PD-AAZ-172

7.2

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 Lesotho
(ES# 632-88-2)

B. Was Evaluation Scheduled In Current FY Annual Evaluation Plan?
Yes [X] Slipped [ ] Ad Hoc [ ]
Evaluation Plan Submission Date: FY ___ Q ___

C. Evaluation Timing
Interim [X] 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)
632-0221	Lesotho Agricultural Production and Institutional Support (LAPIS)	1985	8/31/91	26,100	17,042

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
a. Project Organization and Mangement		
1. Increase supervision and direct intervention of the Project Chief of Party in Project Management.	COP, LAPIS	1/89
2. Establish a new position of Deputy Chief of Party.	Contractor (AAI)	6/89
3. Hold a team-building/organization effectiveness training exercise.	USAID	4/89
4. Re-establish the Project Management Committee. USAID Agriculture Officers and Project Development Officer should be members of the committee	MOA (PS)	7
5. Establish marketing working group to meet monthly.	MOA	2/89
6. Copies of all project administrative documentation should be forwarded to the Deputy PS (Admin)	Contractor (AAI)	1/89

(Attach extra sheet if necessary)

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: (Month) 4 (Day) 30 (Year) 88*

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)	B. H. Hill	R. Ntokoane	A. deGraffenreid	J.L. Snyder
Signature	[signature]	[signature]	[signature]	[signature]
Date		7 Feb 1989	3 Feb 1989	

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* Mission review finalized after new evaluation of Research Component completed 08/31/88

E. Action Decisions Approved by Mission or AID/W Office Director (Cont

ACTIONS REQUIRED	NAME OF RESPONSIBLE OFFICER/ENTITY	COMPLETION DA
b. Production Initiatives Component (PIC)		
7. Establish functioning Production Coordination Unit with precise designation of duties of its members.	MOA	2/89
8. Develop marketing strategy that meets varying marketing conditions.	MOA/Contractor (AAI)	5/89
9. Revise the ICFARM sub-project's goal purpose and targets after appraising performance of nurseries.	Contractor (CARE) and USAID	4/89
10. Revise the LCCUL/CU's production loan program to solve the problem of loan-recovery/deliquency rate.	Contractor (CUNA/ WOCCU) and AAI and USAID	5/89
11. Initiate team participation in developing intensive livestock enterprises.	Contractor (AAI)	3/89
c. Agriculture Education Component (AEC)		
12. Provide long-term training that includes fields of study that are relevant to commercial agriculture.	USAID & Contractor (AAI)	6/89
13. Explore the possibility of training in the RSA	USAID & Contractor (AAI)	6/89
14. Develop LAC curriculum to include courses in commercial agriculture - Ag marketing, Agribusiness and honour programs.	MOA	6/89
15. Establish new longer more in-depth training for MOA field staff	LAC	6/89
d. Agricultural Research Component (ARC)		
16. Research Division staff, T.A. Staff of the ARC and other components (as appropriate) should be organized along commodity lines e.g. research tasks implemented by multi-disciplinary team on specific commodity group.	RD/MOA, Contractor (AAI)	4/89
17. Actively involve extension and farmers in research area identification and prioritization, and develop balanced on-station and on-farm research/trials.	RD/MOA	4/89

E. Action Decisions Approved by Mission or AID/W Office Director (Contd

ACTIONS REQUIRED	NAME OF RESPONSIBLE OFFICER/ENTITY	COMPLETIC DATE
18. Relocate the ARC livestock T.A. and counterpart(s) to more appropriate locations to conduct needed research to solve the winter-feeding problems for livestock.	MOA	6/89
19. Design market and economic feasibility data into research projects i.e. optimum and maximum yield etc.	RD/MOA	6/89
20. Access International Agricultural Research Centers (IARC's), regional National Agriculture Research Systems (NARS) and the U.S. land-grant University network to identify off-the-shelf technology which is applicable to Lesotho.	RD/MOA, USAID	1/89
21. Provide adequate resources to improve the RD's various critical facilities i.e. soil lab, research farm, research library and plant disease diagonosis lab.	RD/MOA, Contractor (AAI), USAID	6/89
22. The GOL/MOA should investigate ways to increase salaries for RD personnel in order to retain staff in the Division.	MOA	6/89
<u>Overall Major Action Required</u>		
23. GOL to provide adequate number of trained field personnel in support of the Project.	MOA	5/89

ABSTRACT

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

The project purpose is to provide direct production and marketing assistance to small farmers and to strengthen Government of Lesotho (GOL) institutional capabilities in agricultural research and extension education for contributing to small farmer production, in order to increase incomes and employment of the rural population of Lesotho. The life of project is six years (8/85 - 8/91). Project implementation (arrival of contract team) actually began about August, 1986. The prime contractor is American Agriculture International; there are also two cooperative agreements, one with CARE and another with World Council of Credit Unions. This first evaluation was conducted by an eleven member external team on the basis of project documents, site visits and interviews with project participants, and interviews with Government, USAID, and technical assistance team personnel. The purposes of the first evaluation were to assess progress to date toward achievement of project objectives, and to identify areas requiring implementation and/or design modification.

Project activities are in three areas: production, research, and education. All activities involve strengthening Ministry of Agriculture (MOA) capabilities to provide integrated technical services to smallholders engaged in producing high-value marketable crops. Production activities are geared to providing technical information and extension services to project participants, research activities to improving the quality of technical information provided by the MOA's Research Division, and education activities to strengthening the Lesotho Agricultural College and providing increased agricultural training. Project assistance includes the provision of technical assistance, funds for overseas training, and some commodity support.

The project has been successful in meeting its quantifiable targets, eg. number of irrigated farms established and number of trainees sent for training, but has been less successful in making progress toward the achievement of its institutional objectives with the exception of the work at the Lesotho Agricultural College

Significant progress has been made in the areas of establishing irrigated crop production units, upgrading the academic standards of the Lesotho Agricultural College, placing participants in long-term training programs, and fielding a qualified technical assistance team.

Areas of concern are the institutionalization of project achievements and level of MOA field support, the relevance of the project to current GOL agricultural development strategies, the utilization of farming systems research methodology, and the marketing of crops produced with project support.

A major lesson learned is that the current design of the project will not allow both institutionalization and provision of long-term training simultaneously.

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
Development Assistance Inc.,	(8 a firm)	3-88 - 1-2180	$151,000	Project
University of Florida	(Title XII)	48 person - days	$41,894	Project

2. Mission/Office Professional Staff Person-Days (Estimate) 15

3. Borrower/Grantee Professional Staff Person-Days (Estimate) 5

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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:
USAID/Lesotho	June, 1988	Evaluation of LAPIS Project, May,88

INTRODUCTION

The Lesotho Agricultural Production and Institutional Support Project (LAPIS, USAID Project No. 632-0221) Agreement was signed on August 30, 1985, and has a Project Assistance Completion Date of August 31, 1991. The total life of project funding is $31,600,000, of which $26,100,000 is the Agency for International Development (AID) contribution. The prime contractor for the project is American Agriculture International, with which a contract was signed in March, 1986, and contract personnel began to arrive in-country in June, 1986. The project also includes two cooperative agreements, one with CARE ($629,200) and the other with CUNA/WCCU ($1,898,700). These agreements were signed in March and August, 1986, respectively. This is the first evaluation of the project, and it was conducted with a view to identifying areas which may require further review and possibly redesign. The evaluation team was in-country from January 25 to March 4, 1988, and interviewed project personnel, Government personnel, project participants, and USAID staff.

The project purpose is to provide direct production and marketing assistance to small farmers and to strengthen Government of Lesotho (GOL) institutional capabilities in agricultural research and extension education for contributing to small farmer production, in order to increase incomes and employment of the rural population of Lesotho. In this way, the project is attempting to increase employment opportunities in Lesotho in part to provide alternatives to employment outside of Lesotho, in particular in South Africa.

The primary objective of the project is that farming households are involved in intensive horticulture, cash crops, and livestock production activities, which have measurably contributed to increased employment and income. The project is to support this overall effort by: establishing a coordinating structure within the Ministry of Agriculture (MOA) to facilitate support to smallholder production projects; strengthening the capabilities both of the MOA Research Division to address the constraints to smallholder agriculture, and of the training institutions to train MOA extension and technical staff, farmers, and public and private sector personnel; and providing direct training to Basotho to support and maintain the objectives of the project.

ACHIEVEMENTS

When considering progress toward achievement of project objectives, it must be remembered that actual implementation of LAPIS started only about 1 1/2 years prior to this evaluation. Despite the fact that the project is in an early stage, significant progress has been achieved in a number of areas, as noted below.

Progress on the irrigated crop production activity of the Production Initiatives Component (PIC) has exceeded expectations in terms of units established. The dedication and technical effectiveness of the PIC team and the Lesotho Council of Credit Union League (LCCUL) team, the Peace Corps volunteers, the District Production Officers (DPOs), and the assigned extension personnel in providing support to the participating farmers are particularly noteworthy. By the end of project year two, the original project design expected that there would be 20 individual farmers and no farmer associations in production. In fact, after one and one-half years, there are 39 individual farmers and two farmer associations (with 70 total members) in production.

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The Education Component is well organized and has made considerable progress in upgrading the academic standards at the Lesotho Agricultural College (LAC). Long-term training of LAC faculty and the marked increase in the amount of practical hands-on training have addressed some of the basic weaknesses of the program prior to LAPIS interventions. The level of technical assistance has received much praise from the LAC administration and the students themselves. However, the relatively low level of salaries paid to LAC professional staff results in loss of staff members to other institutions in and outside of Lesotho.

Long-term training: Thirty-eight individuals have been placed in U.S. universities for BSc. or advanced degree training. That the project has managed to identify and send off this large number of training participants is impressive. The contractor's monitoring and progress reporting has also been commendable. The individuals sent for training are those who will be primarily responsible for sustaining project achievements after the departure of the expatriate technical assistants.

Fielding and composition of the TA Team: Once contract negotiations were completed, the contractor fielded its large team within a short period of time. The speed with which the contractor was able to do this undoubtedly contributed to the achievements discussed above which have been accomplished over the past 1 1/2 years. In addition, overall the team is highly qualified and has performed its technical duties in a professional and effective manner.

ISSUES

Resolution of the following issues will require increased attention on the part of project management to project monitoring and implementation.

Institutionalization and Level of MOA Support: The LAPIS project is not being successfully incorporated into MOA operations, nor is the MOA providing adequate personnel support to the project particularly in the field. Because this project is in its early stage and many of the MOA professional staff are overseas being trained, it is not expected that the Ministry's capabilities would be fully strengthened already, but more progress toward that objective should be apparent by now. In particular, unless the MOA creates an institutional structure such as the Production Coordination Unit within the MOA to coordinate and stimulate support for smallholder commercial production, it is unlikely that such support will continue past project completion. In addition, without this structure, project objectives which require coordination are less likely to be achieved. Finally, if the project concept is to be followed past the project's completion, increased MOA field personnel are required now to work directly with the farmer participants, and, at a minimum, it is essential that when those who are being trained overseas return, they fill the TA positions and continue to perform the TA functions.

Relevance of LAPIS to Current GOL Agricultural Development Strategies: Given recent GOL policy statements which raise as an issue "the donor preference for 'small farmer' individual production strategies" vs "the Government's preference for small farmer 'cooperative schemes' (irrigation) and capital intensive cooperative block (TOU) approaches", it is questionable whether the LAPIS project continues to be relevant to GOL agricultural development strategies. When this issue was raised with the MOA, the response was that the above statement referred not to total dissatisfaction with donor-sponsored projects, but rather to the reluctance of donor-funded technical advisors to work on MOA projects not directly related to the donor-specific activities. However, given the ambiguity of the policy statement, USAID should review the relevance of LAPIS smallholder individual irrigation activities to current GOL agricultural strategies, and decide what action to take. It is likely that if these activities do not fit into current strategies, there will be weak MOA support both during project implementation and after the end of the project.

Utilization of Farming System Research Methodology. Farming systems research (FSR) methodology is an integral part of the LAPIS project design as presented in the project paper. However, the intended emphasis on FSR was not continued in the

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Benchmark Report, which gives details of the nature of data to be collected for the purposes both of implementation and monitoring/evaluation, nor is it evident that FSR methodology has been successfully incorporated into the implementation of the project's Agricultural Research Component. It is the evaluation team's view that this methodology is appropriate to LAPIS. However, there is disagreement on this point within the project management. In any case, for some time the research program has lacked direction and has not contributed as expected to the achievement of LAPIS project objectives.

Marketing: Marketing the expanding supply of horticultural products requires particular attention. Many large new producers are coming into production, and the resulting increased supply of horticultural products may flood the market. The LAPIS team should be developing a marketing strategy that permits alternative responses suited to varying market conditions and to varying market supplies.

LESSON LEARNED

Project implementation has suffered from an attempt to simultaneously strengthen an institution structurally (the MOA) and send a large number of professional staff overseas on long-term training. A longer life of project time frame, the spreading out of trainee departures, and expatriate TA presence before trainee departure, during their absence, and after their return, all would help as part of the project design to promote successful achievement of project objectives. Otherwise, to try to accomplish all LAPIS project objectives during a five or six year period is unrealistic. Any extension or redesign of the project in the future should consider these factors.

PRINCIPAL RECOMMENDATIONS

1. The Production Initiatives Component requires a functioning Production Coordination Unit with effective leadership in order to attain both the coordination necessary for successful project implementation, and the sustainability of project achievements. In addition, a marketing strategy should be developed that permits alternative responses to varying market supplies.

2. The chronic shortage of qualified staff at LAC can only be addressed by increasing salaries to levels comparable to university levels. A similar problem exists with respect to other professional staff in the MOA.

3. As presented in the project paper, farming systems research methodology should be adhered to in the implementation of the Research Component. However, given the reservations displayed by project management toward this methodology, a workshop should be organized during which the direction and program of the Research Division be assessed. Alternative strategies should be discussed, and a stronger program with a more clear direction should be developed, along with necessary PP amendment documentation.

4. Project management requires strengthening. Increased supervision and direct intervention is required on the part of the technical assistance team chief of party in particular to assure project component coordination and achievement of overall project objectives. Quarterly meetings of the Project Management Committee should be held to improve communication among the MOA, technical assistance team and USAID, and to provide a forum in which implementation and management issues can be resolved before they become major problems. USAID project managers must take a more active role in monitoring project performance, and must be prepared to intervene in as direct a fashion as necessary when the MOA or the contract team is not meeting their respective commitments. Finally, a team-building exercise should be held by a professional consultant to improve communication and understanding of project objectives among the entire project team (MOA staff, contract team, and USAID project managers).

