the programming necessary with programs or as transitions between programs, etc. This aspect of making the computer center/data processing unit function has been achieved and the project and Computer Specialist TA should be commended for this accomplishment.

The data processing unit also provides data tabulation, aggregations, and data analysis at the request of and in cooperation with researchers. Some early attempts to provide the researchers with analyses were not entirely successful. Particularly, with the arrival of the new Agronomy TA and his statistical expertise, responsibility for analysis reverted to the researchers. The agronomists take primary responsibility for analyzing their agronomic trial data. The Malian animal scientist and the sociologist have taken personal responsibility for much of their own computer work. This leaves the economists, doing their baseline survey, as by far the heaviest users of data processing services. This survey generates huge quantities of data. The largest single component of which is the labor inputs and activities of the 80 farm families. Probably 80 % of the data on the archive shelves in the data processing unit are labeled economic data.

Analysis and interpretation of the 1988 baseline is far from complete in November of 1989. Aggregate data has been reported. Disaggregate farm level data which might help the team understand the structure and functioning of farming systems in the zone has not yet appeared. In the meantime, a second year's worth of data entry is almost

completed. Data needs to be analyzed for each year separately and then aggregated across years. This will require a tremendous amount of manipulation of large quantities of data. It would take the economist a long time to do this on their own, around their other duties. A plan needs to be established between the economists and the data unit, which identifies the aggregations, manipulations and basic analyses which need to be done. The data unit then needs to give priority to completing this work rapidly. It will still take the economists and other researchers months to digest and interpret this quantity of information.

The data unit personnel also have numerous important training needs to which they should respond. Most of the DRSPR/OHV researchers are now trained to use the computers and to design questionnaires. However, each year there is a new batch of IPR and CAA students who need to be taught. Also, it would be useful to train controllers and enumerators in data entry. Field staff have little basis to understand why a clearly written sentence can not replace a two digit number. Experience has shown that field staff trained in data entry are much more careful about the form, as well as the content of the data. This reduces errors and delays.

Training good controllers for data processing could also provide the project with a possible channel for promoting field staff, which does not presently seem to exist. A controller promoted to data processing could be replaced by the best of the enumerators. There is a serious risk that data processing personnel will be offered better jobs outside the project. Establishing a system by which to replace them could be very useful.

Data processing services will also be needed at the division level. With the proposed separation of the DRSPR and DRSPR/OHV, the evaluation team foresees that the Data Processing TA position and a part of his/her staff should move to the divisional headquarters. This must be done in a manner which leaves enough data processing capability at the DRSPR/OHV level to handle its data processing needs. This will probably require additional personnel, preferably including a civil service counterpart to the TA. The transfer to the division level should also take into account the huge data processing/analysis requirements which the DRSPR/OHV will have during at least 1990, to process and analyze the baseline results. Basic data processing should remain in each separate research team.

At the division level, the data processing units first priority will be training activities. The other regional research teams within DRSPR have a serious need for training in computer set up and maintenance, getting software up and running, data entry, data processing, etc. The need is acute in Sikasso and will soon exist in Bougouni. An Office du Niger team will probably require such training in the not too distant future. Collaborating institutions, and particularly the other divisions of IER, are in need of the same kind of computer/data management training.

The data processing unit personnel at the division level can and should respond to these needs. Training (and consulting) activities should be an important part of their work program. These should be planned and scheduled in advance, especially since it may

require someone to be out of the office for several weeks. Several individuals may be going in different directions to provide different sorts of training which are within their personal capabilities. This will require good planning and scheduling.

The training provided by the divisional data processing unit should provide the basis for getting data in a similar form and format across regional research teams. With this base, it should become possible to begin to compare data across regions, and to aggregate data and do inter-regional analyses. With help from researchers and the research management personnel, this should become the second priority of the DRSPR data processing unit.

Training needs also exist in the area of statistical analysis and the use of statistical software packages. The need for such training by other DRSPR research teams, IER divisions and collaborating institutions is likely to exceed the amount of time the Division Chief and the DRSPR/OHV TA agronomist can spend on this activity, without hurting other project efforts. The GRM needs to provide the civil service statistician agreed to in the cooperative agreement. Particularly with some training from experienced agronomists, this person could work with the data processing unit to provide training in statistical analysis. In the meantime, SECID should identify and make available a short term consultant who could help with some of this training.

c. Geographic Information System (GIS) Mapping

In recent months the data processing unit has become heavily involved in GIS mapping activities. GIS mapping is a useful and exciting technology which is very much in vogue. The use of GIS requires the input of large amounts of data. Data requirements tend to increase exponentially as users desire to use it with more and more detail for more and more subjects. For example, data entered at the 1 : 500000 scale is not sufficient to identify villages ("terroir villageois"). A similar map at the 1 to 200000 scale requires entering two and one half times as much information. To become really useful at the village level, researchers at some point will want to work at the 1 : 50000 scale. This requires entering 10 times as much data as the 1 to 500000 scale. At this more useful scale, researchers will want to deal with many more topics than previously. Thus data input requirements will increase to include the additional topics, each requiring 10 times as much information. Such data input needs can easily overwhelm a small data processing unit like the one in the project.

It is not clear that the DRSPR is the appropriate location within the Malian governmental structure for GIS mapping activities. Several other institutions like PIRT or a geographic institute appear to be more appropriate agencies. GIS mapping is not central to DRSPR's or DRSPR/OHV's main objectives. Providing data processing services to DRSPR/OHV, training to other DRSPR research teams, strengthening linkages with collaborating agencies via similar training, and inter-regional analysis are all central to DRSPR and project objectives. These should be given priority over GIS activities and GIS activities should be curtailed until the achievement of these objectives can be demonstrated.

The possibility of being able to reinforce a collaborating agency like PIRT in the area of GIS activities should be explored. DRSPR should consider contracting with PIRT to have it provide desired GIS information. The project should also consider helping provide PIRT with the computer capabilities and training to become proficient at GIS mapping.

RECOMMENDATION

The data management unit should give priority to processing DRSPR/OHV data and to providing computer/data processing training for other DRSPR research teams, other divisions in ier and collaborating institutions. GIS activities should be curtailed at least until these priority objectives have been achieved.

2.7 MONITORING AND EVALUATION

a. Monitoring Important Decisions

In the Data Collection section of this report it was noted that the evaluation team could find no documentation for how and why major changes were made in the number and location of research villages. Such changes have serious implications for the scope and quality of research, the human and other resources required, as well as for recurrent costs. An administrative monitoring system needs to be established, which assures that such decisions are well documented.

At the moment, there appears to be no documentation of changes made in the DRSPR and DRSPR/OHV research plans by the Technical Commission. Technical Commission acceptance or non-acceptance of DRSPR/OHV research results and research proposals should be documented, along with explanatory comments.

RECOMMENDATION

The project needs to establish an administrative monitoring system which documents why important decisions are made.

b. Impact Evaluation

It is not evident that the project has any clear strategy for evaluating project impact, or that it has developed a baseline of minimum data which would facilitate comparisons over time. The TA economist who recently left the project was the person most likely to have a strategy in mind but he was not available to the evaluation team. Others in the project had only a vague notion of comparing (some unknown) information collected in the future to the baseline.

The baseline deals only with the 8 research villages. There is no baseline presently being implemented in pre-extension villages and the one demonstration village. There is no baseline data for neighboring villages in the area surrounding past and present research villages to look at outward diffusion from the research villages. As yet there is no plan for data collection in these areas. To expand into these areas using the baseline methodology applied in the research villages would be practically impossible. The DRSPR/OHV needs to develop a plan for impact analysis and a much lighter minimum data set which can be used for this purpose.

DRSPR/OHV will need to determine exactly what comparisons it hopes to make, and at what level. The DRSPR/OHV will want to make comparisons at the level of the research villages, where it is almost certain to have an impact, but it will also want to demonstrate a wider impact. It would be nice to find a change in yields and acreage across the OHV region or at the sector level. But with 6 years to go, it is unrealistic to expect a large impact at this regional scale. What may be more realistic is to expect some measurable impact at the ZER or SB level around the research and pre-extension villages. The project will have to decide if data should be collected for comparison at the ZER or SB level, or at the level of neighboring villages. Depending on where a research village is located in an SB or ZER, and how large the area is, spontaneous diffusion may or may not be expected to have an impact across this predefined area.

The OHV/DHV activities will be the primary source of diffusion of technologies developed by DRSPR/OHV. The importance of these technologies, adoption rates, etc. may possibly be monitored by the DHV project for its own project evaluation. If the evaluation of the Mali FSR/E Project is to be based on monitoring within the DHV Project, then that strategy needs to be specified. In that case, the collection of data which would help evaluate the FSR/E project needs to be negotiated with DHV.

DET might also be contracted to collect such data at whatever level was deemed most appropriate.

Yield and acreage data are among the most important for impact analysis. They are also among the most difficult to collect. It is important to be able to measure changes in yields (per crop), changes in acreage per crop and changes in acreage per technology. By acreage per technology, is meant for example: acreage planted to a given introduced variety, or cultivated using some other introduced technique. In Southern Mali, yield increases for millet or sorghum were quite small, while those for maize were quite large. Increases in cereal production and yield were most noticeable as farmers increased the relative proportion of area cultivated in maize. Serious increases in cereal production and average PU cereal yields could often be identified, even where little or no increase was made in millet and sorghum yields.

The relative area devoted to (a) cash crop(s) is also interesting to monitor. Changes in cash crop area indicate changes in farmer strategies for achieving food security and an acceptable income level. Follow up with informal surveys can more clearly identify what these new strategies might be.

Measuring fields and collecting yield data on any scale is a daunting task, if it must be done by DRSPR/OHV alone. But both DET and OHV collect some agricultural production/agricultural census information. The project needs to determine what information is available for the areas in which they are working, and how this might be used for impact analysis before it undertakes a large effort to collect additional data.

If such data is not available, DRSPR/OHV may be able to arrange with OHV or DET to modify their data collection to include such information. This might include either contracted or collaborative arrangements. Even if only data on average yields per crop can be taken from some other source, it will greatly reduce the additional data collection effort needed for impact evaluation.

If DRSPR/OHV must collect this information with its own human and financial resources, it will have to be on a very limited and strategic basis. Research efforts might be focused on 2 of the identified zones, as was done in 1987. Special teams might be recruited to work for several months in each zone to measure fields, place crop cut plots and weigh yield samples. Working in 4 regions makes this a much more complicated and costly proposition.

In addition to yield and acreage data, the DRSPR/OHV will want other information on adoption and adaptation of technologies. What percentage of farmers are using a given technology, how does this compare to the baseline, what is the adoption rate? They will also want information on what aspects of a technology are actually being used by farmers and how farmers have changed the technology to fit their situation and farming system, and the resources they have available. This type of information should be monitored on a regular basis, since it can indicate how technologies might be modified to fit the needs of different groups of farmers. Such information can provide an important input into extension programming.

The DRSPR/OHV needs to consider using periodic structured, but informal surveys as a basis for an important part of impact monitoring. Such surveys can identify the percentage of farmers using a particular technique or technology, changes in constraints over time, changes in the farming systems, changes in family status, etc. In a small region like an SB or ZER, these surveys could be done in 1 or 2 weeks and formally written up as a reconnaissance survey. The effort would be limited enough that the survey could be repeated every few years. The report would document the changes observed, and the thoughts of researchers at that point in time. This would help monitor changes in the way researchers thought about the problems they were observing, as well as actual changes in farmers circumstances over time.

RECOMMENDATION

The project needs to quickly establish an impact monitoring plan. This plan needs to be based on a minimum of data for a very few essential factors.

DRSPR/OHV should negotiate a collaborative arrangement with OHV/DHV which would establish a single data collection effort to provide impact evaluation data for both projects.

2.8 COMMUNICATION OF RESULTS

a. Reports/Articles

In general, DRSPR/OHV uses the IER technical committee mechanism of communicating research results. Results of the previous year are discussed informally with collaborating researchers to prepare the "Propositions du Travail". The resultant research plans are presented to a larger forum (Technical Commission) along with the written analysis and interpretation of the previous year's results. Very often results of survey work are not analyzed for the Technical Commission since preparation time is so limited.

b. IER Research Journal

According to the project paper, an IER research journal would be published to provide an outlet for communication of research results to a wider audience. There has been one volume of the research journal published in early 1989 but there is no copy available at the DRSPR/Bamako office. In the monthly reports of late 1988, the DRSPR/OHV team were reminded to write papers to contribute to the first and subsequent volumes of the Journal. There is no indication that this activity has continued.

c. National Committee for Scientific Research (CNRST) Journal

Researchers in Mali must produce a certain number of publications in order to receive positive personnel evaluations and subsequent pay raises. The Ministry of Education plans to revitalize the CNRST journal and has asked DRSPR to nominate two members to the editorial committee. This Journal will provide the opportunity for DRSPR/OHV researchers to have a wider audience for their work.

d. Technical Meetings

Several DRSPR/OHV team members have presented papers at both the West African Farming Systems Research Network (WAFSRN) regional meetings and the Farming Systems Research Symposium in the United States. Both of these meetings are considered to be professional meetings of FSR/E practitioners with proceedings that are published. These meetings have provided the opportunity to exchange information with other practitioners but have also been the impetus for the researchers to do more in-depth analysis and interpretation of their research results than is necessary for the Technical Commission.

The DRSPR/OHV team has also presented papers at technical meetings within Mali such as the ICRISAT sponsored meeting on intercropping, the IER technical meeting on soil fertility research at Cinzana, and the DRSPR sponsored seminar on on-farm research. These technical meetings are a more effective way to communicate research results than through the Technical Commission.

e. Extension Materials

To date there have been limited extension materials prepared for OHV by DRSPR/OHV. At the end of the most recent research results presented to the Technical Commission, there are several pages of recommended varieties and practices which may be considered to be a technical report for development organizations. It appears that OHV takes the research results directly from the Technical Commission reports and then uses these for extension activities.
There needs to be a more popularized form of research results coming out of DRSPR/OHV. The Sikasso team has produced locally several Bambara language documents in collaboration with CMDT and the Royal Tropical Research Institute as well as a very professional French language document on training animals for animal traction.

f. Conclusions

The DRSPR/OHV team needs to consolidate their research results into documents that can be used by OHV and other development organizations. Financial support should come from funds earmarked for technical publications.

Because researchers are evaluated on the number of technical publications they have produced, DRSPR/OHV researchers should prepare papers for publication in journals. Some of the more technical papers that are not being included in the symposia proceedings can be reworked and submitted to such journals as Agricultural Systems, Journal of Sustainable Agriculture, Agronomie Tropicale, Journal of Production Agriculture, the working paper series of the Overseas Development Institute in London and the new Association of Farming Systems Research journal.

RECOMMENDATION

The DRSPR/OHV team needs to consolidate their research results into documents that can be used by OHV and other development organizations. Financial support should come from funds earmarked for technical publications.

The DRSPR/OHV team needs to prepare papers for publication in technical journals.

2.9. LINKAGES

According to the project paper, the Mali Farming Systems Research and Extension project will attempt to strengthen five types of linkages: within the research system, between DRSPR and the extension agencies, between DRSPR and the principal training institutions, with other organizations charged with agricultural policy and long-term developmental planning, and with regional and international research institutions. These can be summarized as research linkages, extension linkages, policy linkages, and training institution linkages.

a. Linkages with research

The DRSPR/OHV team has established research linkages within IER especially with DRA/SRCVO. Soil fertility research with both mineral and organic fertilizers, field testing new varieties of cereals and grain and fodder legumes, and field trips to collect local germplasm for evaluation are the areas in which collaboration has been most active to date. This year there are planned interventions in the area of food technology in conjunction with the women's activities. There seems to have been a problem with the collaborative oil crop (sesame) research that was jointly planned to include DRA, DRSPR, and IPR. It is unclear that it was ever executed. It seems that the herbicide work that was done as a demonstration was not reported back to the plant protection group.

Some researchers of DRA don't know the exact role of DRSPR in IER. They don't understand the difference between the activities of the DRA cell for multilocational testing and pre-extension and those of DRSPR. DRSPR/OHV funds are used to finance some of the multilocational testing which was previously supported by SAFGRAD. According to the SRCVO chief, the multilocational testing cell does a zonal evaluation of thematic interventions at a technical level, while DRSPR evaluates the technologies in the context of the overall farming system including socio-economic evaluation.

DRSPR needs to do more publicity about its work. Also, as IER determines the roles and responsibilities of its units in the process of technology generation and transfer, the role of DRSPR in on-farm research, "recherche en milieu paysan" will be clarified.