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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.)

Main evaluation document covering Production and Education Components.

Evaluation of Agriculture Research Component (see Mission's Comments)

COMMENTS

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

MISSION'S COMMENT

This initial evaluation occurred 18 months after initiation of the project by the contractor.

Full collaboration was extended by the GOL, T.A. contract personnel and all concerned parties to the evaluation team members. The evaluation methodology and approach was largely standard and based on AID's evaluation Handbook. Interviews were lengthy, exhaustive and based on AID's Evaluation Handbook.

The eleven person evaluation team succeeded in responding to questions posed in the Scope of Work, in identifying areas of concern that need the Mission's, GOL's and Contractor's attention. The evaluation findings and recommendations are considered valuable tools to improve project management and implementation.

The evaluators spent a great deal of time reviewing project documents, conducting lengthy interviews and visiting project sites throughout Lesotho. Discussions were held with the Minister of Agriculture, the Principal Secretary, the Director of Field Services, the Acting Director of Research, the Acting Principal of the Lesotho Agriculture College, the Technical Assistance Personnel and their counterparts and also farmer beneficiaries.

The Mission believes the evaluators succeeded in identifying problems which when solved should accelerate the achievement of project goals. Notable among these are: (a) the need for better coordination and communication among all concerned parties; and (b) to better match the project implementation plans and schedules with the abilities of the MOA to provide personnel support to the project.

The findings and lessons learned that are cited in the evaluation report generally concur with the conclusions reached earlier by the Mission and well-informed host country officials at the top-policy and technical levels:

(1) With the goal of promoting agricultural production, the project clearly supports USAID strategy of reducing Lesotho's dependency on RSA and promoting greater economic self-reliance.

(2) Major constraints appear inherent as design problems, i.e., - inadequate attention to developing National Agriculture Marketing Systems as prerequisite to increasing agriculture production. While

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

the produce from project supported farmer activities is being fully marketed at the present time, efforts by the GOL/MOA to develop a national marketing structure and system for the country have yet to get underway.

(3) Other central constraints to the project are generic throughout the GOL:

(a) Inadequate GOL fiscal resources to support operations of MOA has impeded implementation of the project;

(b) Inadequate local manpower resources has impeded MOA ability to provide counterparts and personnel needed to implement the project, especially in field operations. Recruitment of personnel (including mid-level managers from the MOA) by the Highland Water Scheme (HWS) has further complicated personnel shortages in the MOA (the HWS was not foreseen at the time of the LAPIS design effort);

(c) The absence of national policies has restrained availability of agricultural inputs and constrained operations of private agro-business;

(d) MOA has not adequately resolved its development priorities within the sector with the consequence that its limited resources are spread over multiple activities thereby diminishing the impact of those activities, including LAPIS;

Mission staff plan to pay serious attention to the evaluation's findings to ensure project implementation will lead to the achievement of the project's goals. Adjustments to project design and implementation will take place after meetings with the MOA to discuss the findings of this evaluation.

The original evaluation failed to adequately address problems and concerns in the Research Component. This necessitated repeating the evaluation in this area. This was accomplished in July/August, 1988. A copy of the July/August evaluation document is included in this package.

UNITED STATES GOVERNMENT

memorandum

DATE: August 18, 1988

REPLY TO ATTN OF: David McCloud, REDSO/ESA/PRJ

SUBJECT: USAID/Lesotho LAPIS Project Evaluation

TO: Monica Sinding, Acting Director, REDSO/ESA
Stafford Baker, Acting Division Chief, REDSO/ESA/PRJ

I have prepared a list of actions to be taken regarding USAID/Lesotho's comments on the subject evaluation report. These involve some revisions to the report. I suggest that the revisions be made here, and a final copy be sent to the mission. The report should have been archived by the Projects Office.

Below are my responses to their comments and requests for changes, referenced by number to their letter, a copy of which is attached.

1. References to the research component should be left in this report. Although a fresh evaluation will be done of this component, the existing comments are based on findings of other team members in particular as they evaluated their respective components, and with reference to the inter-relationship of the research component to other components. That farming systems methodology has not been followed has had a direct impact on overall project implementation, and must be addressed.

2. That a farm management economist was not put on the team, although one originally was to be team leader, is very relevant to other criticisms the evaluation team makes about project implementation, and reference to this cannot be taken out of the report.

3. I have suggested a slight revision to this. That the project was to be designed in a certain way was apparently based on false expectations, that mission staff would be cut. It should have been apparent earlier to the mission that a change in management style was necessary. Obviously the mission is not responsible for directives from AID/W, but when project implementation is straying from design for no documented reason, the mission has a responsibility to step in.

4. Our discussion about field visit records is important. We are merely documenting our findings. If we did not do so, the mission could criticize us for not providing sufficient detail to substantiate our findings.

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5. We do not discuss current participation of the PFE, but rather of the office of Planning and Project Coordination. It is not clear whether USAID/Lesotho is suggesting that this office also does not exist.

6. This section has been substantially revised in light of the mission's comments.

7. This section has been substantially revised in light of mission's comments.

8. We must agree to disagree on the "flexibility" issue. This report section remains unchanged.

   With respect to project responsibilities, these comments are based on our findings during the evaluation, and the perceptions for both sides of the argument are fairly presented. We do not take sides, but rather discuss the issue.

9. Where appropriate, revisions have been made.

10. Bill Faught had strong feelings about this matter, and I shall bow to his technical expertise and leave this paragraph unchanged. This paragraph has, by the way, already been revised from an original, more direct version.

11. There is no need to change this. The mission can comment appropriately in the PES.

With respect to their final comment about changing the PES, they should make such changes. I provided them with a partially completed PES. They can make revisions to this if necessary, based on my changes to the report text.

Generally, many of the points they raise in their letter were raised at some other time during the evaluation, and were fully considered. It is apparent that we disagree on some issues. That is not surprising. Where appropriate, I have made some additional revisions, but I see no reason to make more. We have made some strong statements about project management and implementation, and we all felt strongly that these had to be made in the interest of the project. As to leaving some references to the research component in the report for us to delete all reference to research would be to treat each component in isolation of the others, and this would go against the very spirit of LAPIS.

I have drafted a cable informing USAID/Lesotho that some revisions will be made and a clean copy sent by DHL. I have also responded to Maseru 02434 in that cable.
7530D

XD-AAZ-172-A

EVALUATION REPORT

LESOTHO AGRICULTURAL PRODUCTION AND INSTITUTIONAL SUPPORT PROJECT (LAPIS)

USAID Project No. 632-0221

May, 1988

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Lesotho Agricultural Production and
Institutional Support Project

(632-0221)

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4. Marketing Report
5. Organization and Management Report
6. Private Sector Report
7. Sociological Review
8. Education Component Attachments
9. Implementation Schedule
10. Training List
11. Range/Livestock Attachments

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ACKNOWLEDGEMENT

Full support for the evaluation was forthcoming from the Ministry of Agriculture, the AAI, CARE and CUNA/WCCU technical assistance teams, and the USAID/Lesotho Mission. The evaluation team wants to express its warm appreciation to the following others who directly assisted with the evaluation task: Lazarus Mathe and M. Khalikane, who supplied not only substantive advice during our many discussions but also tremendous logistical support; and Julia Savage, Ken Dewire, and Lynn Roth, all of whom worked tirelessly to see that our words were put into readable form.

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ACRONYMS

AID	Agency for International Development (USAID)
AADO	Assistant Agricultural Development Officer
AAI	American Agriculture International
ADO	Agricultural Development Officer
AEC	Agricultural Education Component
AETR	Academic End of Term Report
APP	Agricultural Planning Project
ARC	Agricultural Research Component
BSc	Bachelor of Science degree
CARE	Cooperative American Relief Everywhere
COP	Chief of Party
CP	Condition Precedent
CPDO	Central Planning and Development Office
CUNA	Credit Unions of North America
DPS	Deputy Principal Secretary
GOL	Government of Lesotho
HRDO	Human Resources Development Officer
ICFARM	Improved Community Forestry and Agricultural Resources Management Project
LAC	Lesotho Agricultural College
LAPIS	Lesotho Agricultural Production and Institutional Support project
LCCUL	Lesotho Council of Credit Unions League
LCRD	Lesotho Conservation and Range Development project
MOA	Ministry of Agriculture
PACD	Project Assistance Completion Date
PCU	Production Coordination Unit
PDO	Project Development Officer
PFE	Project Formulation and Evaluation Section
PIC	Production Initiatives Component
PIL	Project Implementation Letter
PMC	Project Management Committee
PS	Principal Secretary
REDSO/ESA	Regional Economic Development Services Office for East Southern Africa
TA	Techncial Assistant
USAID	United States Agency for International Development
WCCU	World Council of Credit Unions

I. EXECUTIVE SUMMARY: MAJOR ACHIEVEMENTS, ISSUES AND PRINCIPAL RECOMMENDATIONS

A. BACKGROUND

The Lesotho Agricultural Production and Institutional Support Project (LAPIS, USAID Project No. 632-0221) was authorized on March 5, 1985, and the Project Agreement was signed on August 30, 1985. The total life of project funding is $31,600,000, of which $26,100,000 is the Agency for International Development (AID) contribution. The Project Assistance Completion Date (PACD) is August 31, 1991. This is the first evaluation of the project. The evaluation team was in-country from January 25 to March 4, 1988.

The prime contract for the project was signed with American Agriculture International in March, 1986, and contract personnel began to arrive in-country in June, 1986. The project also includes two cooperative agreements, one with CARE ($629,200) and the other with CUNA/WCCU ($1,898,700). These agreements were signed in March and August, 1986, respectively.

The project purpose is to provide direct production and marketing assistance to small farmers and to strengthen GOL institutional capabilities in agricultural research and extension education for contributing to small farmer production, in order to increase incomes and employment of the rural population of Lesotho. Overall objectives of the project are as follows:

1. Farming households are involved in intensive horticulture, cash crops, and livestock production activities, which have measurably contributed to increased employment and income.

2. A coordinating structure is operating within the Ministry of Agriculture (MOA) to facilitate support to smallholder production projects.

3. The MOA Research Division is capable of addressing the constraints to smallholder agriculture, testing and developing improved packages, and assisting in the dissemination of these packages to small farmers.

4. Training institutions are capable of training MOA extension and technical staff, farmers, and public and private sector personnel involved in smallholder agriculture including input supply and marketing operations.

5. Basotho are trained to support and maintain the objectives of this project.

B. ACHIEVEMENTS

When considering progress toward achievement of project objectives, it must be remembered that actual implementation of LAPIS started only about one and one-half years prior to this evaluation. Despite the fact that the project is in an early stage, significant progress has been achieved in a number of areas, as noted below.

1. Irrigated Crop Production

Progress on the irrigated crop production activity of the Production Initiatives Component (PIC) has exceeded expectations in terms of units established. The dedication and technical effectiveness of the PIC team and the Lesotho Council of Credit Union League (LCCUL) team, the Peace Corps volunteers, the District Production Officers (DPOs), and the assigned extension personnel in providing support to the participating farmers are particularly noteworthy. By the end of project year two, the original project design expected that there would be 20 individual farmers and no farmer associations in production. In fact, after one and one-half years, there are 39 individual farmers and two farmer associations (with 70 total members) in production. The work of all the above-mentioned individuals in achieving these results is to be commended.

2. Lesotho Agricultural College

The Education Component is well organized and has made considerable progress in upgrading the academic standards at the Lesotho Agricultural College (LAC). Long-term training of LAC faculty and the marked increase in the amount of practical hands-on training have addressed some of the basic weaknesses of the program prior to LAPIS interventions. The level of technical assistance has received much praise from the LAC administration and the students themselves.

3. Long-term Training

Thirty-eight individuals have been placed in U.S. universities for BSc. or advanced degree training. That the project has managed to identify and send off this large number of training participants is impressive. The contractor's monitoring and progress reporting has also been commendable. The individuals sent for training are those who will be primarily responsible for sustaining project achievements after the departure of the expatriate technical assistants. It is therefore essential that those who are trained under the project return to fill positions which in some way concern activities initiated or supported by the project. (It should also be noted that the contractor has become responsible for monitoring the completion of training of an additional 19 students who originally were funded under a different arrangement.)

4. Fielding and composition of the TA Team

Once contract negotiations were completed, the contractor fielded its large team within a short period of time. The speed with which the contractor was able to do this undoubtedly contributed to the achievements discussed above which have been accomplished over the past one and one-half years. In addition, overall the team is highly qualified and has performed its technical duties in a professional and effective manner.

C. ISSUES

The evaluation team identified the following issues which will require attention if overall project objectives are to be met.

1. Institutionalization and Level of MOA Support

The LAPIS project is not being successfully incorporated into MOA operations, nor is the MOA providing adequate personnel support to the project, particularly in the field. The contract team staff are accomplishing quantified outputs, e.g. irrigated smallholdings established and placement of trainees, and they are doing this with the assistance of Basotho located primarily in the MOA headquarters. The work of the irrigation engineers appears to be particularly impressive. However, the endeavors of the whole team will have only short-term and limited impact if they and the MOA staff do not succeed in further strengthening the capability of the Ministry to perform all the tasks involved in providing the necessary technical support to farmers. Because this project is in its early stage it is not expected that the Ministry's capabilities would be fully strengthened already, but more progress toward that objective should be apparent by now. There should be a greater recognition on the part of all concerned with project management and implementation of the importance of actively addressing this issue.

Unless the MOA considerably increases its participation during the life of the project, much of what is achieved in terms of institutional knowledge and organization will be lost, and the level of potential achievements during the project will be reduced. More specifically, unless the MOA creates an institutional structure within the MOA, such as the Production Coordination Unit, to coordinate and stimulate support for smallholder commercial production, it is unlikely that such support will continue past project completion. In addition, without this structure, project objectives which require coordination are less likely to be achieved. In the end, the project may achieve the physical outputs such as "irrigated farms and associations established" and "individuals trained", but it will not have achieved the institutional outputs, and thus will have not established the foundation necessary for sustainability.

The level of MOA support possible during the life of project is of course affected by the large number of Ministry personnel currently on long-term training under the project. However, provision of field personnel, i.e. those below the degree level, should not be affected by the long-term training program. If the project concept is to be

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followed past the project's completion, increased MOA field personnel are required now to work directly with the farmer participants.

The departure of qualified Basotho to overseas training certainly creates difficulty for the TA team to achieve project objectives during the life of project. That so many individuals were sent for training at about the same time and will return in many cases as the TA are departing can be considered a project design fault. At a minimum, it is essential that when those who are being trained return, they fill the TA positions and continue to perform the TA functions in order to achieve the objectives of the project. The Government of Lesotho has agreed to a system of bonding, as is specified in the grant agreement. It is strongly urged that USAID enforce this particular commitment of the GOL.