The role of the multilocational testing cell (to determine the agro-ecologic flexibility or adaptability of technologies) would be recognized as preliminary to and necessary for the work of DRSPR (testing promising technologies within the context of the farming system and determining their acceptability to farmers). The activities of these units then are complementary and important links in the process of developing and transferring technologies to farmers.

In preparation for the Technical Commission, both formal and informal discussions occur between scientists on program evaluation and development. Joint field visits are conducted during the cropping season. DRSPR/OHV scientists participate with DRA scientists in technical meetings organized around specific subjects.

DRSPR/OHV has established a working relationship with the researchers of DRA which is quite functional but which can always be improved. When asked for suggestions on how to improve the communication and linkages with DRA, the scientists from DRA proposed the following:

- increase the number of technical discussions organized around specific themes;
- organize more joint field visits;
- have DRA researchers associated with DRSPR researchers during farmer field days. This would assure direct feedback from farmers.
- have DRA researchers more involved and play a greater role in the thematic research of DRSPR from conceptualization to implementation.

Better research planning at both the DRSPR and DRA levels would facilitate cooperation since roles and responsibilities would be defined.

There has been little collaboration to date with IER/DET. The possibility that some of the more intensive data collection activity of DRSPR/OHV might be contracted out to DET or DPE will be discussed in other sections of this report.

Joint research programs have been established with scientists of the National Institute for Livestock, Forestry, and Hydrobiology Research (INRZFH) particularly the Center for Animal Science Research (CRZ), the Central Veterinary Laboratory, and the Division for Forestry and Hydrology Research (DRFH). There has been considerable effort given to the coordination of work plans between DRSPR/OHV and the Livestock Sectoral Project in Banamba. The soii conservation work has been implemented with the help of forestry personnel from DRFH. The GIS work of the Data Analysis Unit has profited from the data bases of the PIRT Project. Joint field visits have been conducted, and on an informal level there is a lot of information exchange. Because there has not been a formal agreement signed between IER and the Institute, logistical problems have recently surfaced that have interrupted the collaboration particularly with CRZ.

The contacts between DRSPR/OHV and the ICRISAT-Mali activities have been mostly informal--discussions between researchers, field visits to the Cinzana station, or indirect through the varietal programs of DRA, presentation of papers at ICRISAT organized seminars. The important aspect of these interactions is the networking and exchange of information that occurs.

Members of DRSPR/OHV have visited several West African agricultural research systems particularly those which have some type of FSR/E activities. They have brought back not only information of on-farm research but also technical information on themes of interest to their programs.

In conclusion, DRSPR/OHV has established functional linkages with other research divisions of IER and to a lesser extent with research organizations outside the Ministry of Agriculture.

b. Linkages with Extension

DRSPR/OHV has established a close working relationship over the years with both field level OHV personnel and those at the central headquarters. There is a formal agreement between OHV and IER to assure this relationship. The first agreement was signed in 1985 for a probationary period of one year and the most recent was signed in 1987 for a period of five years.

OHV personnel from Bamako are consulted during the preparation of the DRSPR/OHV work plan and researchers have modified their protocols at the suggestion of OHV personnel. Extension personnel participate in training the DRSPR/OHV and OHV field agents, make joint field visits with the researchers during the season and participate in the evaluation of trial results.

At the field level, the OHV agents help in farmer selection for the tests and have 50% responsibility for the pre-extension trials and demonstrations. While the OHV agents have 50% responsibility for the pre-extension trials, there is no clear definition of roles and responsibilities--who does what, where, and when.

OHV personnel are responsible for the distribution of inputs and assuring the repayment after the pre-extension tests. It is the OHV agents who are in a position to alert DRSPR/OHV to field level problems since they are more regularly in contact with the farmers. They keep field notebooks with certain information about the pre-extension trials.

Because of their radio system, OHV field personnel are able to inform DRSPR about both technical and logistical problems in the field. A call is made from the OHV Bamako office to the DRSPR office as soon as a message is received.

Researchers from Bamako never go to the field without stopping by to see OHV sector representatives and will occasionally participate in OHV monthly meetings. DRSPR/OHV has been using the farmer typology developed by OHV for its work.

OHV has been very instrumental in determining the research agenda of DRSPR. DRSPR has made an effort to be responsive and there are strong functional linkages and a close working relationship with both field and office personnel from the two organizations. There is room for improvement particularly in the delineation of roles and responsibilities in joint field activities.

c. Linkages with Policy

DRSPR has a potential policy role to play that has not been to date operational. DRSPR has data taken at the farming system level that could be analyzed to determine

the effects of policy decisions on farm families. This could be accomplished by cross regional analyses of these data. With the establishment of the Division level data processing unit, the ability of DRSPR to provide this type of information will be greatly enhanced.

d. Linkages with Training Institutions

Since the field season of 1986-1987, the DRSPR/OHV team has had students from IPR/Katibougou working on thesis topics in socio-economy, animal science and agronomy. Each of the research topics is part of the on-farm or thematic research programs of DRSPR/OHV. The topic and organization of work is designed to give field experience to the student as well as provide to the project pertinent information about the farming systems in the OHV region. As of the field season 1989-1990, 15 students are in the process of or have completed thesis work within the project.
In addition, several faculty members of Katibougou and CAA have been selected for long-term training on project scholarships. It is anticipated that after their return, these faculty members will integrate farming systems research concepts into the course work at IPR and CAA.

There was a proposal at one point to have DRSPR/OHV team members give occasional lectures at the training institutions but there is no indication that agreement on this type of activity has ever been reached.

The primary link DRSPR/OHV has with the agricultural training institutions is through student field work at the research villages. Until the faculty members sent on long-term training return, there will be no impact on the educational programs of the institutions.

RECOMMENDATION

For each collaborative arrangement (both research and extension) that is established, roles, responsibilities, and resource contributions of the collaborators must be clearly defined. A calendar of joint activities should be established and agreed upon.

ANNEX E

TRAINING

The success of the project will ultimately depend on the quality of research conducted by the Malian staff of DRSPR and cooperating agencies. Strengthening the technical capacity of research staff is fundamental to this goal. As envisaged in the project paper, the project will provide three types of training; (1) in-country training; (2) short-term, overseas training; and (3) long-term, overseas training.

In-Country Training: The in-country training program envisaged in the project paper contained three main components; (1) daily, on-the-job training; (2) formal seminars and workshops; and (3) training staff and students from local agricultural training institutes in basic agricultural research and FSR/E methodologies.

On-the-job training, requiring the continuous interaction between experienced research staff and less-experienced staff, is the core of a local training program. Such activities must be programmed into the daily execution of research program activities, and therefore, require a coherent and effective program management process and a stable and cooperative research team effort in order for experienced staff to be effective teachers.

There has been in-service training in the use of computer soft-ware--word processing, data base management, statistical software and various utilities. DRSPR/OHV researchers, administrative staff, accountants and secretaries routinely use the project's microcomputers in their work. In addition, a field staff of about two dozen people has been trained to collect socioeconomic and agronomic data and monitor trials.

Daily research management and implementation problems can frequently pre-occupy many senior staff, likely at the expense of one-on-one training. This appears to be particularly applicable to the project's technical assistance team, where frequent changes in technical assistance staff have not provided the stable, and cohesive staff environment, which is essential for effective on-the-job training. Although several of the present technical assistance team have just recently arrived on the project, there presently appears to be a solid core of technical staff who will be able to provide effective on-the-job training for staff of both DRSPR/OHV and other collaborating agencies.

Collective on-the-job training has been the focus of yearly meetings of all project and collaborative agency staff with respect to research program implementation. These meetings have been important in providing field staff with an analytic, retrospective view of field trial results from previous years and a clearer understanding of technical issues related to the implementation of field trials for the ensuing campaign. However, discussions with field staff indicated a desire on their part for further training, not necessarily directly related to research program activities.

Seminars and Workshops: Formal local training seminars and workshops (such as the statistical analysis workshop conducted in 1988 and the on-farm research seminar in 1988) have not played an important role in the training program to date. Seminars and workshops focusing on technical aspects of agricultural research, new and improved

extension methods, livestock research, basic field trial design methodologies, data interpretation, survey techniques (sociological and economic), etc., have not been programmed on a regular basis to date. In addition, little attempt appears to have been made to solicit the expertise of scientists and researchers form other agencies to assist the project in developing a formal, in-country training program.

Efforts to provide students from agricultural training institutions with facilities and technical support to undertake research projects have met with success. To date 13 students, 12 from IPR and one from CAA have completed research projects associated with specific aspects of the project's research program. It appears that this training has been quite successful, providing not only an opportunity for students to benefit from project technical support, but also to provide future professionals with an exposure to FSR/E concepts and methodologies as one means for institutionalizing an applied research perspective into Mali's agricultural research effort.

RECOMMENDATIONS

A senior research team member should be responsible for coordinating local training activities for DRSPR/OHV.

Greater efforts need to be made to plan formal seminars and workshops for research and extension staff.

Local training activities should emphasize the participation of field and extension staff, particularly in the technical aspects of on-farm trial design, field socio-economic assessment techniques, field data collection and assessment techniques, and field visits to different research zones by researchers, extension staff, and farmers.

Improved documentation of on-the-job training should be done to allow for a more objective internal assessment of the impact of this activity and to provide project management with improved criteria to assess and evaluate staff performance.

Local training activities should be an integral part of the annual research program planning effort and be based on technical program as well as central and field staff needs.

Greater efforts should be made to formalize institutional linkages between IER and the division of higher education in order to strengthen the role of DRSPR as a training resource for mali's agricultural training institutions.

Short Term Training and Study Travel: The project's short term training program was designed to provide both research and middle and upper-level extension staff with short-term training opportunities at international agricultural research institutions, U.S. universities, and other research organizations. Courses were to include such areas as FSR/E methodologies, crop production technologies, research design and evaluation, research management, extension methods, design and analysis of on-farm trials, etc. Particular attention was to be given to IARCs as sources of training to strengthen

professional linkages between Malian researchers and IARC staff.

Figure 1 summarizes short-term overseas training through September 1989. Approximately 11 person-months of overseas short-term training have been used by the project. All participants were DRSPR staff members, and the focus of training (63%) was on computer, statistical analysis and financial management.

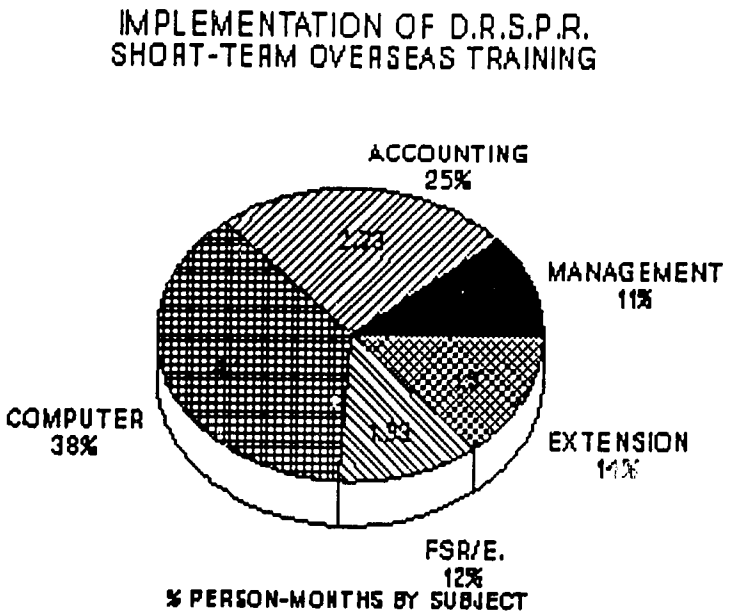


FIGURE 1

A major component of the short-term training program is study/observation tours. This component was provided by the project to enable senior researchers and GRM decision-makers with an opportunity to visit farming systems projects in other African countries which are experiencing and attempting to solve many of the same issues of concern to DRSPR In addition, these tours would provide an opportunity for Malian professionals to establish contacts and relationships with counterparts in other countries.

To date a total of 5 DRSPR staff members have made study tours to the Gambia, Senegal, and Niger, and several staff plan to visit the Gambia in the coming months.

RECOMMENDATIONS

Extension staff (OHV) and agronomic support staff (DRA) should be included in the assessment of, and participate in, short-term training activities.

Greater efforts need to be made of IARCs (ICRISAT, ICARDA, IITA, ILCA) in identifying short-term training opportunities.

Greater efforts need to be made in the planning of study/observation tours of african applied research projects/programs for senior IER research staff and GRM decision-makers.

Long-Term Overseas Training: The objective of the long-term overseas training program was to provide a critical mass of trained personnel in farming systems research in the academic areas of agronomy, livestock, agricultural economics, anthropology/sociology, and agricultural extension. In addition, faculty members from IPR and CAA were to

receive training in their respective disciplines to provide agricultural training institutions with faculty for the incorporation of FSR/E concepts and methodologies into agricultural training curricula.

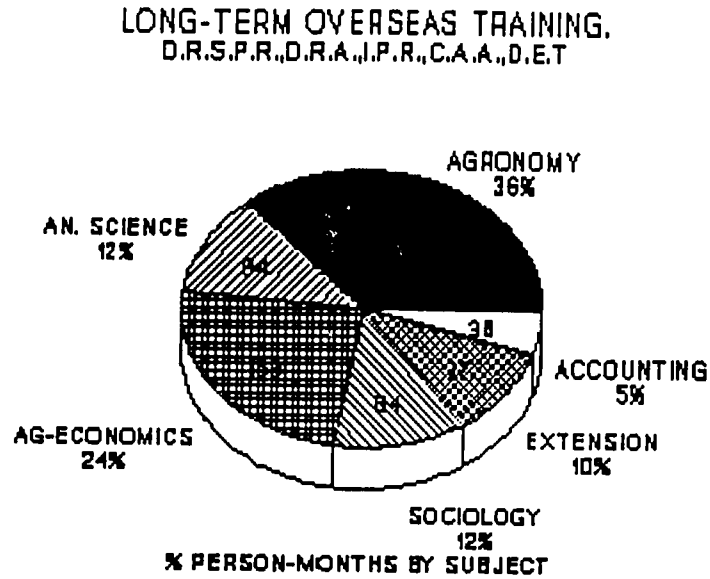


FIGURE 2

Implementation Status: To date, 17 fellowships have been awarded, and the participants are presently in the U.S. These 17 participants represent a projected 696 person-months of formal degree training according to the study time-frame outlined in the project paper. Figure 2 illustrates the allocation of person-months by Division or Agency and the number of person-months by subject matter for DRSPR participants.

Figure 3 illustrates the percent of person-months by subject matter for all degree participants.

The project paper indicates that 19 degree fellowships would be provided as follows: DRSPR: 7 M.S. and 3 Ph.D. candidates; DRA: 2 M.S. and 2 Ph.D. candidates; IPR : 1 M.S. and 1 Ph.D. candidate; and CAA: 2 M.S. candidates. Assuming that the two remaining candidates (DRSPR, animal scientist and DET data specialist), then the project will have trained 7 DRSPR staff members (as opposed to 10 indicated in the project document), 5 DRA staff members (as opposed to 4 indicated in the project document); 2 IPR staff

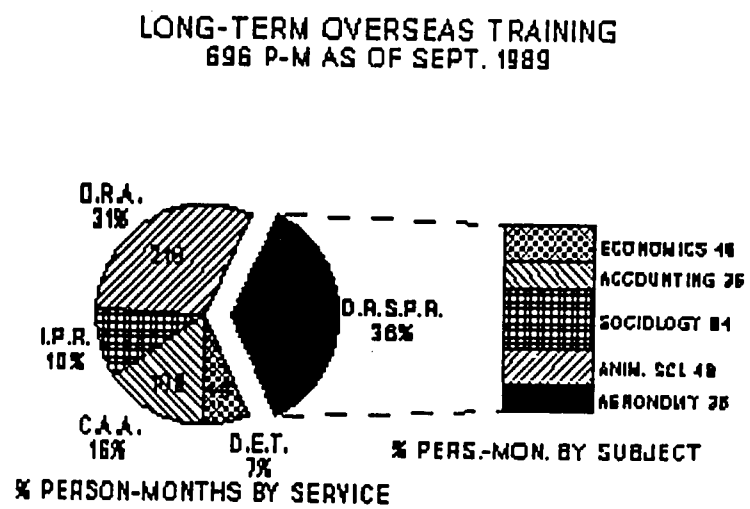


FIGURE 3

members (as forecast in the project paper); 3 CAA staff members (as forecast in the project paper; and 2 DET staff members (not forecast in the project paper).
The net reduction in fellowships for DRSPR could result in future staffing problems for existing and anticipated new DRSPR regional programs.