Although the evaluation team does not believe that it is the time to recommend an extension of the project, one solution to the problem of simultaneous institutional strengthening and long-term training is to use a longer life of project time frame, spread out trainee departures, and plan for expatriate TA presence before trainee departure, during their absence, and after their return. Otherwise, to try to accomplish all LAPIS project objectives during a five or six year period is unrealistic. Any extension or redesign of the project in the future should consider this alternative design.

2. Relevance of LAPIS to Current GOL Agricultural Development Strategies

In 1987, His Excellency Major-General J.M. Lekhanya issued a policy statement which included the following: "Farmers will be encouraged individually or collectively to embark on intensive fruit and vegetable production under irrigation in order to reduce imports." Following this statement, the MOA issued an undated "Agricultural Policy Issues" paper which stated:

> The donor preference for "small farmer" individual production strategies and the Government's preference for small farmer "cooperative schemes" (irrigation) and capital intensive cooperative block (TOU) approaches are at the heart of the incompatibility between donor sponsored development projects and the Government's bias towards implementation of capital-intensive technologies on consolidated land holdings. This incompatibility has led to costly inconsistencies and dissipation of financial and technical effort. (p. 4)

It is questionable, therefore, whether the LAPIS project continues to be relevant to GOL agricultural development strategies. When this issue was raised with the MOA, the response was that the above statement referred not to total dissatisfaction with donor-sponsored projects, but rather to the reluctance of donor-funded technical assistants to work on MOA projects not directly related to the donor-specific activities.

However, given the ambiguity of the policy statement, USAID has no choice but to review the relevance of LAPIS smallholder individual irrigation activities to current GOL agricultural strategies. It is likely that if these activities do not fit into current strategies, there will be weak MOA support both during project implementation and after the end of the project. It may be that the GOL is in fact pursuing various strategies, and that LAPIS fits into one of those and can continue to work to demonstrate its worth. However, if it is

found that LAPIS objectives are no longer shared by the GOL, USAID must consider a cessation or reduction of support, or a revision of project objectives.

3. Utilization of Farming System Research Methodology

Farming systems research (FSR) methodology is an integral part of the LAPIS project design as presented in the project paper. However, the intended emphasis on FSR was not continued in the Benchmark Report, which gives details of the nature of data to be collected for the purposes both of implementation and monitoring/evaluation, nor is it evident that FSR methodology has been successfully incorporated into the implementation of the project's Agricultural Research Component. It is the evaluation team's view that this methodology is appropriate to LAPIS. However, there is substantial disagreement on this point within the MOA, the TA team, and USAID. On the other hand, the TA team believes that the managers and technical staff of the LAPIS project are adhering to the philosophy of FSR.

What is obvious is that for some time the research program has lacked direction and has not contributed as expected to the achievement of LAPIS project objectives. Given this overall situation, the evaluation team supports the move by project management to hold a workshop in which the research program will be assessed, and proposals for its strengthening will be developed. If necessary, after this workshop, appropriate amendments to the project paper should be made.

4. Marketing

Marketing the expanding supply of horticultural products requires particular attention. Many large new producers are coming into production, and the resulting increased supply of horticultural products may flood the market. The LAPIS team should develop a marketing strategy that permits alternative responses suited to varying market conditions and to varying market supplies. The development of this strategy should be the responsibility of the PIC Marketing Specialist if one should become available in the reasonably near future. In addition, project funds should be used to contract with a local firm familiar with the existing marketing system and local customs and preferences to assist the Marketing Specialist in carring out area specific market assessments in support of developing the market strategy.

D. SUMMARIES OF PROJECT COMPONENT EVALUATION REPORTS

In the body of the evaluation report are comprehensive evaluations of two of the three main project components, i.e. production initiatives and education. Summaries of these are presented below. The evaluation of the research component has not yet been completed, but important issues regarding the research component are discussed below.

1. Production Initiatives Component

Progress on the irrigated crop production phase of the component generally has exceeded expectations in terms of quantified outputs. The technical

feasibility of irrigated horticultural production has been demonstrated, as has been the willingness of farmers to undertake a new and risky activity and their ability to learn and successfully apply the new technology. The restraint of the team in expanding the activity until their ability to provide adequate support can be reasonably assured, and the capacity of the available markets to absorb increased supplies can be assessed, is most commendable. However, a marketing strategy must be developed that permits alternative responses to varying market supplies. Insufficient attention has been given to the marketing issue, and as supply of horticultural products increases in particular as a result of other projects, marketing is likely to become more of a constraint. There have been some outstanding examples of coordination and cooperation. Particularly noteworthy is the close and effective collaboration between the LCCUL and PIC staffs. Also to be noted is the collaboration of AEC and other components.

The Production Initiatives Component has, however, suffered from insufficient coordination with the Research Component (ARC). It is too early to expect inputs from research undertaken since initiation of the project, but on the basis of professional technical knowledge and knowledge of results of research in Lesotho and the region, the ARC staff should have been able to make a useful contribution to the development of farmer production plans. The CARE nursery project also has operated without coordination or cooperation with other PIC elements or other LAPIS components.

Recent policy statements made by the GOL indicate skepticism on the part of at least some within the GOL of the viability of projects which focus on individual smallholder production for attaining GOL objectives. The statements also indicate GOL's preference for the capital intensive consolidated irrigated production approach. These pronouncements raise questions as to the probable adequacy of government support not only during the life of LAPIS, but also for the continuance of the program after project completion. Unless MOA will make available a sufficient number of extension agents for on-job training and to gain sufficient experience in high value commodity production to continue the program beyond the present pilot stage, there is no justification for continuance of PIC. If USAID is unable to obtain firm assurance of adequate support for PIC, termination of the component should be considered. In view of the pivotal position of PIC in the project, its termination would require a re-evaluation of inputs into ARC and AEC.

In spite of the recognized importance of the Production Coordination Unit (PCU), it has not been established as a functioning unit. Inadequate coordination will continue until an organization such as what was specified in the project paper is established. A properly organized and functioning PCU should promote improved coordination of project components and improved monitoring of project production activities leading to more appropriate and effective technological packages.

That MOA has not implemented actions to comply with the agreed upon covenant to provide adequate personnel requires joint attention by USAID and the contractor. Unless a sufficient number of MOA personnel can be given on-job training and an opportunity to gain sufficient experience in high-value commodity production, there is little justification for continuing the

Production Initiatives Component. As it stands it is a pilot scheme, without the necessary substance to achieve a major objective of this component, to strengthen the MOA's ability to mobilize and coordinate its resources for activities and programs designed to increase production. The placement of returned long-term degree students will provide some of the substance, but it does not address the need for greater field support.

2. Research Component

The following two issues became apparent during the overall project evaluation.

a. Nature and Direction of LAPIS Agricultural Research Program

The project-sponsored research program is to follow farming systems research (FSR) methodology. (See footnote below for brief discussion of FSR.) However, the intended emphasis on FSR was not continued in the Benchmark Report, which gives details of the nature of data to be collected for the purposes both of implementation and monitoring/evaluation, nor is it evident that FSR methodology has been successfully incorporated into the implementation of the project's Agricultural Research Component. In response to the evaluation team's comments about the lack of attention to FSR methodology in the implementation of the LAPIS research component, the contract TA team has raised three issues: 1) the interpretation of the role of FSR outlined in the project paper; 2) the reasons for the progressive de-emphasis; and 3) the appropriate function of FSR in the current context of the LAPIS project.

The LAPIS project paper is clear in its discussion about the role of FSR methodology in the research component. The stated purpose of this component is, "to assist the research division to strengthen its Farming Systems

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Note: FSR is intended to increase the relevance of research to small farmers' circumstances, and continues to be appropraite to the LAPIS project. Its basic principles are that it includes the development of an information base on farmers' resources, goals and constraints, it is holistic in that it takes into account the entire farm enterprise, and it works to optimize total returns using all available resources within the existing framework or in consideration of likely changes to that framework. FSR is relevant to the small farmer because it is farmer-based, problem-solving, holistic and iterative. It addresses directly farmer problems from the household farm to the marketplace, and works within constraints and removes those which can be removed, so as to improve the farmer's welfare. FSR methodology is also relevant to the MOA research division. In its application, physical and social scientists have to work together as a team. FSR methodology offers the opportunity for all researchers to use an interdisciplinary approach to achieve greater results than what might be possible when each discipline works independently of the others. In addition, if there is the absence of a particular discipline in an interdisciplinary research team, that void may be filled collectively by pooling the expertise of the team members in the relevant field.

Research program to produce and deliver a continuing flow of improved technologies for increasing the productivity of Lesotho's farmers." (See p. 25 of project paper.) In addition, the project paper states that an FSR specialist is to be team leader of the research component.

The contract team has argued that a working FSR program did not exist in the Research Division at the time LAPIS was initiated, and that by design LAPIS is not, and should not be, an FSR project. The extent to which a working FSR program was established prior to LAPIS has not been determined, but should be during the workshop which has been proposed by project management. However, the opinion of the evaluation team is that there is an important role for FSR in the implementation of LAPIS, in particular because the project is a direct intervention in existing farming systems, and knowledge about those systems and the effects of the interventions are essential if the interventions are to be self-sustaining and of positive benefit to farmers.

In one submission presented by the contract TA team, it is stated that although FSR methodology is not followed precisely, the managers and technical staff of the LAPIS project are adhering to its philosophy. The submission also states, "Although [the] mechanisms for monitoring project impacts and adjusting the technological packages in response are not yet functioning effectively, the project staff and counterparts concur that their development is a priority activity." It is precisely this problem that has concerned the evaluation team, that the necessary mechanisms are not functioning effectively. While it may be the intent of the staff to adhere to FSR philosophy, in the absence of those mechanisms in effect this can not be accomplished. That correcting this situation has been given high priority by the TA team is commendable.

The opinions of the evaluation team are not wholly shared by the MOA, nor by the TA team, nor by the USAID Mission. However, lack of direction continues in the MOA Research Division. It is therefore also a recommendation of the evaluation team that a workshop, as already planned by project management, be held during which the direction of the research program be assessed, and ways to strengthen the program be developed. Participants should include the MOA, the TA team, USAID, and others chosen by these three. External technical assistance should also be sought, including at least one individual who is a specialist in applying FSR methodology. If a decision is made as a result of the workshop and possible second ARC evaluation to revise the research component strategy as set forth in the project paper, then proper documentation should be prepared and the PP amended if necessary.

b. <u>Leadership of the Research TA Team</u>

Since the beginning of project implementation the research component has not had strong leadership. Although it was intended that an FSR specialist/farm management economist was to be team leader of the research component team, neither the team leader nor anyone on the team has had these qualifications. The evaluation team has been informed that the reason for the lack of an expatriate TA specialist in this area was due to the planned return of a trained Masotho in 1987 to assume the role. It is reported that the GOL unilaterally decided to allow him to remain for a Ph.D., and USAID informed the GOL that it was then MOA's responsibility to provide a substitute. No

substitute has been provided. While it may be that the student should have returned, the fact is that he did not, and in the interest of achieving project objectives it is USAID's responsibility to see that the position is filled. In addition, it is odd that anyone would expect a newly returned degree student to undertake the tasks required of an experienced specialist and team leader. Perhaps he would not have held the position of team leader, but that the original project design identified the FSR specialist as team leader indicates the importance of the specialist and the need for an experienced individual. Whomever is chosen as research component team leader, that person must have a thorough knowledge of the methodology selected, as well as the ability to manage the TA team, coordinate the team's activities with those of Basotho staff, and advise the Research Division head.

3. Education Component

The Education Component of the LAPIS project is well organized and has made considerable progress towards achieving the project's goals. The most successful activity has been the upgrading of the academic standards at LAC. Long-term training of LAC faculty and the marked increase in the amount of practical hands-on training have addressed some of the basic weaknesses of the program prior to LAPIS interventions. The level of technical assistance has received much praise from the LAC administration and the students themselves. Farmers' training has gone well, and the data collection that was called for in the project paper has begun. Also, project assistance to the Agricultural Information Office has already demonstrated benefits to information dissemination.

Major issues for the Education Component include the level of MOA support for LAC, both in material support and the funding of teaching positions. Sustainability of the progress made so far could also be questioned, given the lack of support and the high level of expatriate direction the project is receiving.

Recommendations focus on maintaining the academic progress made so far, development of a more coherent inservice training program and administrative problems. A means should be found to obtain MOA support for science and math teaching positions, and incentives for faculty returning from degree programs to remain at LAC. The possible loss of all four top administrators at the college within the next year will have to be addressed through recruitment of expatriates and dialogue with MOA. The inservice training programs for MOA personnel need to be restructured to include more indepth and longer training on specific topics, as opposed to the short more general courses that are now being offered.

In summary, the progress so far is encouraging. The basic objectives for the education component set out in the project paper are achievable within the project timeframe.

D. PRINCIPAL RECOMMENDATIONS

Listed below are principal recommendations only. Additional recommendations are presented at the end of each section, and a full list of recommendations

is included as an annex. Discussion about these recommendations appears in the body of this report.

1. A functioning Production Coordination Unit must be established with effective leadership by MOA and contract team staff in order to attain the coordination necessary for successful project implementation.

2. A marketing strategy must be developed that permits alternative responses to varying market supplies.

3. A new inservice training program for MOA field staff should be developed that includes longer, more in-depth training. The short workshops should be eliminated and the resulting savings should be channeled to support the new program.

4. The chronic shortage of qualified staff at LAC can only be addressed by increasing salaries to levels comparable to university levels. A similar problem exists with respect to other professional staff in the MOA.

5. As presented in the project paper, farming systems research methodology should be adhered to in the implementation of the Research Component. However, given the reservations displayed by project management toward this methodology, a workshop should be organized during which the direction and program of the Research Division be assessed. Alternative strategies should be discussed, and a stronger program with a more clear direction should be developed.

6. Increased supervision and direct intervention is required on the part of the contract team chief of party, in particular to assure project component coordination and achievement of overall project objectives. Contract team members must demonstrate an understanding of project objectives, and must take the initiative in explaining those objectives to the MOA.

7. Quarterly meetings of the Project Management Committee should be held to improve communication among the MOA, contract team and USAID, and to provide a forum in which implementation and management issues can be resolved before they become major problems. In addition, a team-building exercise should be held by a professional consultant to improve communication and understanding of project objectives among the entire project team (MOA staff, contract team, and USAID project managers).

8. USAID project managers must take a more active role in monitoring project performance, and must be prepared to intervene in as direct a fashion as necessary when the MOA or the contract team is not meeting their respective commitments.

II. INTRODUCTION

A. TEAM COMPOSITION

Given the size and complexity of the LAPIS project, the evaluation required a large team of 13 individuals. The composition of the team was as follows:

David McCloud	REDSO/ESA Project Development Officer and Team Leader
William Faught	REDSO/ESA Agricultural Economist and Production Initiatives Component coordinator
Russell Barbour	Agricultural Education Specialist and Agricultural Education Component coordinator
Jacques Denis	Agricultural Research Specialist and Agricultural Research Component coordinator
Joyce Brooks	Organization/Management Specialist
Robert Brown	Credit Specialist
Joan Campbell	Sociologist/Anthropologist
Daniel Cassard	Marketing Specialist
G. Christopher	Private Sector Specialist
David Gibson	REDSO/ESA Forestry Specialist
Terry Wheeler	Range Development/Livestock Specialist

With the exception of the REDSO/ESA team members and Ms. Brooks who is an independent contractor, the other team members were provided by Development Assistance Corporation. In addition to the above, Mr. Lazarus Mathe and Mr. Nangetane Khalikane were special assistants to the team.

All team members contributed to the final report, and separate reports prepared by some individual members appear as annexes. For purposes of organization, a subset of the team, with the agricultural economist acting as coordinator, formed the Production Initiatives Component (PIC) evaluation team. The PIC evaluation team also included the sociologist, credit specialist, and forester.

B. METHODOLOGY

To gain an understanding of project objectives and activities, team members reviewed project documents, conducted interviews, and visited project sites. Members of the LAPIS, CARE, LCCUL, APP, and LCRD teams were extensively interviewed. Discussions were held with the Principal Secretary, Director of Field Services, Acting Director of Research, the Lesotho Agricultural College Acting Principal, and other officials of the Ministry of Agriculture, as well as with field personnel, farmers, and private sector individuals. Half of the project-supported individual irrigated farms, the two participating farm associations, one of the MOA Bauer projects, and research sites were visited and discussions held with individuals, managers and advisors.

Materials reviewed in the evaluation included the Project Paper and Annexes; the Project Agreement; contracts with American Agriculture International (the primary contractor for work on outputs 2, 3 and 4 relating to irrigated farming and home gardens), with CARE (responsible for development of

the nurseries), and with LCCUL (which operates the credit program); the Benchmark Report; work plans of all groups; and progress reports. As is further discussed in Section IV.D., the team used the project paper, grant agreement and contracts as the primary reference documents.

A draft evaluation report was submitted to the MOA, contract team and USAID. Comments on this draft were reviewed by the evaluation team leader, revisions to the draft were made, and this final report issued.

C. EFFECTS OF EXTERNAL FACTORS

The following description of external factors presents a backdrop for the implementation of the LAPIS project. In various ways these factors may have had an effect on project implementation.

Workers' remittances primarily from South Africa have been the equivalent of half of the gross national product of Lesotho in recent years. With some reported slow-downs in the economy in South Africa, and intermittent interruptions of work due to labor disputes, the GOL has expressed increasing concern about the possible effect of these developments on employment of Lesotho labor both in Lesotho and South Africa, balance of payments, personal incomes and government revenues. These concerns have given added stress to the need to increase local job opportunities and the production of domestic foods to replace imports.

Some significant shifts in policies relating to crop production were outlined in a paper released in late 1987 entitled "Policy Directions for the Ministry of Agriculture, Cooperatives and Marketing to Implement Policy Objectives". The paper recognized that policies stated in the Fourth Five Year (and predecessor) Development Plans had been useful in mobilizing donor and local funds, but identified three disturbing features that had emerged. These were (1) the transition to self-sustaining development after donor support was withdrawn had not occurred; (2) degradation of soil and grazing had increased; and (3) disillusionment and a negative attitude had developed among farmers regarding the ability of the government to improve their welfare. The policy guidelines presented in the paper represented the government's effort to transform experience of the past twenty years into a favorable climate for increasing agricultural productivity.

Attainment of self-sufficiency in staple food crops and increases in yields of cash crops are the overall policy objectives in crop production. Recognizing that land has been mismanaged and abused, it is stated that land use strategies for achieving self-sufficiency and better farm incomes must be implemented immediately. Recommended strategies are: (1) no suitable land should lie idle other than as an approved conservation practice; (2) minimum target yields should be established; (3) land holders whose production falls below established targets should lease or share crop their land to contracting partners with necessary means of production; and (4) TOU machinery and complimentary equipment should be handed to contracting partners. Village Development Councils and the Ministry of Agriculture are responsible for monitoring and supervising the program.

Noting the incompatibility between donor sponsored development projects favoring small farmer individual production strategies and the government's bias toward capital intensive technologies on consolidated land holdings, the policy statement stresses the importance of eliminating inconsistencies in production approaches and of recognizing that self-reliance can be achieved by collective mobilization of the rural community into productive socio-economic units. Strategies for implementing the proposed policy for dry land production include: (1) endorsement and encouragement of the existing practice of contractors operating blocks of land in cooperation with landholders; (2) establishment of realistic sized blocks consistent with the contractors' production means; (3) organization of training courses on principles of cooperation for contractors and landholders; (4) first decentralize and then phase out TOU as contract farming expands; and (5) establishment of minimum target yields as noted above and of incentive for completion of production operations by targeted dates.

Similar strategies are recommended for irrigated farming except that, since local irrigation entrepreneurs have not been identified, the government would be the caretaker of irrigation development for some time to come. The Tsikoane and Seaka Irrigation Projects developed as a part of the Bauer program appear to be consistent with the production approach being proposed for irrigated farming. The GOL reportedly has entered into an agreement with the Bauer Company of Austria for the purchase and installation of irrigation and related equipment to irrigate 2251 hectares at a total cost of M 17,727,000, or M 7875 per hectare. The policy statement proposed that capital costs for the irrigation projects be borne by the government and/or donors, re-current costs borne by landholders and administrative and technical management costs be progressively transferred to landholders. All irrigated areas would be declared development areas in which the government could override landholders on any implementation measures.

The new policy would eliminate direct input subsidies on seed and fertilizers. Price incentives related to production in excess of the minimum target yields discussed above would be substituted. It is contemplated that price incentives could be used selectively to obtain increases in crops being promoted and to encourage desired cropping patterns in selected areas. Farmers who could not meet the minimum target yields and qualify for the price incentive would have the option of surrendering their land rights with compensation and thereby make the land available to others who might farm it more efficiently.

Several policy changes relating to marketing were also announced. Coop Lesotho input sales beyond the regional level would be terminated and distribution beyond that point would be privatized. Coop Lesotho's output marketing monopoly would be terminated and direct sales of cereals by producers to mills would be encouraged. It is recommended that marketing facilities for perishable crops be created in 1987-88 and that a department of marketing be established in the Ministry of Agriculture.

A series of steps was recommended to improve the effectiveness of the Ministry of Agriculture. Rehabilitative transfer or dismissal was recommended to correct indiscipline,
incompetence and indifference to policy directives and awards or promotions to

motivate the staff. Priority would be given to strengthening field staff particularly crop extension.

Effective implementation of the announced policies would have varying implications for future PIC development. Implementation of the policies relating to marketing and reform of the Ministry of Agriculture certainly have positive implications. The effect of establishing price incentives would probably be positive if it could be implemented as proposed. Promotion of dry land contract farming is unlikely to affect PIC either directly or indirectly. However, implementation of the policy relating to establishment of government controlled consolidated irrigated farming will almost certainly be detrimental and perhaps disastrous, depending on how it is implemented. The policy paper does not include policies or recommend strategies that would specifically restrict continued operation or even expansion of individual smallholder or farmer association irrigated enterprises. It does make clear, however, the government's view that such production approaches are flawed and the government's preference for large capital intensive government controlled consolidated farms as a means of achieving self-sufficiency and an export surplus. Without measures guaranteeing water rights, assurance of technical support and arrangements to coordinate marketings to avoid gluts, it appears unlikely that smallholders or farmer associations can operate successfully, particularly in geographic areas where they must compete directly with the large consolidated units for water and markets.

A paper has been prepared entitled "Agricultural Policy Issues - Livestock Production" which presents a justification for policy and structural adjustments relative to extensive and semi-extensive livestock production and suggests strategies for implementing the proposed adjustments. A similar paper relating to semi-intensive and intensive livestock production is scheduled to follow. A paper has also been prepared by members of the staff of the Soil and Water Division of the Ministry of Agriculture entitled "Soil and Water Conservation Policy". None of the policy proposals included in these papers have as yet been adopted but doubtlessly will be considered and discussed in the months ahead. These discussions should be closely followed by the LAPIS management group and possible impacts on the project assessed as soon as the probable changes become evident.

III. PROGRESS TOWARD ACHIEVEMENT OF PROJECT OBJECTIVES

In this section the overall project objectives, inputs and assumptions are discussed. In the following section, the Production Initiatives and Education Components are discussed separately, and these separate discussions include the respective subgoals and subpurposes.

A. GOAL AND PURPOSE

The overall goal of the LAPIS project is to increase the incomes and employment of the rural population. Progress is being made toward goal achievement. For example, as shown in Table 3 of the LAPIS Annual Report (June 1986 to May 1987), the then eight project participants had earned estimated annual returns from M173 to M2,896 as a result of project activities. In addition, during project site visits, farmers responded that their incomes have increased since their participation in the project began. Also based on observation during site visits, employment has been stimulated through project activities. PIC-related farmers are now employing laborers whereas prior to irrigation such employment was less common.

The LAPIS project is in an early stage of implementation, and the progress noted above is commendable. There are also some important points which indicate areas of concern needing careful attention, in particular with regard to the sustainability of progress toward goal achievement. First, the annual returns referred to above are based on capital equipment and production loans averaging M4,000 per farmer, but these loans are now averaging M8,000. In some cases the larger loans may reflect larger landholdings, but it has not yet been demonstrated by the project that these larger loans can be serviced by the farmers. Second, only eight PIC-supported farmers have completed a season to date, and this is not a sufficiently large sample on which to base conclusions about either the planned 220 farmer participants (150 individuals and 70 association members) or the whole rural population of Lesotho. Finally, and perhaps most importantly, the intent of the project is to have a lasting effect on income and employment, but, as is discussed at length in this report, sustainability of achievements made to date is questionable because of inadequate support from the MOA and certain deficiencies regarding the development of the institutional capability within the MOA to coordinate and facilitate assistance to smallholder farmers.

The project purpose is to provide direct production and marketing assistance to small farmers and to strengthen GOL institutional capabilities in agricultural research and extension education for contributing to small farmer production.

Progress toward purpose achievement has been varied. The project has been successful in providing direct production assistance to a limited number of smallholders. Project staff working as part of the Production Initiatives Component are diligently providing technical production advice and services to

participant farmers. They are also providing some marketing assistance, but insufficient attention is being given to marketing research and the development of marketing strategies which draw upon local resources and can be used in the event of increases in production and supply as a result of non-project activities.

Progress made in providing direct production assistance to small farmers does not yet have strong foundations, however. Many of the Government of Lesotho professional staff at the Ministry headquarters, who will take over from the expatriate technical assistants, are currently overseas in training. MOA professional expertise to support project activities is, therefore, at this time weak, but is being developed. Those foundations are being built with greater success at the professional, degree-level than at the field level. The MOA could and should be providing greater extension support. In terms of number of personnel, the current level of field support being provided by the PIC contract TA team is small enough that the MOA should be able to provide field-based counterparts who can work with the TA in the field during the life of the contract to gain the necessary experience. This is a question of MOA priorities. In the absence of this support, only the physical outputs achieved during the life of project may be expected as the end of project status for the production component.

The most significant progress made toward strengthening the GOL institutional capabilities in agricultural research is the placing of seven candidates in degree programs overseas. There has not been significant progress under the agricultural research component toward achieving other project objectives. This should reflect not on the capabilities and qualifications of the contract TA nor of the Basotho staff, but rather on project management who chose to follow a path different from that which appears in the project paper. The intended and correct emphasis on farming systems research methodology has not been the emphasis of the research component as it has been implemented by the contractor. The contractor's approach, although not each activity, has nevertheless received the tacit approval of USAID.

Progress toward strengthening capabilities in extension education has been achieved in some areas, particularly in curriculum development. The LAPIS team and LAC's administration deserve much credit for creating a cohesive, practical program at LAC. In addition, seven extension staff have been sent overseas and there has been substantial nonformal and on-job training programs. The application of knowledge gained during in-service training programs in particular has been less successful. There has been insufficient follow-up and little field experience for those who have received training.

Both the project goal and purpose continue to be relevant and appropriate to USAID's and the GOL's agricultural development strategies for Lesotho. However, as is discussed below, some of the activities being used to achieve these objectives may be in conflict with the types of activities now preferred by the GOL.

B. INPUTS

1. AID Inputs

AID project-wide budgeted inputs as compared to actuals to date are as follows:

Table 3.1: AID Project Inputs
(US$ '000)

Category	Project Budget	Expected As Of 2/3/88 FY 85-87	Committed	Disbursed
Technical Assistance	12.6	4.9	4.3	3.4
Training	2.9	1.8	1.3	.9
Commodities	2.0	1.2	1.0	.7
Evaluation	.4	---	.2	.2
Other	2.9	1.2	.3	.1
Contingency	2.8	1.0	---	---
Coop. Agreements				
CUNA/WCCU *	1.9	1.0	.7	.1
CARE *	.6	.5	.3	---
Total	26.1	11.6	8.1	5.4

* Disbursements to CUNA/WCCU and CARE are low because of lag time between billings and disbursement.

Source: Budgeted amounts, Grant Agreement Annex 1; Commitments and disbursements, USAID/Lesotho Comprehensive Pipeline Report (2/3/88).

The project began about six months behind schedule, and this is one reason for lower than expected expenditures, particularly under the categories Technical Assistance and Training. All but four of the expected TA positions are now filled. Two of those should be filled by the incorporation of LCRD into LAPIS later this year. Two positions are vacant because the services of the individuals who had filled these positions were terminated, and it is not known when they will be filled. The contractor has spent 75% of its short-term TA budget to date. Given the need identified herein for additional short-term TA, additional funds may be required under this budget category. The project is now providing long-term training to a greater number of participants (38) than called for in the PP (33). Little has been spent to date on short-term overseas training, but the contract team is in the process of developing a short-term training plan which will address this issue.