Future program implementation will also be affected by the apparent need to extend training beyond the 36 months for a M.S. and the 48 months for a Ph.D. In discussions with project management and the contractor, indications are that many participants will require extensions. VPI informed the project that a total of 96 additional person-months would be required for those participants already in the U.S. On average, M.S. candidates will likely require an additional 6 months and Ph.D. candidates another 9 months. These extension could pose a problem in terms of anticipated return dates and consequently, their availability to the project, as well as having an important budgetary on the entire training program.

Future Priorities and Budgetary Implications: Information from VPI indicates that only one participant is likely to return before December 1990. Two participants (1-DRSPR, 1-DRA) are scheduled to return in December 1990. One candidate (DRSPR) will likely return in May 1991; one candidate (DRSPR) in August 1991; 5 candidates (2-DRSPR, 3-DRA) in August 1992; 1 candidate in May 1993; and 1 candidate in August 1993.

Another critical question is the impact of these anticipated extensions on the forecasted training budget. The residual training budget contains sufficient funds to cover the scheduled extensions of participants presently in the US, as well as the last 2 participants who have not yet been sent. However, under these conditions long-term training would absorb approximately 93 percent of all training budget funds. No funding would be available for additional short term training abroad or in-country. Expenditures on short term training have only been about 17 percent of what was proposed in the project paper.

To date, the project as only used approximately 11 person-months of short-term training from a total of 96 person-months proposed in the project paper, and only approximately 2 person-months of study/observation travel from a total of 16 person-months proposed in the project paper. The source of funding for local training was not clear at the time of this assessment.

It is clear that effective implementation of the training program is a critical to achieving project objectives. Each component of the program, degree training, short-term overseas training, study/observation tours, and local training are intended to fulfill specific training, institution building needs and objectives. Indications are that substantial additional costs for degree training could jeopardize implementation of the other three components.

One of the basic problems related to implementation of the training program was the lack of sufficient financial management information at project management level. While the contractor is responsible for implementation of the program, management of the program is clearly the responsibility of the project. This requires that project

management have adequate financial information in order to establish training priorities in a fiscally sound and responsible manner. The contractor has been quite effective in implementing the degree training program, but improvements in the flow of financial information among the project, the contractor, and USAID are essential if the project is to effectively manage the training program in response to evolving program needs.

RECOMMENDATIONS

In the light of likely extensions to present degree training programs, DRSPR management should review the present training schedule in order to update planned program expansion and anticipated staffing patterns.

Staffing needs prepared by DRSPR management for present and future research programs should be the basis of an IER decision to assign an adequate number of returned participants to DRSPR.

Because of budgetary limitations, and to ensure that degree training costs do not jeopardize other aspects of the project's training program, SECID, USAID, and project management need to clarify present and anticipated future funding needs and take appropriate action.

Project management needs to be supplied with financial and participant progress information in order to effective manage the project's training program.

TRAINING STAGES FOR I.P.R./C.A.A. STUDENTS

STUDENT	INSTITUTION	YEAR STUDIED	SUBJECT
M. TANGARA	I.P.R.	1989	SOCIO-ECONOMY
Y. SIDIBE	I.P.R.	1989	ANIMAL SCIENCE
L.B. TRAORE	I.P.R.	1989	AG-ECONOMY
S.A. KONE	I.P.R.	1989	AGRONOMY
I. SACKO	I.P.R.	1989	AGRONOMY
A. BAGAYOKO	I.P.R.	1989	AGRONOMY
D.B. CHEICK	I.P.R.	1988	AGRONOMY
S. FAMOUSSA	I.P.R.	1988	AGRONOMY
KONE SADIO	I.P.R.	1988	AGRONOMY
SANOGO MOUSSA	I.P.R.	1988	ANIMAL SCIENCE
B.B. SIDIBE	I.P.R.	1987	AG-ECONOMY
O. MAIGA	I.P.R.	1987	AG-ECONOMY
M.L. COULIBALY	I.P.R.	1987	AGRONOMY
A. DAO	I.P.R.	1986	AG-ECONOMY
M. SIMPARA	I.P.R.	1986	AGRONOMY
O. TRAORE	C.A.A.	1986	AGRONOMY

SHORT-TERM TRAINING

STAFF	POSITION	YEAR	DURATION	COUNTRY	SUBJECT
M. TRAORE	CONTROLLER	1986	21 DAYS	MALI	PROD. SYSTEMS
K. KOMAKARA	ACCOUNTANT	1987	19 DAYS	IVORY COAST	COST ACCOUNTING
M. KONE	ACCOUNTANT	1987	24 DAYS	IVORY COAST	AUDITING
M. GOITA	DIRECTOR	1988	40 DAYS	USA	PROD. SYSTEMS
B. COULIBALY	AGRONOMIST	1988	15 DAYS	USA	SEMIN./COMPUTER
Y. TRAORE	SOCIOLOGIST	1988	15 DAYS	USA	SEMIN./COMPUTER
M. KATILE	ADMIN. OFFICER	1988	15 DAYS	IVORY COAST	PERSON. MANAG.
S. CISSE	ACCOUNTANT	1988	21 DAYS	IVORY COAST	COST ACCOUNTING
D. SIDIBE	ACCOUNTANT	1988	18 DAYS	IVORY COAST	MANAG. CONTROL
M. FOFANA	AG-ECONOMIST	1989	21 DAYS	USA	STAT./COMPUTER
B. KONE	ANIM. SCIENTIST	1989	21 DAYS	USA	STAT./COMPUTER
MME. SISSOKO	AGRONOMIST	1989	21 DAYS	USA	STAT./COMPUTER
M. KATILE	ADMIN. OFFICER	1989	22 DAYS	IVORY COAST	MANAG./TRAINING
M. TRAORE	COMPUTER TECH.	1989	15 DAYS	USA	COMPUTER
K. TIGANA	COMPUTER TECH.	1989	15 DAYS	USA	COMPUTER
M. SOUMARE	CONTROLLER	1989	45 DAYS	HOLLAND	EXTENSION

LONG-TERM TRAINING

STAFF	POSITION	SERVICE	DATE LEFT	DEGREE	SUBJECT	EST. DATE RETURN
A. BERTHE	AN. SCIENTIST	DRSPR	AUG. 1987	PH.D.	ANIM. SCIENCE	MAY 1991
A. GAKOU	AGRONOMIST	DRA	AUG. 1987	PH.D.	AGRONOMY	DECEMBER 1990
D. GUINDO	AGRONOMIST	DRA	AUG. 1987	M.S./PH.D.	AGRONOMY	DEC.1989/DEC.1992
B. DEMBELE	AN. SCIENTIST	IPR	AUG. 1987	M.S.	ANIM. SCIENCE	MAY 1990
A. KERGNA	AG-ECONOMIST	IPR	AUG. 1987	M.S.	AG-ECONOMY	MAY 1990
A. NIANGALY	AG-ECONOMIST	CAA	AUG. 1987	M.S.	AG-ECONOMY	DECEMBER 1989
O. SAMAKE	AGRONOMY	DRA	AUG. 1987	M.S.	AGRONOMY	MAY 1990
M. TANGARA	SOCIOLOGIST	DRSPR	AUG. 1987	PH.D.	SOCIOLOGY	AUGUST 1991
A. SAGARA	AG-EXTENSION	CAA	JUL. 1988	M.S.	AG-EDUCATION	DECEMBER 1990
M.A. KADRI	AGRONOMIST	DRSPR	JUL. 1988	M.S.	AGRONOMY	DECEMBER 1990
A. COULIBALY	AG-ECONOMIST	DET	JUL. 1988	M.S./PH.D.	AG-ECONOMY	DEC.1990/MAY 1993
A.S. MAIGA	AG-ECONOMIST	DRSPR	JUL. 1988	PH.D.	AG-ECONOMY	AUGUST 1992
A. TOURE	AGRONOMY	DRA	JUL. 1988	PH.D.	AGRONOMY	AUGUST 1992
S. SOW	AG-EXTENSION	CAA	FEB. 1989	M.S.	AG-EDUCATION	AUGUST 1992
M. KOMAKARA	ACCOUNTANT	DRSPR	FEB. 1989	B.S./M.S.	ACCOUNTING	MAY 1992/AUG. 1993
Y. TRAORE	SOCIOLOGIST	DRSPR	SEPT. 1989	M.S.	SOCIOLOGY	DECEMBER 1992
M. DIALLO	AGRONOMIST	DRA	SEPT. 1989	M.S.	AGRONOMY	AUGUST 1992