Commodity expenditures are lower than expected for two reasons. First, the Maloti is now worth about 60% of what it had been at the time of project design, so commodities purchased locally (including all vehicles) are costing

less than expected. Second, the contractor's projected expenditures on commodities show those expenditures peaking in the third year of the project, but the project paper budget expected that about one-half of these expenditures would be made within the first two years. The expected "Other" category of expenditures exceeds the actual amounts in part because expenditures for construction have not yet been made.

Two significant issues regarding AID project inputs that the evaluation team has identified are (1) that specific technical assistance positions should be extended, and (2) that long-term overseas trainees in BSc. degree programs are likely to be in their programs for a minimum of three years, rather than the two years budgeted. The extensions are discussed in detail in this report in the section on project components. Prior to a position being extended, the GOL/MOA should commit in writing to provide skilled Basotho to assume the job of the expatriate by an agreed date in the future. It can not be determined precisely whether these two issues combined will require additional project funds. The savings on TA positions unfilled plus savings on those filled later than planned, possible reduced expenditures on commodities given the stronger dollar vs. the maloti, and the to-date unused contingency line item may, put together, provide sufficient funds for contract amendments. This is a matter which the USAID Mission will have to further research after it decides on the merits of the various recommendations made herein.

2. GOL Inputs

GOL project inputs, in value totaling $4.5 million in Maloti equivalent, include personnel, overseas training support, administrative support, and limited amounts of commodities. 31% of GOL's agreed-to contribution to LAPIS is to be in the form of salaries and support costs of extension agents working on PIC activities ($1.4 million over life of project). It is estimated that approximately $45,000 has been contributed to date in the form of salaries to extension personnel. (15 person years at M300 per month and using the 1984 exchange rate of M1=US$.83.) 39% of GOL's contribution is in the form of administrative support ($2.0 million over life of project). The bulk of this is to the Education Component ($1.4 million) for facilities, equipment and material. It is reported that the GOL is meeting its commitment in this area, although no quantification has been provided. 12% of the GOL contribution is for overseas training support. It is reported that the GOL is meeting its commitments in this area.

As is discussed later in this report, the major shortfall in GOL contribution is in the area of extension personnel. It should be noted in this regard that one issue raised in the project paper is the "need for strengthening of Agricultural Extension and general lack of skilled manpower" (p.7). However, the project made no provision for this strengthening although major activities depend on it.

C. OUTPUTS

Progress toward expected project outputs as listed in the project paper (p. 13) is discussed briefly below.

1. Farming households are involved in intensive horticulture, cash crops, and livestock production activities, which have measurably contributed to increased employment and income.

The project is involving farming households in these activities, and to date measurable contributions to increased income can be claimed for eight farmers. (Income data is available only for these original eight. Additional farmers are now participating, but they are just completing the cropping season and their income from this season is as yet undetermined.) No hard data is available on employment generation resulting from the project activities. Observation and interviews with farmers indicate that there has been employment generation at least on the individual smallholdings. Although the project is showing progress toward meeting physical outputs, its achievements are not being institutionalized in the MOA nor fully supported with field personnel by the MOA. It is therefore doubtful that those achievements will be sustained past the project's completion date unless steps are taken by the MOA and the contract team to establish and develop the necessary institutional support as recommended in this report.

2. A coordinating structure is operating within the MOA to facilitate support to smallholder production projects.

The PIC TA team works informally together with their staffs to facilitate support to smallholder production projects. However, a major component of the planned structure is the Production Coordination Unit, which has never been established in accordance with the project paper plan. A PCU or some similar formal organization is required both to coordinate and facilitate support to smallholder production projects, and to supervise the collection, processing, and analysis of household and association production and farm budget data.

3. The MOA Research Division is capable of addressing the constraints to smallholder agriculture, testing and developing improved packages, and assisting in the dissemination of these packages to small farmers.

To accomplish this output, the MOA Research Division should develop the mechanisms necessary for the utilization of farming systems research methodology, be given more effective project TA technical leadership, and improve the preparation and distribution of printed technical advisory information.

4. Training institutions are capable of training MOA extension and technical staff, farmers, and public and private sector personnel involved in smallholder agriculture including input supply and marketing operations.

AEC staff has demonstrated its capability to train MOA staff and farmers in a wide variety of fields. The following steps to further progress toward achievement of this objective are now being undertaken: longer, more structured training for extension agents; selection of more motivated agents for additional training; and development of proposals for greater involvement in support of marketing.

5. Basotho are trained to support and maintain the objectives of this project.

There are two issues here. First, whether the Basotho are being trained, and second, whether their having been trained will lead to support and maintenance of project objectives. Basotho are being trained in both long and short-term programs. Long-term training has emphasized traditional agricultural fields such as agronomy and extension, but fields that promote commercial agriculture such as management and marketing are not represented. If one of the major goals of this project is advancing commercial agriculture and eventually agribusinesses, then this is an important omission. To offset this, the contractor has organized mid-winter management workshops where management issues are explored. The content of the local training is relevant to narrowly defined project goals, but during the evaluation questions have arisen concerning their relevance to Lesotho's overall development needs. Also, of 80 extension agents trained, only one was assigned to a LAPIS project site as of the beginning of the evaluation.

Finally, it is not guaranteed that once trained, participants will in fact do project-related work. The project team has indicated that they can not be sure that long-term trainees will return to MOA and work in areas related to achievement of LAPIS objectives. There is a system of bonding in effect, and USAID is urged to see that this system is enforced.

D. ASSUMPTIONS

A major assumption for achieving both project goal and purpose was that adequate extension support would be forthcoming. Up to the time that the evaluation began it was not. During the evaluation period an additional three extension agents were posted to areas where there are project sites (but one of these agents chose to not report for duty). Thus the MOA is making progress in providing the level of extension support needed. However, there is no indication that the MOA intends to develop its extension services so that the LAPIS concept can be followed independent of specific project activity.

The GOL is providing continued strong support for the agricultural sector, but much of that support is going to consolidated (large-scale) agricultural production units rather than to individual smallholders. Although the MOA assured the evaluation team that this emphasis on larger scale units does not preclude activities at the individual smallholder level, priorities in the allocation of MOA resources are likely to follow that emphasis.

E. IMPLEMENTATION PLAN

A chart showing implementation progress to date compared to the project paper implementation plan is included as an annex. In summary, the project began about six months behind schedule. The contract with American Agriculture International was signed six months later than planned, and most of the contract team arrived about three to six months later than planned. However, once on site, the team made up much of the lost time, and many of the implementation plan milestones have been accomplished by the team close to schedule.

IV. PROJECT MANAGEMENT AND ORGANIZATION

A. IMPLEMENTATION AND MONITORING

1. Major Management Issues

It is recognized that the LAPIS project is in an early stage. This first evaluation can not state categorically that a specific project activity or component will succeed or fail. It can, however, identify areas where progress toward achievement of project objectives is insufficient, and by doing so highlight what may become problem areas in the future if corrective action is not initiated. There are a number of such areas with regard to project management.

In the following areas project management has not been adequate, with the result that MOA capabilities are not being strengthened and project sustainability is uncertain. (Project management includes those in the MOA, contract team, and USAID who are responsible for implementation and monitoring of the project.) The Ministry is not fully incorporating the LAPIS project into its operations, and is providing insufficient personnel support to the project, particularly in the field. In addition, the Ministry, along with the contract team, has not established an operational and effective Production Coordination Unit which will be continued in the absence of expatriate TA. The contract team has as a major responsibility the integration and coordination of the various activities of the three project components (production, research, and education), but there is insufficient coordination, particularly between PIC and ARC. Farming systems research methodology is to be followed in the implementation of the research component, but the required mechanisms are not being established. Included here is the establishment and operations of the PCU.

Whereas in the above examples it has been the MOA's and/or the contract team's responsibility to implement, overall it is USAID's responsibility to monitor and to prescribe remedial action where necessary. Given that many of the above involve aspects of the Grant Agreement or the AAI contract, USAID is obligated to assume a stronger role in influencing the direction and nature of project implementation. It is the evaluation team's understanding that the USAID ADO office intentionally has distanced itself from project management as much as possible. Under AID/Washington instructions, the project was designed to minimize, to the extent possible, the direct oversight roles of direct hire USAID personnel. While this approach may have been appropriate earlier, given the problems which have developed it is no longer appropriate. The USAID ADO/project manager has met on a regular if informal basis with the COP and MOA. However, a number of problems have not been successfully resolved as discussed in this report.

Increased supervision and direct intervention is required on the part of the contract team chief of party, in particular to assure project component integration and achievement of overall project objectives. There are major implementation actions associated with each of the examples presented above

which are important enough to warrant COP attention. In addition, a functioning Project Management Committee (PMC), with the COP as secretary, is essential to the management of the LAPIS project. The MOA Principal Secretary as chairman, in cooperation with the COP and USAID, must take the lead in seeing that this committee meets at least quarterly. The evaluation team has been given conflicting information regarding committee meetings (that the committee has met once, and has met twice), which in itself indicates that in fact the committee is not functioning well.

Increased field trips to project sites outside of Maseru are required of USAID project managers to enable them to assess project activities on-site, and to hold in-depth discussions with Maseru-based and field personnel at the same time. The evaluation team has received from AID evidence of site visits during 1986 only. We of course believe that visits have taken place also in 1987 but that for one reason or another records of those visits can not be located. However, based on our discussions with other project-related personnel it is our understanding that site visits outside of Maseru by USAID managers are not frequent occurrences.

The contractor's implementation plan identifies 14 committees, units, groups, and task forces to be established. Committees can be effective management tools as long as they are established and function as envisioned. Unfortunately, they have not approached the level of effectiveness intended because (a) the membership includes too many managers involved in policy and does not include technicians from the operational, hands-on level who are intimately related to the actual work being accomplished; (b) too many committees make too many demands on the time of too many people; (c) committee members have demands made upon them from other sources; and (d) committee members are unsure of their respective group's mandate. The LAPIS Coordinating Committee, Production Coordination Unit, Project Management Committee and Marketing Working Group are the most important. The Project Management Committee should determine the need for the others listed in the contractors implementation plan. The Marketing Working Group must be established as soon as the LAPIS Marketing Specialist is on-board and the group initially should meet at least monthly.

2. <u>USAID Monitoring and CP/Covenant Satisfaction</u>

The distribution of responsibilities among staff of USAID/Lesotho's Office of Agriculture Development for LAPIS project monitoring is as follows:

Production Initiatives Component - ADO
Agricultural Education Component - ADO
Agricultural Research Component - Asst. ADO
Production Initiatives Component (LCCUL) - Asst. ADO
Production Initiatives Component (CARE) - Asst. ADO

Since the beginning of the project, 17 Project Implementation Letters (PILs) and four Project Agreement amendments have been issued. Monitoring of the contractor's procurement and participant training financial disbursement is performed to different degrees by various USAID officers.

As is discussed elsewhere in this report, there is room for improvement in USAID monitoring of the project, and this can be accomplished in part by enforcing regular PMC meetings, including the PDO in those meetings, and improving the quality of reports submitted to and prepared by USAID. Quarterly Project Monitoring Reports could be improved by including information on progress toward meeting project objectives and expenditure/procurement information.

With respect to Project Agreement requirements, it is the conclusion of this evaluation that all of Article 4, Conditions Precedent (CP) to Disbursement, under the Grant Agreement, have been met technically. However, comment must be made about one CP which concerned the establishment of the Production Coordination Unit. Although the GOL notified USAID in April 1987 of the establishment of the PCU and USAID responded accepting this notification, neither MOA nor USAID nor the contract team have taken effective steps to make the PCU operational. Some of the group appointed to serve in the PCU has had frequent but informal discussions, but the office and staff for which $812,000 was budgeted have never been established. All relevant covenants under Section 5 have been or are being satisfied, except Section 5.2(b), provision of personnel by the GOL. This is discussed in detail in this report.

3. GOL Monitoring

The GOL is expected to monitor the LAPIS Project through the Central Planning and Development Office (CPDO) and in the Ministry of Agriculture through the Project Formulation and Evaluation Section (PFE) of the Office of Planning and Project Coordination. MOA project monitoring could be improved by regular submission of information on project activities by the contract team management to the MOA's Office of Planning and Project Coordination.

B. PROJECT STRUCTURE

In order to achieve improved project management, in particular on the part of the contract team, the structure of the project may require revision. The COP should be in a position in which he can continually assess progress toward achievement of project objectives. As far as the evaluation team can tell, the COP currently is heavily involved in day-to-day operational matters, and in MOA policy matters. The evaluation team supports USAID/Lesotho's move to create a new position for a Deputy Chief of Party to handle the increased workload which has arisen since the initiation of the project.

C. COMMUNICATION

A communication problem affecting project implementation exists at various levels, involving MOA staff, the contract team, and USAID. First, Ministry staff fail to take counterpart roles seriously, do not feel part of the LAPIS team, and view LAPIS as a donor project which has no long-term ties to the Ministry. Consequently, staff members do not establish the communication

links which are necessary for successful incorporation of the project into the Ministry portfolio. Communication links must be established both among MOA staff themselves, and between MOA staff and the contract team. Second, communication problems within the contract team itself are inhibiting integration of the three project components, and are leading to confusion over project objectives. Finally, within USAID, there is some confusion with respect to project monitoring responsibilities, in particular between the Offices of Project Development/Evaluation and of Agricultural Development. Overall project management and monitoring could be strengthened if the respective roles of these offices were more precisely defined.

All of the groups are aware of communication deficiencies, and are beginning to explore possible solutions. They are to be commended for looking within their respective organizations, and trying to identify the problems. To assist them in this effort, the evaluation team has recommended the use of a team building exercise organized by a professional consultant in that field.

D. CLARIFICATION OF PROJECT OBJECTIVES

1. Understanding Project Objectives

In part what appears as a management problem is a difference of opinion among MOA, the contract team, and USAID over project objectives. The MOA is interested in increased agricultural production, but fails to adhere to the institutional strengthening aspects of the project, and in doing so seriously undermines the project's long-term effectiveness. The contract team and USAID perceive differently the role of the Production Component, which is seen by the contract team as being primarily concerned with the fulfillment of physical project objectives (numbers of improved farms) and by USAID as having an institutional strengthening emphasis equal to the physical objective emphasis. The contract team members must demonstrate an understanding of project objectives, and must take the initiative in explaining those objectives to the MOA. USAID should request of the contract team statements on the following topics, and where differences of opinion exist discussions should be held to resolve those differences: a prioritized list of objectives for the Production, Research, and Education Components, and the actions both being taken and proposed to achieve those objectives; the need for and functions of the Production Coordination Unit; the role and responsibilities of the marketing specialist within the LAPIS team; and the nature of LAPIS technical assistance to and concern with non-project specific farmers and commodities, and the ICFARM sub-component.

2. Reference Documents

A second issue is that of the appropriate reference document. There are four major documents which may be in conflict on any one point: the project paper, the grant agreement, the AAI contract, and the Benchmark Report. In addition, the contractor has prepared a five-year implementation plan and annual work plans. There has never been a comprehensive review of these documents to identify in what ways they differ, and this task is beyond the capabilities of

the evaluation team given our short time frame. The team has used the project paper and grant agreement as the reference documents.

Of concern is the following statement in the Benchmark Report, "USAID considers the technical substance of these documents to supercede that of the PP." (P.16) As far as the team has found this statement is not supported by proper documentation to indicate formal revision to the PP where necessary. (Changes to the research component, e.g. a de-emphasis on FSR methodology, are particularly noticeable.) In the absence of proper documentation, the PP and grant agreement must be used. It is recommended that a formal review of all major documents concerning project design and implementation be conducted, and revisions to the PP be made as necessary.

E. FLEXIBILITY

During the evaluation, both USAID and the contract TA team raised the issue of flexibility. The feeling seems to be that the LAPIS project must be exempt from documentation procedures (used to document revisions to project design) in order to achieve flexibility in project implementation. It was stated that management determined that formalized project revisions would not be required in the project as long as the purpose and goal remained unchanged. The evaluation team disagrees with this project management style. Revisions to project design or implementation strategies should be documented so that proper evaluation and monitoring can be achieved, and so that current strategies are clear to all concerned with project implementation.

Documentation need not be formal project paper amendments, although in some cases these may be required. Written communication between USAID, MOA and/or the contract TA team, and/or file memoranda may suffice in most cases. However, sufficient detail should be provided to allow a clear understanding of the revisions made. Preparing such documentation may require time and effort, but will not restrict flexibility.

F. PROJECT RESPONSIBILITIES OF TECHNICAL ASSISTANCE

It was reported to the evaluation team that in at least one instance the contract team was instructed by USAID to not work on any crops other than those which are the focus of LAPIS activities. USAID has responded that it has not restricted the contract team in this way, and that if the contractor believes such a restriction exists then there must be a communication problem. In any case, this has raised an important issue, to what extent can LAPIS technical assistance personnel include, in their work, tasks which may be seen as not directly and precisely related to LAPIS activities? In some cases what may appear to be unrelated in fact is very related. For example, the LAPIS marketing specialist will have to assess production and sales by all farmers in an area, not just LAPIS farmers, in order to understand the marketing situation. Other cases may not be so obvious. The horticulturalist, for example, may achieve more for LAPIS by also helping a farmer with one of his non-LAPIS crops.

In general, the evaluation team believes that non-LAPIS specific work is not to be forbidden. In fact, a narrow approach, that is restricting the TA's time to LAPIS crops only, directly contradicts the farming systems research methodology. On the other hand, work outside of LAPIS's specific concerns should not interfere with the achievement of project objectives. There must be a clear understanding between the contract team and USAID what the ground rules are for TA activities, and amongst themselves the contract team must work out a balance which will allow them to achieve project objectives in the most effective manner.

G. RECOMMENDATIONS

1. Improved monitoring and implementation

a. The COP should consider more direct interventions in project components. The COP and USAID project manager should assess whether the coordinating function of the COP can be adequately performed as the project is currently structured. The evaluation team supports the move to create a new position for a Deputy Chief of Party to handle the increased workload which has arisen since the initiation of the project.

b. As proposed by USAID, a team-building or organization effectiveness training exercise should be planned that includes but is not limited to establishing collaboratively working relationships; understanding goals and objectives; reinforcing roles, building confidence and exercising initiative. In preparation for this exercise, USAID project management, LAPIS COP and component team leaders, and MOA department heads should discuss the purpose of the exercise. Included as one purpose should be resolution of project documentation issues, i.e. how the various design and implementation documents relate to each other, and when formal documentation is necessary in the revision of project design and/or implementation. The target population organized by groups follows:

(1) USAID's ADO/PDO and COP/Administrative Manager/Component Team Leaders;
(2) COP/Component Team Leaders and TA staff;
(3) All MOA Department Heads/Chief, Planning and Project Coordination and COP/Administrative Manager/Component Team Leaders;
(4) MOA counterpart personnel only; and
(5) MOA counterpart personnel and TA staff.

c. The USAID project manager(s) should conduct regular field visits at least on a quarterly basis, in addition to representational visits.

d. Project management could be strengthened by holding regular Project Management Committee meetings, attended by all involved with management and monitoring of the LAPIS project.

e. The MOA Office of Planning and Project Coordination and Central Planning and Development should be involved to a greater extent in monitoring the project on behalf of the Government of Lesotho.

f. Project TA should not be restricted to a narrow definition of what is LAPIS-related activity. They should be permitted to do what is necessary to achieve all of the project objectives in the most effective manner. Confusion over the ground rules for TA activities may be the result of a misunderstanding, but in any case resolution of the issue is necessary.

g. The USAID Mission should conduct a formal review of all major project documents (PP, grant agreement, Benchmark Report, AAI contract, implementation plans and work plans), determine what is appropriate in each, and revise the PP, grant agreement and/or contract as necessary. This could take place in conjunction with the team building exercise recommended above.

2. Improved organization

a. The PS/MOA must take the lead in establishing the Project Management Committee, and the PMC should include in its membership both the USAID Project Manager and Project Development/Evaluation Officer.

b The Marketing Working Group should be established as soon as the Marketing Specialist is on-board and meetings should be conducted at least monthly initially.

c. Minutes of all committee and working group meetings should be distributed to all interested parties through the respective committees or Administrative Manager.

3. Improved administration

a. The DPS for Administration should receive a copy of all administrative documentation dealing with procurement, personnel, and staffing, and identify two contact persons to represent her/him in her/his absence.

b. The LAPIS Administrative Manager should assume responsibility for coordinating submission of the Quarterly Project Monitoring Report distributed by the MOA. These reports should include data on: progress toward meeting objectives; expenditure status; commodity status; major problems and recommended actions; and expected progress toward meeting objectives next quarter.

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V. EVALUATION REPORTS BY COMPONENT

A. PRODUCTION INITIATIVES COMPONENT

1. INTRODUCTION

a. Goal and Purposes

The subgoal of the Production Initiatives Component is to increase agricultural production, incomes and employment through assisting the establishment of labor intensive, horticultural cropping and livestock production systems leading, supporting and creating a business climate for input and product marketing firm development. Specific objectives of "A Blueprint for Action for Agricultural Development" released by GOL in 1980 include increasing agricultural production and employment. In formulating its Fourth Five Year Plan (1986/87 to 1990/91), GOL recognized that the need for creation of domestic jobs is urgent and becoming more serious with time; that food production is not keeping pace with population growth; and that viable marketing institutions, food distribution networks or an agro-industrial production base has not been developed. It is expected that in the future, the agricultural sector will be required to play an increasing role in providing increases in income and employment as the labor force continues to expand and job opportunities outside the country continue to decline.

The subpurpose of the PIC is to support: (a) increased production of high value food crops (fruits and vegetables particularly); (b) increased commercial production of livestock and livestock products; and, (c) strengthened agricultural marketing structures. "A Blueprint for Action" specified that the strategy for achieving the objective of increased agricultural production would include: (a) improving the quantity and quality of crop production and attainment of optimum yields; and (b) improvement of quality and control of numbers of livestock and rehabilitation of grassland as means of improving returns to livestock enterprises. The current policy of GOL, reported in the Fourth Five Year Plan, is to attain self-sufficiency in production of basic staple crops, high value fruits and vegetables, livestock and forest products. It was further declared to be government policy to encourage land conservation and range improvement to promote sustainable agriculture and higher standards of living.

The goals, purposes, elements and proposed outputs of the PIC component and the associated Land Conservation and Range Development Project (LCRD) are relevant to the problems identified by GOL and consistent with the announced policies and objectives. Elements of the LCRD Project are to be merged with

LAPIS in 1988. Announced plans indicate that emphasis of the elements to be merged will be on herd improvement, destocking programs and range improvement. However, the probable impact of continuing degradation of crop land on attainment of the PIC sub-goals of increasing agricultural production, incomes and employment should be reconsidered before finalizing a decision to eliminate support for land and water conservation. Several donors have plans for conservation that are in various stages of development. The status of these plans and the coverage of conservation problems will need to be considered when the final decision is made.

b. Relation of PIC to Other LAPIS Components and Other USAID and GOL Projects

The Production Initiatives Component is conceived of as the central element of LAPIS with other components intended to support PIC efforts. Technological packages developed by the Agricultural Research Component staff through experimentation and validated through on-farm trials will be the basis for the maintenance and long-term improvement of crop and livestock productivity. The Agricultural Education (AEC) staff in collaboration with extension agents will be responsible for transmitting knowledge of the improved technologies to farmers, and in collaboration with PIC staff, training farmers in the application and use of these technologies. AEC and PIC are responsible for feedback of information to ARC on farmers' experiences and problems to be used in developing and directing future research planning. AEC and PIC staff are also responsible for assisting ARC in planning, establishing and carrying out on-farm trials. In addition to having primary responsibility for research, ARC is responsible for assisting PIC in solving technical problems arising in the conduct of programs to encourage increased production of labor-intensive, higher value commodities. Likewise, ARC is responsible for assisting AEC in planning and conducting training programs for LAC enrollees, farmers, extension agents or others. It is essential that good communications and close coordination and cooperation among these three groups be established and maintained if each is to attain its potential contribution to the overall project objectives. A close and satisfactory working relationship has been established between PIC and AEC and between AEC and ARC. However, the relationship between PIC and ARC is not satisfactory and must be improved if project objectives are to be achieved. The failure to develop an effective working relationship between the two components means that suitable packages of technology will not be available to extend to participating farmers.

The PIC is also closely related to the USAID sponsored Agricultural Planning Project (APP) in the Ministry of Agriculture. The APP, which predates LAPIS by several years, provides consultation and advice on agricultural policies, with particular emphasis on marketing policies and programs, and on ministerial organizational and operational questions. PIC is concerned most directly with APP operations relating to marketing. The LAPIS Project Grant Agreement provides for the technical assistance of a marketing specialist for 4 years. APP also has a marketing specialist on its staff to provide advice and assistance on macro-analyses, information on marketing policies and in development of national programs. It was expected that the marketing

specialists on the two projects would closely coordinate their work so that there would be no duplication, and that the PIC specialist would concentrate on LAPIS oriented marketing activities. A satisfactory working relationship for the first PIC marketing specialist did not develop and the arrangement was terminated after the first year. As of the time of this evaluation, a replacement has not been arranged. Remaining members of the PIC team have given considerable attention to marketing problems but plans for marketing the increased supply of fruits and vegetables, essential for the success of the project, have not been developed. It is vitally important for the PIC marketing specialist to be replaced as soon as possible and his position carefully defined.

The Farming Systems Research project which preceded LAPIS was directly related to the agricultural research component but only indirectly related to PIC. The PIC staff used available research findings from the Farming Systems Research project, along with the findings from other research in Lesotho or in nearby areas in South Africa and their own basic technical knowledge in formulating first year plans for participants in the irrigated production activities developed as parts of PIC. The recommendations used proved to give favorable yields.

Projects being developed by GOL or by other donors to increase irrigated fruit or vegetable production will impact most directly and heavily on PIC. The Bauer projects, already developed or planned for development by MOA, will have the greatest impact. The impact will be most severe for those PIC participants located in areas where they must compete with the Bauer projects for the uncontrolled, unregulated and often limited supply of irrigation water and where their produce will have to compete with large supplies of Bauer produce in regional, national or export markets. Development of PIC has been and will probably continue to be unfavorably affected by the competition of the Bauer projects for the assignment of extension agents and other MOA technicians. Unless an adequate number of such specialists can be trained and provided an opportunity to become experienced in producing and marketing higher-value farm products, the program being initiated by PIC will not be sustainable after completion of the project. Even if the limited number of farmers who will participate in the program during the life of the project becomes quite proficient in production of high-value products, they will need continuing assistance in solving technical and managerial problems that will evolve in the future. Certainly such assistance will be required to expand production significantly beyond the pilot stage which can be initiated during the life of the project.

c. Fulfillment of Condition Precedent and Covenants

1) Response to Condition Precedent to PIC Disbursement

The Project Agreement contains a condition precedent which had to be met prior to disbursement of funds for PIC. This condition precedent required evidence that a Production Coordination Unit has been formally established and that a senior Mosotho agriculturist has been appointed as Production Coordinator before disbursement of PIC funds. The PCU was conceived of as the central

organization for coordinating activities of MOA Divisions and all LAPIS components. It also was to be responsible for establishing a central computerized file incorporating all data generated as a part of the PIC operations relating to farm and market plans and production outcomes of individual farm and farmer association irrigated enterprises; all records relating to the extension and repayment of credit by farm participants; and all training records generated as a part of the program. Developed by the PIC component, this computerized file, to be available at both MOA headquarters and the USAID Mission, would provide the basis for the continuous monitoring and annual evaluations that are designated as an essential management tool. Steps to be taken by PCU in carrying out its coordinating role and specified in the Project Agreement are:

(a) providing leadership in those cases where the services of several divisions are brought to bear on the design or implementation of a production project;
(b) providing advice in technical areas which are needed for production activities (production, marketing, engineering, etc.); and
(c) serving as a clearing house for requests for assistance from farmers, district field staff, and entrepreneurs involved in businesses related to agriculture.

The Project Agreement budgeted support costs for PCU at $812,400 to provide a locally hired design officer, an administration officer, a secretary and travel, including per diem, and vehicle operation.

The GOL notified USAID in April 1987 of the establishment of the PCU under the office of the Director of Field Services and the appointment of the Director of Field Services as the Production Coordinator. USAID responded, accepting this notification as evidence of the establishment of PCU and allowing disbursement of PIC funds. However, neither MOA, USAID not the contractor have taken effective steps to make PCU operational. Since that time, the group appointed to serve on PCU is reported to have had frequent but informal discussions. The group has reviewed and approved farm and marketing plans developed by the PIC staff, but there is no evidence that any effort has been made to carry out the PCU coordinating role. The PIC staff has accumulated the information developed on production/marketing plans of participants and on limited performance data. These data have been entered on floppy disks being retained by the Senior Horticulturist. The procedure being followed was developed by non-professional computer programmers or operating specialists. The program does not permit ready updating of data and analyses of revised data in developing future production plans. No plans have been made for transferring even these limited data to a permanent central file, for incorporating data on training and credit programs in the file, for developing programs suitable for receiving, maintaining, analyzing and quickly summarizing data and for providing ready access to the data for use by project management. Even if a satisfactory permanent central record system is established, the system cannot be sustained unless steps are taken to equip MOA staff to maintain and utilize the system.