VPI & SU OFFICE OF INTERNATIONAL EDUCATION
OCTOBER 30, 1989

ANNEX F

FUTURE PERSPECTIVES FOR FSR/E LIVESTOCK ACTIVITIES

PRESENT PROGRAMS IN THE FUTURE

During the past two years livestock activities of the O.H.V. volet of D.R.S.P.R. have focused on the following areas; forage production, improvement of fallow land through the use of fodder banks incorporating the introduction of Styalosanthes hamata; developing the concept of "parcs ameliores" to improve the utilization of cereal crop stover through its use as litter in animal holding corrals, and thereby increasing the amount of organic matter farmers can use on their cropping fields; collaborative research with the Central Veterinary Laboratory to define the etiology of a paralytic syndrome of both small and large ruminants which is wide-spread in the northern areas of the project zone; using improved rations for conditioning work oxen immediately prior to the season of land preparation for cultivation; extension of improved poultry production practices for village producers, including vaccination against Newcastle Disease and Fowl Cholera; and limited activities concerning rural honey production.

Two of these activities are, at this stage of development, basically extension activities, "parcs ameliores", and vaccination activities. Future efforts regarding these activities should be the responsibility of extension of R.D.O. extension and field livestock personnel. In this regard P.R.S.P.R. can play an important role in providing extension bulletins and workshops for field staff to provide them with practical technical information which is necessary for more effective extension. In addition, frequent farm visits by the animal scientist and his research and extension colleagues could provide additional opportunities to identify potential technologies which could be adapted to meet farmers' needs. Periodic visits by the farming system research team to "adoption sites" are advisable as a means to assess adoption modification and impact.

Fallow land improvement trials, if successful, will play a key role in future village land utilization practices and will have an important impact on natural resource and environmental issues. The expansion of these activities into more northern areas in the project zone may be result in additional social and land use issues due to the fact that these areas are utilized by both sedentary and transhumant producers. An informal assessment of the use of these areas during the dry season by the research team could provide important information of the complimentarily and interactions of these two production systems. Such information could identify constraints as well as opportunities for applied research activities that would impact on both production systems, particularly in the area of livestock nutrition.

Past research activities relating to the improved feeding of traction animals prior to cultivation season have been undertaken in collaboration with the farming systems research group of C.R.Z. Future activities should be implemented in coordination with C.R.Z.-D.R.S.P.R.-O.H.V., with the major responsibility given to O.H.V.
The simple provision of vaccination services is basically not a research area, but the

responsibility of D.N.E. and the Regional Veterinary Service. Efforts should be made to collaborate with Regional Veterinary authorities to examine ways to improve field veterinary services. On-farm trials focusing on improved animal husbandry practices should be undertaken in collaboration with veterinary field and extension staff.

FUTURE PROGRAMS

One of the realities that P.R.S.P.R. programming will face in the future is diminishing resources. Clear priorities will need to be established when developing research program activities and every attempt possible should be made to collaborate and use available technical resources from outside the project to fulfill project program needs. This is particularly true in the livestock area.

C.R.Z. has been implementing an applied research program focusing on animal production for the past 6 years in collaboration with I.L.C.A. This program is located in the same zone as P.R.S.P.R. What this program lacks is an agronomic perspective, presently a strong research area in P.R.S.P.R.'s program. The complimentarily between the two programs is obvious. An important future role for P.R.S.P.R. animal scientists will be to identify "windows of opportunity" for technical packages being developed by C.R.Z. Working with C.R.Z. researchers, P.R.S.P.R. researchers need to focus on pre-extension (pre-vulgarization) and demonstration trials and strengthen linkages with O.H.V. extension services and farmers. C.R.Z. could play an important role in verification trials, implementing, in collaboration with P.R.S.P.R., both on-station and on-farm researcher-managed trials.

The identification of "windows of opportunity" for technical packages which can improve livestock productivity can have important short-term impacts for producers who are attempting to solve medium and long term crop production constraints. Livestock are sold by most traditional households to provide income for the purchase of goods and services. Depending on economic status, part of the revenue generated through livestock sales, or the sale of livestock products, could be used to purchase critical agricultural inputs, which could have an important medium term impact on stabilizing crop production.
The majority of crop increasing technologies require either cash or credit to purchase inputs or years of continuous effort to produce desired effects. Most traditional producers are resource poor and cash destitute and cannot afford to wait years for production increases they need today. Livestock, particularly poultry, small ruminants, and swine can provide households with additional revenue in a relatively short period of time. Livestock have an advantage over cash crops, in that they can be sold when need.

In a number of the test villages I visited (see notes on Kanika and Yekebougou) an important short-term contribution of small improvements in poultry and small ruminant production could result in an increase in household income. Certain areas in the O.H.V. zone offer much greater potential in terms of the sales of livestock and livestock products, especially milk. C.R.Z. began implementing a sub-humid applied research program in 1988 in collaboration with I.L.C.A.

One of the reasons for this re-orientation in research area (previously the focus was in the Banamba area) was to try and leverage improvements in both crop and livestock production by working with producers who have a ready access to markets for the sale of meat and milk. Collaboration between C.R.Z. and P.R.S.P.R. in this sub-humid program could provide an opportunity to improve and stabilize crop production, though short and medium term improvements in the productivity and commercialization of livestock and livestock products.

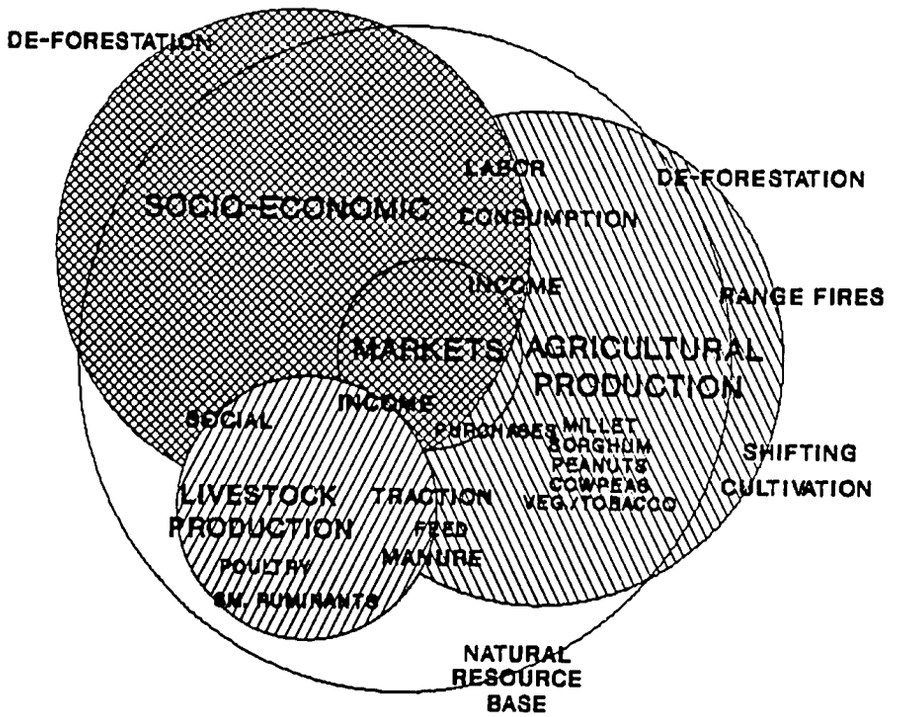
In terms of new initiatives in the northern areas of the project zone, some consideration should be given to examining the natural resource use practices and impacts of transhumant producers. In the village of Kanika informal agreements between sedentary and transhumant producers allow for the fertilization of crop field during the dry season. The present ability of Kanika farmers to maintain their present production level is in part related to the season presence of traditional livestock producers. Exploitation of the natural resources in the area, and the larger environmental degradation issue, will eventually have to take into consideration production practices of both these production systems. This is another potential research area which should be

FIELD VISIT TO YEKEBOUGOU - INTERVIEW WITH BOTH COOPERATING AND NON-COOPERATING FARMERS: 25/10/89

Physical Characteristics of the Area: Yekebougou is located in the western region of the O.H.V. zone (as defined in the PRSPR Rapid Reconnaissance Survey), along the eastern and western foothills of the Mandingue mountains. The difficult terrain, in addition to the gravelly, and often highly eroded soils, result in a local geography characterized by shifting cultivation, limited agriculturally productive land in the immediate vicinity of the village, and poor infrastructure and accessibility, particularly during the rainy season.