The problem of establishing a sustainable record system to provide necessary information for effective management decisions currently, and effective planning of development programs in the future, can be solved if there is firm

resolve on the part of the USAID Mission, MOA and the contractor to do so. The problem of establishing an effective coordinating role for PCU is certainly more difficult to solve but definitely not insoluble. Many of the individuals and organizational units of LAPIS have clearly exhibited a willingness to cooperate and, as indicated above, have developed some outstanding examples of collaboration. Development of appropriate leadership skills and dedication to application of cooperative concepts will be more difficult to achieve.

2) Compliance with Special Covenants

The Project Agreement includes two covenants that are particularly pertinent to the development and sustainability of the PIC program. The first is the agreement by GOL to provide on a timely basis all personnel required for implementation of the project. The second relates to the agreement of GOL to accord priority to studies to improve long-term policies in Agriculture.

MOA made some 80 crop extension agents available for preliminary training in irrigation production. Of these, 16 participated in a more intensive training exercise conducted later and then conducted successful training for farmers. However, only two are currently participating in the PIC crop production program, both as advisors for the two vegetable producing farmer associations. Progress on initiating individual farmers or farm associations has been restrained by lack of additional extension assistance and the projected expansion of the PIC/LCCUL irrigated horticultural production will be sharply restricted in 1988 unless additional MOA assistance is forthcoming.

As indicated above in the section relating to policy revisions, a series of policy related studies have been undertaken by MOA. Additionally, a series of studies relating to several marketing aspects have been undertaken by the MOA Planning office. However, the specific studies listed in the relevant covenant of export potentials, market structures, and price determinants have not been done. Tentative plans have been drawn up for developing production forecasts. The urgency of developing a marketing strategy for the expanding supply of horticultural products gives added emphasis to the need to proceed with implementation of actions in compliance with this covenant.

2. INPUTS AND OUTPUTS

a. Inputs

The Project Agreement specified an AID contribution to PIC of $10,811,024 and a GOL contribution of $2,287,688 in Maloti equivalent. However, these amounts were intended to cover expenditure on all seven of the component activities including livestock. Most of the work relating to the livestock sub-sector noted in output 7 has been developed thus far under the related Land Conservation and Range Management project. It was originally planned to merge the two projects in 1987 but that merger has been rescheduled for 1988.

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Contributions to the component provided for about 30 years of long term and 2 years of short term technical assistance for all seven activities with about two-thirds of the time earmarked for the first six activities and one-third for the livestock sub-sector. The positions for which funds were budgeted and the periods when PIC staff have been employed are indicated in the following tabulation.

Position	Contract Months	Date position filled
Team Leader	48	6-1-86 to present
Market Dev. Specialist	48	7-2-86 to July 1987
Horticulturist (1)	48	7-5-86 to present
Horticulturist (2)	24	6-13-86 to present
Irrigation/Farm Planner	24	6-24-86 to present
Livestock Management	36	9-17-87 to present
Senior Range Management	36	-
Range Management	36	-
Credit Management Advisor*	48	-
Pomologist**	24	2-17-87 to present
Social Scientist***	36	7-15-87 to present

* Position filled under agreement with CUNA
** Position provided under USAID/Israel cooperative contract
*** New position not included in original project paper

In addition to the Technical Assistance reported above, two District Production Officers, employed with project funds, five Peace Corp volunteers and two MOA extension agents assisted in organizing and conducting the irrigated production phase of the project during the second year. Two home garden specialists were hired in late 1987 to develop the home garden program. In response to vigorous urging to provide additional assistance and the prospect of a sharp slackening in the rate of introduction of new participants, MOA assigned three additional extension agents to the project during the third week in February 1988.

In the course of the development of the project, several deficiencies in the scheduled inputs of technical assistance have become evident. First, it is noted that although the PACD is 1991, technical assistance is scheduled to continue only to mid-1990. The quantified outputs can be attained by that date but the program is unlikely to be institutionalized. Also, the engineer/farm planner and one of the horticulturalists are scheduled to leave in two years although the planned implementation provides for only 20 of the goal of 150 individual farmers and none of the seven farmer associations were expected to be in production by that time. If it was not clear in the beginning, it is now, that this level of input will not permit attainment of project objectives. Although goals for fruit production were less specific, support for such activity was obviously intended. Even though the original schedule did not provide for a pomologist, one was provided from sources

outside the project. It is clear now that continued inputs beyond the periods now provided for are needed if the intent, rather than minimal quantified outputs, is to be met. Although a number of Basotho now are in training for two or three years, experience in the United States as well as in developing countries indicates at least one or two years overlap between returning trainees and experienced researchers is necessary to assure a successful transition.

Four years input by a marketing development specialist was provided for, and it is evident that even this minimal input will not be achieved. In view of the consensus that marketing problems must be given first priority, efforts should be made to cover this shortfall. Outside consultants can help fill this gap. However, this can probably best be done by utilizing local contractors who will not have to spend an extended period getting acquainted with the local market structures and other institutions. This procedure has the added advantage of strengthening an institution that will remain after project termination.

The staffing inadequacy of not providing any social science inputs apparently has been recognized and a social scientist has been recruited. However, instead of utilizing him fulltime to do work in the field of sociology in which he has professional training and experience, he has been assigned to spend a major portion of his time working on computer programming and data processing where he has no professional training or experience. This not only is a waste of a scarce resource but also has resulted in an unsatisfactory data system. The other deficiency in the social science field is in farm management, and this one still persists. This deficiency is even more pronounced than that of the social scientist since there is no similar expertise on the LAPIS team or the MOA staff, either in PIC or the Research Component.

In the original allocation of funds for technical assistance, only three positions for three years each were provided for accomplishment of the livestock/range activity (output 7). The merger of the associated LCRD project and LAPIS has been delayed one year. In the meantime, the urgency of the need to adjudicate grazing rights outside the existing and proposed RMA's (about 95 percent of the total) has emerged and the accompanying need to develop intensive livestock enterprises in the lowlands as an essential part of the adjudication solution has become evident. With this recognition has come the recognition that additional personnel inputs than originally provided for in LAPIS will be required. Therefore, at least five of the positions presently provided for under LCRD should be transferred and continued under LAPIS.

In addition to deficiencies in the technical assistance staff, there will be shortages in support staff if projected expansion of PIC activities are to be achieved. Both replacements and additional Peace Corps Volunteers will be needed for further development of the irrigated crop production phase and for the development of additional RMAs planned for the livestock phase. This need has been discussed with Peace Corps officials who will consider this need along with other requests received. Also some of the District Production

Officer vacant positions will need to be filled as the program expands. The most urgent need will continue to be for additional extension agents in spite of the few additional agents assigned while the evaluation was in progress.

b. Outputs

In order to achieve the results specified in the goals and purpose of PIC, the following objectives were established (1) assist in establishing production units of individual farmers or farmer associations (2) develop markets which will provide incentives for increased production (3) assist farmers and association to apply for credit and (4) assist farmers in identifying and acquiring the proper mix of inputs in a timely manner.

The component has seven key activities that have been initiated in order to achieve the project purpose and objectives. Planned accomplishments or outputs include:

1) MOA to develop ability to mobilize and coordinate its resources for activities and programs designed to increase production.

2) Individual farmers to use improved technology and small water catchments for irrigated production of fruits, vegetables, and fodder for home consumption and the local market.

3) Seven Farmer Associations to produce up to 70 hectares of fruits, vegetables, and /or fodder for sale using improved technologies.

4) Over 1,500 heads of households to establish home gardens which are producing fruits and vegetables for family consumption and local sale.

5) Five nurseries to produce and sell fruit trees, fuelwood trees, and vegetable seedlings which are used by Basotho farmers to establish fruit tree orchards, on-farm tree plantings, and small-scale vegetable plots.

6) Twenty-five Credit Unions to provide an integrated program of credit, input supplies, technical and educational assistance, equipment rental and assistance with marketing services.

7) Associations of livestock farmers to produce and market larger numbers of higher quality animals and animal products while conserving the nation's land and water resources.

3. FINDINGS AND ACCOMPLISHMENTS

a. Output 1 - Strengthening MOA

Development of MOA ability to mobilize and coordinate resources for activities and programme designed to increase production relates to all three LAPIS

components and was evaluated separately from other PIC outputs. Results are included in the section titled, "Progress toward Achievement of Proejct Objectives," subsection A, "Goal and Purpose."

b. Outputs 2 - 3 Establishing Irrigated Horticultural Production

Outputs 2 and 3 both relate to development of irrigated horticultural production, the only difference being that in output 2 the PIC staff works with individual farmers and in output 3 they work with a group organized to operate as a single production unit. Under this program, individual farmers or farmer associations may submit requests through District Agricultural Officers to participate in the PIC program. Requests might also be made by other donors for participation of groups which the donor has taken steps to organize and perhaps finance. Following receipt of the requests, the PIC staff will make a preliminary inspection of the site for proposed production to determine suitability of land, availability of water and potential market outlets. If information from this preliminary inspection is satisfactory, it is followed by a series of visits to make an on-site feasibility study including development of site and irrigation designs and lists of necessary equipment and supplies; preparation of detailed cropping plan and marketing procedures; and projection of costs and returns. If the costs and returns estimates appear to be financially viable, full site survey data are submitted to the credit agency with a request for extension of credit. If approved, arrangements are initiated to provide for delivery of equipment and supplies. If the credit is to be extended by the Lesotho Cooperative Credit Union League (LCCUL) through the local cooperative, the LCCUL team becomes an active collaborator with PIC at this stage. The two teams, generally with LAC support,initiate training of participants. LCCUL extends credit-in-kind except for labor. Therefore, LCCUL arranges for the procurement and delivery of equipment and other inputs.

During the first year of operation, eight individual farmers, originally recruited by LCCUL, participated in the program, producing their first crop in the summer of 1986-87. Eight different vegetables were produced. While yields were well below estimated potential, they were considered to be very good for the first season of production. Some problems developed in marketing since no marketing structure existed and producers were inexperienced in marketing. The volume produced clearly supports basic PIC assumptions that a substantial number of farmers would be willing to assume the risk of undertaking a completely new enterprise without any knowledge of the required technology; that the new technology could be taught effectively; and that production of irrigated vegetables is technically feasible. Records of the area in production, gross revenues, costs and net returns of individual producers shown in the Project's first annual report are presented in Table 1. The net returns, while modest, certainly are far above what could have been achieved from traditional dryland production. With more experience, yields and net returns should increase. However, inflation that might push prices of inputs up faster than prices of commodities, serious pest infestation, or a sudden increase in supplies causing a sharp drop in prices could wipe out these net returns. Also, it must be remembered that the analyses that have been made relate to only a portion of the total production

of most farms that have both irrigated and non-irrigated crops. Inclusion of costs and returns from these other joint activities may change these results significantly. While these results look promising, they do not validate the assumption of financial or economic viability.

During the June-December 1987 period of the second year, 23 individual farmers and two farmer association vegetable production units have become participants. Additionally, some 16 individuals farmers and eight farmer association fruit production units have been rehabilitated (Table 2). Harvest was proceeding in all areas at the time of the evaluation so no production records for the 1987-88 summer season were available. Marketing arrangements had been made by all individuals visited by the evaluation team and no marketing problems were reported to have developed among the participating individual farmers. A substantial volume of produce was reported to have been bought by customers who came to the individual farms or association headquarters. Individual farmers clustered in two areas had arranged for hiring private vehicle owners to transport produce to nearby villages for sale. One association had rented a shop in a nearby town where they offered produce for sale and also had a portion of their membership regularly assigned to contact local cafes and institutions soliciting requests for purchases. This association appeared to be confronted with the most vigorous competition from other donor sponsored production projects or private traders. The second association had some difficulty in getting some produce harvested in timely manner and some difficulty in disposing of some commodities. The PIC/LCCUL team reported delaying entry of some interested farmers into the program until a better assessment of the local market potential could be made.

c. Output 4 - Home Gardens

Two home garden specialists joined the project in late 1987. They have developed a proposed strategy for involving local representatives of MOA, MOH, MOE and MOI-RD in extending information and at least limited participation in promoting establishment of home gardens. A training session for 29 participants from five districts was held January 4 - 8 to inform them of implementation procedures and acquaint them with current information on nutrition, horticulture and non-formal education methods. This has been followed up by visits to each of the participants and distribution of garden packets containing seed, fertilizer and pesticide sufficient to plant a small garden by each of the expected participants in the first season. Arrangements are being developed for a local merchant to offer these packets for sale in the future.

d. Output 5 - Development of Nurseries for Vegetable, Fruit and Multipurpose Tree Seedlings

USAID developed a cooperative agreement with CARE to provide support for establishing a financially viable and replicable community-based agroforestry production and extension service model in five rural areas. The Production Coordinating Unit (PCU) was responsible for providing MOA resources to assist in training of staff, designing irrigation systems and the design of a marketing plan for fruit production.

The evaluation team found that CARE has provided qualified and timely technical assistance and administrative support. Likewise Peace Corps and the LHM cooperatives have supported the project with enthusiastic and, most often, qualified personnel. The project has trained more than 70 individual LHM members in various aspects of nursery production and extension. While all production and extension activities have been conducted without the support or involvement of MOA Production Managements, there is considerable room and need for enhanced collaboration.

The project has successfully constructed five quality nurcery production sites for vegetable, fruit and multipurpose tree seedling production. This spring will mark the culmination in the first full production cycle. Project impact, efficiency and financial sustainability are difficult to assess but doubtful as originally outlined due to overambitious design assumptions.

The project design proposed a very technical and diverse set of interventions which require more training and financial resources than estimated. The ability of enthusiastic but marginally qualified Peace Corps Volunteers to transfer highly technical skills in only two years was impossible. Further technical assistance in management, pomology and remedial agronomy will be required. Production targets have been unobtainable due to normal but unprogrammed delays in nursery startup and plant propagation. Nursery establishment and operation costs have been high and reduce the chances for widespread replication of the present model.

The project design was also predicated on unrealistic assumptions about the ability to saturate Lesotho's domestic fruit and vegetable market and begin exporting these commodities by the PACD. Employment and income generation at PP levels were unrealistic given socioeconomic realities and politics within southern Africa.

Finally, ICFARM has not benefitted from technical assistance prescribed through the LAPIS mechanism. All project outputs were somewhat dependent on design expectations, which have not materialized, that ICFARM would receive significant technical backstopping from LAPIS in 15 specific areas of collaboration.