General Agricultural Production Activities: Crop production is dominated by the cultivation of millet and sorghum, generally in association with cowpeas. Important cash crops include peanuts, vegetables, and traditional tobacco. The major constraint expressed by farmers was decreasing soil fertility, that in this case is exacerbating an already limited availability of productive land within easy village access. Decreasing yields and limited resources have made production units net annual purchasers of staple grains. In 1988, a year that is generally regarded as having an exceptionally good rainfall, approximately 58 of 68 production units in the village were forced to purchase millet and/or sorghum to cover household needs. Discussions indicated that cash crops, specifically tomatoes, onions, and local tobacco were important on-farm activities, generating income to cover household needs.

General Livestock Production Activities: Large ruminant production apparently does not constitute a significant production activity. The majority of producers apparently do not own cattle, although animal traction is a common practice. Small ruminant (goats) production appeared to be a widespread activity, especially among women, as did poultry production, which is apparently undertaken by both men and women. Small ruminants were cited as important sources of revenue for paying income taxes ("impots") while poultry enabled households to meet social obligations (gifts) as well as general household needs.



SEDENTARY PRODUCTION SYSTEM
YEKEBOUGOU

The major constraints cited by farmers regarding livestock were: (1) poor condition of work oxen prior to the period of land preparation (possible causes: limited/poor quality grazing and associated watering sources, disease: mineral deficiencies - possibly phosphorus and micro-nutrients, trypanosomiasis, sub-clinical hemoprotozooal infections); and (2) disease problems associated with small ruminant (possible causes: pasteurellosis, pest de petits ruminants) and poultry production (possible causes: fowl cholera, Newcastle Disease).

Village Profile: Net annual purchaser of staple cereals; limited availability of productive land; dependent on cash crop production; limited existing livestock resources.
Development Priority: Stabilize (short term) and increase (medium term) agricultural production.

Strategy: Increase household income (short term); improve resource base for increasing productivity of crop land (medium term).

Potential Livestock Interventions: (1) increase the effective use of animal manure/compost on cash crops (short term); (2) use of mineral blocks (containing macro and micro nutrients) for work oxen (short term); (3) vaccinations for small ruminants (short term), mineral blocks and "flushing" (medium term); (4) vaccination for poultry (short term) and introduction of exotic breeding stock (medium term).

FIELD VISIT TO KANIKA - INTERVIEW WITH COOPERATING PRODUCERS: 27/10/89

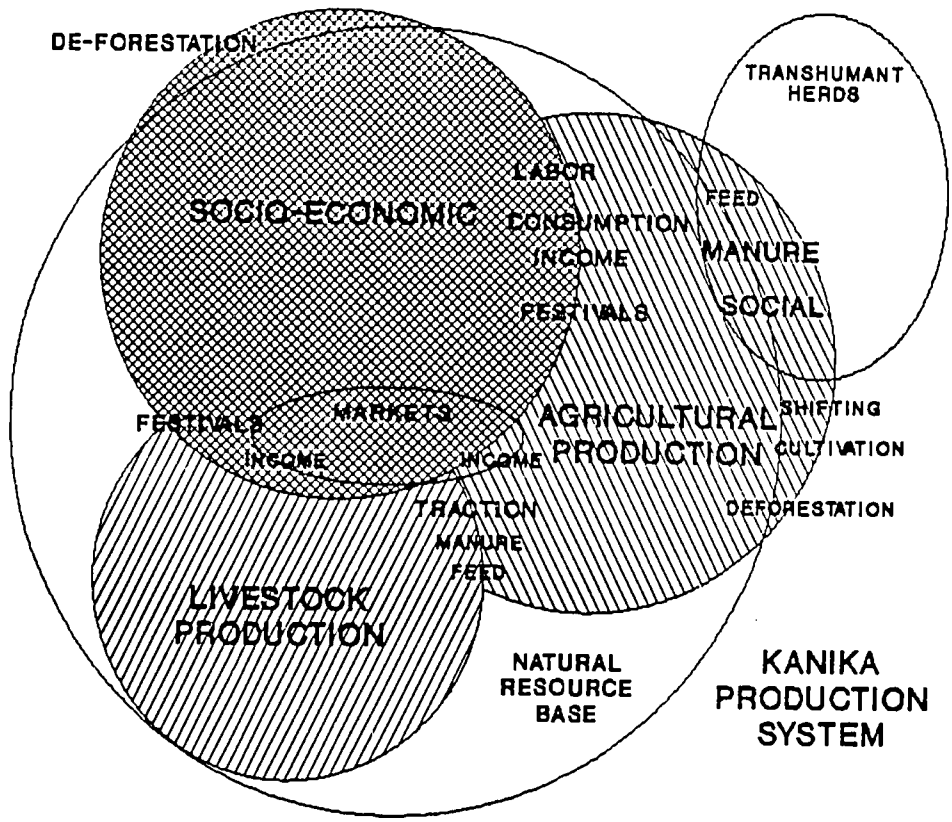
Physical Characteristics of the Area: Kanika is located in the northern, Sahelian Zone of the O.H.V. zone (Zone D as identified in the PRSPR rapid reconnaissance survey). Rainfall, though highly variable (between 450-700 mm), has been good during the past two years. Soils are predominately sandy clays and erosion is a dominant feature. Kanika is a sedentary, Sarakholle village in a area frequented by Peul transhumant producers.

General Agricultural Production Activities: Crop production is dominated by the production of millet and sorghum, generally in association with cowpeas. The cultivation of cash crops did not appear to be a dominant activity. Indications were that a substantial quantity of the sorghum produced is used for feeding horses. Animal traction is wide-spread in the village, being utilized by nearly 100% of the farmers. Horses are the major draft animal in the village, followed by oxen and donkeys.

The major production constraint cited by farmers was continuously decreasing soil fertility. Traditional efforts to maintain soil fertility included the use of livestock manure on cropping areas. Generally this has been done through informal agreements with transhumant producers, Peul and Mores, who move into the area following the end of the rainy season. Agreements with Peuls usually involve the provision of wells for household use and for livestock, while the Mores demand, in addition to watering rights, some payment in cereal grain.

In the past this village has been self-sufficient in cereal grain production. Indications were that there is a high level of village organization, and a cooperative for the storage and sale of cereals within the village has enabled the village to main its relative self-sufficiency in cereal production. However, discussions with villagers indicated that this year, due to the invasion of insect pests, small desert locust and a type of millet-head borer, grain losses were high. Consequently, the village will likely be a net purchaser of cereal grain this year.

General Livestock Production Activities: Large ruminant production did not appear to constitute a significant production activity for the majority of villagers, though many maintain traction animals. However, small ruminant production is a wide-spread activity within the village, and "embouche paysanne" is still actively practiced. Depending on the availability of cash to purchase animals, on-farm feeding involved either cattle or sheep. The fattening of sheep for Tabaske is practiced by many households. Villagers stated that they can sell as many animals as they can purchase, the major constraint being the availability of cash. Poultry and Guinea fowl were also raised by a number of households. Major livestock production constraints cited by farmers were small ruminant and poultry diseases.



Village Profile: Generally self-sufficient in cereal production, dependent on a highly variable rainfall to provide sufficient cereal production to meet household needs as well as payment to transhumants. Off-farm income likely plays an important role in subsidizing household income (rural exodus was very apparent during the visit). Livestock play an important role in traction for crop production and in providing additional household revenue through on-farm cattle feeding activities.

Development Priority: Stabilize (short term) and increase (medium term) agricultural productivity.

Strategy: stabilize cereal crop production - cooperation of plant protection service (short term); increase household income (short, medium term)

Potential Livestock Interventions: (1) the present program of "parcs ameliores" is a priority intervention for this village, though indications were that this technology was virtually ready for extension; (2) diagnostic activities to resolve small ruminant mortality problems (possibly respiratory diseases and mineral deficiencies).

ANNEX G

LIST OF PERSONS CONSULTED

Bamako

M. Mory Coulibaly, Technical Advisor, Ministry of Agriculture
M. Mamadou F.Traoré,Technical Advisor, Ministry of Agriculture
M. Dennis J. Brennan, USAID Director
M. Tracy Atwood, Head of the Agricultural Development Division, USAID
M. Jon Breslar, Head of the Programming Division, USAID
M. David Atwood, Agricultural Economist, USAID
M. Tadesse Kibreab, Technical Advisor in Agricultural Research, USAID
M. Jack Winn, Controller, USAID/Bamako
Ms. Paige Carlson-Heim, Budget and Accounting Officer, USAID/Bamako
M. El Hadj Oumar Tall, Director General, IER
M. Dotianga Diamouténé, Adjunct Director General, IER
M. Fousseni Mariko, Division Chief, DET, IER
M. Mamadou Goïta, Division Chief, DRSPR, IER
M. Bakary Koné, Animal Scientist, DRSPR, IER
M. Boubacar Coulibaly, Coordinator, DRSPR, IER
M. Diby Diakité, Agronomy Assistant, DRSPR, IER
Mme Haoua Sissoko, Agronomy Assistant, DRSPR, IER
M. Zana Sanogo, Division Chief, DRA, IER
M. Panganignou Dolo, Food and Oil Crop Research Section (SRCVO) Chief, IER
M. Cheick O. Keïta, AMS/SRCVO, IER
M. Brahima Dembélé, AMS/SRCVO, IER
M. S.V.R. Shetty, ICRISAT/Mali
M. Abdoulaye Traoré, AGP/SRCVO, IER
M. Sadio Traoré, Oil Crops/SRCVO, IER
M. Aliou Konaté, Weed Science, SRCVO, IER
M. Aliou Traoré, Grain legumes, SRCVO
M. Mamourou Diourté, Plant Pathology, SRCVO, IER
M. Glenn Howze, Chief of Party, Mali FSR/E Project
M. John Caldwell, Agronomist, Mali FSR/E Project
M. Anthony Yeboah, Agricultural Economist, Mali FSR/E Project
M. Whitney Alexander, Computer Specialist, Mali FSR/E Project
M. Hilarion Bruneau, Financial manager, Mali FSR/E Project
M. Horiba Koné, Accountant, Mali FSR/E Project
M. Yaya Togola, Director General, OHV
M. Seydou Coulibaly, Crop and Livestock Section Head, OHV
M. Saliku Sanofo, Agricultural Mechanization, OHV
M. Souleymane Diarra, Livestock Section, OHV
M. Issa Djiré, Extension Division, OHV
M. Oumar Doumbia, PIRT
M. Hamadi Dicko, Acting Director General, INRZFH
M. Moussa Kane, CRZ/INRZFH

M. Kantougoudiou Coulibaly, DRFH/INRZFH
M. Fankomo Traoré, CRZ/INRZFH

Moutoungoula

M. Mohamed Koureishi, Livestock/Agronomy Agent, DRSPR
M. Mamadou Lamine Coulibaly, Moniteur Socio-economics agent, DRSPR
M. Moumouny Traoré, Controller, DRSPR
M. Salif Coulibaly, Subsector Chief, OHV

Sikasso

M. Bert Jager, Team Leader, Dutch Technical Assistance
M. Zana Jean-Luc Sanogo, Agronomist, DRSPR/Sikasso
M. Konimba Bengaly, Animal Scientist, DRSPR/Sikasso
M. Piet van der Poel, Soil Engineer
M. Paul Kleene, CIRAD/DSA/KIT
M. Siratigui Diallo, Agricultural Economist, DRSPR/Sikasso
M. Bakary Sanogo, Coordinator, DRSPR/Sikasso
M. Guindo, Chief of the Development Division, CMDT/Sikasso

Kanika

M. Christophe Kamissoko, DRFH/INRZFH
M. Sanoussi Coulibaly, Livestock/Agronomy Agent, DRSPR
M. Seydou Dao, Moniteur Socio-economics Agent, DRSPR
M. Koni Dao, Controller in the Northern Zone, DRSPR
M. Sory Ibrahim Keïta, OHV, Boron

Balanzan

Mlle Haby Soumano, Research Assistant, DRSPR
M. Yakouba Lamine Keïta
Baba Konaté, subsector chief, OHV

Yekebougou

Mme Sadio Togola, Research Assistant, DRSPR
M. Mamadou Dembélé, Enumerator, DRSPR
M. Adama Sangara, Enumerator, DRSPR
M. A. Kouyaté, Controller, DRSPR
M. M. Sidibé, Adjunct Subsector Chief, OHV
M. Drissa Traoré, Subsector Chief, OHV

Banamba

M. Racine Ly, INRZFH
M. Baba Noumoutié, Livestock Sectoral Project
M. Balla F. Traoré, Livestock Sectoral Project

Michigan, United States

M. B. Henry de Frahan, Agricultural Economist, Michigan State University

ANNEX H

LIST OF DOCUMENTS CONSULTED

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ANNEX I

PROGRAM FOR THE EVALUATION TEAM
D.R.S.P.R.,D.R.S.P.R./OHV EVALUATION, 20/10/89-15/11/89

DATE	ACTIVITY
FRI., 20 OCT.	EVALUATION TEAM ARRIVED IN BAMAKO
SAT., 21 OCT	INITIAL MEETING WITH DRSPR
SUN., 22 OCT.	INITIAL EXAMINATION OF DOCUMENTS
MON., 23 OCT.	INITIAL MEETING WITH DIRECTOR OF IER
	INITIAL VISIT WITH DIRECTOR OF OHV
	INITIAL MEETING WITH U.S.A.I.D.
TUES., 24 OCT.	INITIAL MEETING WITH CABINET M.O.A.
	VISIT TO DRSPR CONSTRUCTION SITE
	PROGRAM PRESENTATION BY DRSPR DIRECTOR
	MEETING WITH DRSPR RESEARCH STAFF
WED., 25 OCT.	TRIP TO YEKEBOUGOU
THURS.,26 OCT.	MEETING WITH DRSPR RESEARCH STAFF
	TRIP TO BANAMBA/LIVESTOCK PROJECT
FRI., 27 OCT.	TRIP TO KANIKA
SAT., 28 OCT.	TRIP TO MOUTOUGOULA
	DISCUSSIONS WITH FARMERS
SUN., 29 OCT.	REVIEW DOCUMENTS
	EVAL. TEAM MEETING
MON., 30 OCT.	TRIP TO DEQUELA
	TRIP TO BALANZAN
	TRIP TO KANGABA
TUES., 31 OCT.	TRIP TO SIKASSO
WED., 1 NOV.	DISCUSSIONS RESEARCHERS-SIKASSO
	VISIT TO FONSEBOUGOU
	VISIT TO KOUTIALA
	VISIT TO KANIKO
THURS., 2 NOV.	MEETING WITH INRZFH
	MEETING WITH CRZ
	EVAL. TEAM MEETING
FRI., 3 NOV.	MEETING WITH O.H.V.
SAT., 4 NOV.	MEETING WITH D.R.A.
	SRCVO, SRFM, SRCSS
SUN., 5 NOV.	REPORT WRITING/EVAL. TEAM MEETING
MON., 6 NOV.	MEETINGS WITH DRSPR/INFORMAL
	REPORT PREPARATION
7-9 NOV.	SUBMISSION DRAFT SUMMARY RECOMMENDATIONS
FRI., 10 NOV.	DISCUSSIONS WITH AID/DRSPR
SAT., 11 NOV.	DISCUSSIONS WITH IER/M.O.A.
SUN., 12 NOV.	REPORT REVISIONS/PREPARATION
MON., 13 NOV.	REPORT REVISIONS
TUES., 14 NOV.	SUBMISSION OF FIRST DRAFT TO AID
WED., 15 NOV.	EVALUATION TEAM DEPARTS MALI

ANNEX J

Project Assumptions

The following comments refer to project assumptions that are no longer valid for the Mali Farming Systems Research Project.

Accuracy of budget projections is affected by change from Malian francs to Francs CFA.

Personnel requirements for DRSPR/OHV have been almost double estimates.

Long term training participants have required longer to get their degrees than was estimated.

GRM will assign returned trainees to staff positions and GRM does not radically revise research coordination system:

Regionalization of the national agricultural research program (IER) is likely to compete with FSR/E Project for personnel with advanced degrees. Within DRSPR, rejuvenation of the Canadian/Bougouni team and the initiation of the French/Office du Niger FSR/E Project will compete for trained personnel and management and administrative time and resources.