The availability of LAPIS backstopping was a critical benchmark for a complex and detailed project with a single expatriate manager. Inadequate support in market assessment and production management have exacerbated species and varietal selection. Screening trials for agroforestry plant materials, timely assistance in soil analysis, and development of agroforestry packages for extension have not occurred as expected. CARE's input and participation in extension training, development of appropriate educational materials, and long-term training needs has not evolved. The blame for these inadequacies are now irrelevant: without improved support from LAPIS, the ICFARM output will not be viable, even in the short-run, and reconsideration of several key assumptions will be necessary. In addition, redesign assistance will be required if the project is to be technically, institutionally or financially solvent in the long run.

e. Output 6 - Credit Union Integrated Program to Provide Credit, Inputs and Support Services

USAID developed a cooperative agreement with CUNA/WOCCU which provided a grant of $1,898,700 to the Lesotho Cooperative Credit Union League to support an integrated program of credit, inputs, training and other support services for the irrigated horticultural crop production phase of the project. LCCUL was to be directly involved in staff and farmer training, management supervision and auditing of participating credit unions, equipment procurement, coordination of input supplies for an in-kind credit program, and coordination of the marketing system. PCU was responsible for coordinating MOA resources to provide technical packages by the Research Division to extend to farmers, training materials from AIO training for LCCUL and credit unions staff in technical areas and extension agents to support farmers participating in the program.

A Credit Management Advisor, supported with project funds, has assisted in carrying out the activities noted above. Three Peace Corps Volunteers have provided valuable assistance as extension and technical resources. Other assistants paid for with project funds have also made valuable contributions in training participants, particularly in machine maintenance. Very close collaboration has been maintained between the LCCUL and the LAPIS/PIC teams. The first eight participants in the irrigated production phase had been selected and initial design work done by LCCUL before arrival of the PIC team.

As of 12/31/87, seven credit unions had received loans for 28 farmers with gross disbursements totaling M.225,000 or over M.8,000 per farmer, a much larger figure than the M.3,000 average originally projected for irrigated agriculture (table 3). The change from petrol to more expensive diesel pumps and the high rate of inflation in Lesotho (currently estimated at 13-15%) has nearly doubled the cost of irrigation systems since project costs were first estimated. Other input costs have also increased. Farmers have been required to contribute 10% of the purchase price of irrigation equipment and to meet at least 20% of seasonal production costs either in cash or in kind (labor, animal traction, equipment). Credit for input has been supplied in kind, except cash has been given for hired labor and machinery and, until recently, for fuel. Now most fuel and oil is supplied in kind. To date, all technical assistance to farmers has been provided by LAPIS personnel.

Table 3

Status of LCCUL Program

	12/3/87	Planned
No. participating Credit Unions	7	25
No. farmers extended loans	28	150
No. farmers trained	31	600
Total loans made	M 225,000	NA
Proportion of loans delinquent	35%	NA

Thus far, LCCUL has been able to provide credit at levels adequate to meet farmer needs under the LAPIS program. However, loans for irrigated agriculture have made new demands on LCCUL in terms of required credit services. Irrigation loans have both an intermediate term lending component and a seasonal component. Thus a five year term loan would have a repayment schedule over ten periods. LCCUL can provide these schedules by computer, but processing and disbursement has been done by LCCUL and credit union participation has been minimal. LCCUL will have to continue providing repayment schedules for each farmer under the LAPIS project until credit union managers and staff can be trained and equipped to calculate amortization and repayment schedules.

The ability of LCCUL and the credit unions to recover loans when due remains questionable. All LAPIS loans are delinquent, with loan principal over six months delinquent totalling about 35% of total loans. LCCUL has recently initiated an aggressive loan recovery program which even included seizure of pledged assets of one delinquent borrower. Also, they have stressed development of skills of credit union staffs to make more adequate appraisals prior to loan disbursements and more effective collection efforts. Efforts have been made to strengthen farmers' managerial abilities. However, the continued high delinquency rate suggests that much more must be done.

As of 12/31/87, 31 farmers have been trained in irrigated vegetable production by LCCUL/LAPIS staff. Intensive on-the-job training has been conducted for 28 farmers. This training is continuing. Expanded training at an accelerated rate is required if the goal of 600 trained farmers by 1991 is to be met.

f. Output 7 - Production and Marketing Larger Numbers of Higher Quality Animals

A Livestock Advisor was assigned to the MOA Department of Livestock in September 1987. Although with the project for only a short time, specific achievements include:

- Introduction of stringent culling programs at the national sheep and goat studs at Quthing and Mokhotlong and replacement with high quality stud animals from outside sources.
- Cooperation with ARC and LAC in identifying research topics and assistance with the subsequent trials.
- Assistance to the RMA's in planning livestock improvements.
- Assistance to the Livestock Division in improvements to beef, swine and small ruminant production.
- Assistance to the MOA in the formulation of national livestock policy.

In spite of this good startup, some problems have surfaced. The goals set out for PIC livestock production are vague. To correct this a joint work plan was to have been developed by the livestock project team on their own. This has not done enough to focus the specialist's activities. Mundane activities are taking up too much of his time. LAPIS administration needs to take action on this problem.

Both the livestock production unit head and the division director have stated

that PIC inputs are not sufficient at this point to carry out the intended activities. The evaluation team also found that credit availability posed a major constraint to the type of programs that the project would like to develop.

The effectiveness of the specialist's work has been constrained by the emphasis that LAPIS is giving to mountain areas, while the economically important lowland ranges are neglected.

4. SUMMARY AND CONCLUSIONS

Goals and Purposes of PIC are relevant to problems identified by GOL in planning documents and consistent with stated objectives.

In regard to internal relationship of LAPIS components, PIC should have inputs from ARC on basic input/output coefficients and on recommended irrigation and production practices. It is too early to expect inputs from research undertaken since initiation of project but on the basis of professional technical knowledge and knowledge of results of research in Lesotho, adjoining areas in South Africa or elsewhere, the ARC staff should have been able to make a useful contribution to the development of production plans for individual farmers or farm associations participating in the irrigated horticultural production phase of the program. Reportedly the PIC team did solicit technical inputs from ARC but received no response. In any case, there does not appear to have been communication or meaningful interchange between staffs of the two components. In view of the repeated admonitions and recommendations in project documents that activities and elements of the project must be carefully coordinated, the project management was unaware of this deficiency or, if aware, failed to take effective corrective action.

The CARE nursery project also has operated without coordination or cooperation with other PIC elements or other LAPIS components. There are contracdictory reports as to cause of this lack of coordination. Again, project management has failed to take effective action.

The apparent failure of the first appointee to the PIC marketing position to perform in accordance with project management criteria was recognized and his appointment was terminated. However, the failure to develop an acceptable marketing plan still persists.

In spite of the examples of the lack of proper coordination and cooperation noted above, there have been some outstanding examples of coordination and cooperation. Particularly noteworthy is the close and effective collaboration between the LCCUL and PIC staffs. Also to be noted is the collaboration of AEC and other components.

The serious threat to the continued development of LAPIS posed by programs of other donors and GOL to promote expansion of irrigated horticultural production is recognized by the project management. However, there is no evidence of a satisfactory solution to this dilemma.

The recently issued policy statements relating to irrigated, high value crops must be carefully assessed by USAID and the LAPIS staff. While the statements do not indicate GOL's wish or intention to abandon the production approach based on individual smallholder or cooperative groups of smallholders, the papers clearly indicate GOL's skepticism of the viability of such approaches for attaining GOL objectives. The papers also clearly indicate GOL's preference for the capital intensive consolidated irrigated production approach. These pronouncements raise questions as to the probable adequacy of government support not only during the life of the project, but particularly for continuance of the program after the project termination. Answers to these questions should indicate whether the project, or particularly the PIC component, should be continued to its PACD or terminated as soon as possible.

In spite of the repeated statements in all project documents of the importance of PCU both as the primary mechanism for assuring coordination among project components and between these components and related MOA activities, and as a tool for monitoring and exercising proper managerial control, an effective PCU has not been established. It appears that failure to attain coordination will almost certainly continue until an organization such as specified in the condition precedent and subscribed to in all project documents is established. MOA took the first step toward compliance with the CP which USAID agreed met the requirement for disbursement of PIC funds. Responsibility for initiating action to establish the unit rests with USAID and LAPIS management.

The failure of MOA to implement actions to comply with the agreed upon covenant to provide adequate personnel requires joint attention by USAID and the contractor and probably action by USAID. In mid-February 1988, MOA took steps to remedy the long-standing shortage of technical personnel assigned to the project. This long-standing shortage has existed in spite of repeated requests for assignment of needed personnel made by the PIC staff. The contractor has no leverage to persuade MOA to comply with the covenant. USAID's position may be considerably weakened as a result of the government's decision in favor of the capital-intensive consolidated irrigated production approach. However, unless MOA will make available a sufficient number of extension agents, in particular for on-job training and to gain sufficient experience in high-value commodity production to continue the program beyond the pilot stage, which is all that can be attained under the present project, there is no justification for continuance of PIC. If USAID is unable to obtain firm assurance of adequate support for PIC, the component should be terminated. In view of the pivotal position of PIC in the project, its termination would require a re-evaluation of inputs into ARC and AEC.

In regard to the second covenant relating directly to PIC, that is to undertake studies essential for improvement in long term policies, MOA has shown good faith in undertaking a series of marketing studies and policy oriented analyses. The government is also participating in a program to develop an early warning system that presumably would make some provision for crop forecasting. Studies of export market potential apparently have not been initiated and LAPIS might discuss steps that could be taken to facilitate undertaking such work. Studies of marketing structures and organization

appear to be more a part of local and national market assessments that should be the responsibility of the LAPIS marketing specialist when he is available.

Conclusions regarding the irrigated crop production phase of the project must consider the combined activity of the PIC and LCCUL because of the close and effective collaboration of the two groups already noted. Progress on this phase of the work has exceeded expectations. Some problems that developed in regard to timely delivery of inputs and marketing of produce apparently are being handled satisfactorily at least for the time being. The technical feasibility of irrigated horticultural production has been demonstrated. The willingness of farmers to undertake a new and inherently risky activity and their ability to learn and successfully apply the new, rather complex technology, has likewise been demonstrated. The restraint of the team in expanding the activity until their ability to provide adequate support can be reasonably assured and the capacity of the available markets to absorb increased supplies can be assessed is most commendable. The dedication and effectiveness of the PIC/LCCUL teams, of the Peace Corps volunteers, the DPOs and the extension personnel in providing support to the participating farmers are particularly noteworthy. A serious design deficiency was not to provide for inclusion of total farm operations when developing production plans for horticultural plots and to include an agricultural economist in the staffing pattern to assist in developing these plans.

Progress on the CARE nursery project has been unsatisfactory in several aspects as detailed in the full separate evaluation of that project (Annex 3). However, preliminary plans for an in-depth analysis and modification of the program have been made and proposals for improvement of operations can be expected.

Work on livestock as a part of the PIC program has not been underway long enough to reach any conclusions. Moreover, this aspect is a part of the broader program being developed under the companion LCRD project and should be evaluated as a part of that program. However, in view of the expected merger of the two projects this year,decisions on the financial support available and scope of work are needed. Also, discussion of the procedures for the merger and organizational and operational arrangements should be initiated immediately by representatives of MOA, USAID and the contractors involved.

Although there is no specific activity or PIC output relating directly to the private sector, there are several developments that are indirectly but closely related. First, the activity to support labor intensive private farm enterprises, individually or in associations, is an effort to determine and demonstrate the viability of this type of production approach if adequately supported. The LCCUL support phase is an effort to determine and demonstrate the viability of providing non-governmental controlled inputs. Some plans are being developed to try combining efforts of the AOI and other MOA organizations and private input distributors in extending technical guidance on type of seed, fertilizer applications and other cultural practices to farmers. Policy decisions to eliminate input subsidies, to privatize input distribution beyond the regional level and to terminate parastatal monopoly of commodity marketing are encouraging for development of the private sector. On

the other hand, GOL support for the capital intensive, consolidated production approach with many features of the state farm approach, may develop as a serious competitor to future development of private commercial farms.

5. RECOMMENDATIONS

The conclusions presented above identify several areas that require a series of integrated actions. There are a series of other questions that can be addressed independently.

a. The most urgent area requiring attention,is the necessity of establishing more effective coordination if the potential of the several components are to be realized and the objectives of the Project attained. The contractor is responsible for compliance with the terms of the contract regarding coordination. USAID is responsible for determining that the terms of the contract are complied with. MOA likewise has responsibility for seeing that effective coordination is attained. Attainment of effective coordination is a function of the resolve and leadership of the Project management and the willingness of the individual whose activities are to be coordinated to cooperate in the effort. At least some members of the Project staff have indicated their willingness to have their activities coordinated. Thus it is the responsibility of the management group to develop the necessary resolve and to test their leadership abilities.

No organizational structure can assure attainment of coordination, effective monitoring and improved management. However, establishment of PCU as envisioned in the original Project and more precise designation of the duties of some of its members would facilitate such attainment. If it is decided to establish PCU, the following steps are recommended.

1) Carefully review the data specified for collection to see if additional data needs have developed or if all data specified are still required. If the requirements can be reduced or refined, sustainability prospects will be improved.

2) Arrange for a short-term farm-management consultant, with African experience if possible, to assist in improving the reliability and usefulness of performance data being collected from participating production units.

3) Arrange for the assistance of the REDSO/ESA Regional Computer advisor to developing a scope of work for a computer programmer to develop a workable program for processing the complex of data that PCU is charged with collecting, analyzing and making accessable to Project management.

4) Employ local computer operators as a part of the PCU staff to input the data and operate the system.

5) Reconsider the make-up of the PCU membership. Authority for enforcing coordination among the LAPIS staff necessarily rests with the

Chief of Party. If he is unable to serve as the counterpart of the Director of Field Services and exercise his coordinating role, then he must delegate this authority and responsibility to some other member of the staff. This could be to the present PIC Team Leader who currently is identified for this role. However, in view of his added responsibilities as Team Leader when LDRC is merged with PIC, assignment of responsibility to function as coordinator of all LAPIS functions appears unfair and likely to be ineffective.

b. A second area requiring attention is marketing of the expanding supply of horticultural products. While it is realized that marketing was the floundering point for many development programs over the past two decades, the seriousness of the present situation, with many large new producers coming into production, probably is not realized. It is not possible to establish a marketing system and have it on a stand-by basis ready to absorb any given supply unless one is willing to accept a highly subsidized inflexible parastatal or state controlled organization such as PMC or Coop Lesotho. These types of organizations have been tried and found ineffective and unacceptable. As an alternative to trying to establish a stand-by system to handle uncontrolled and highly variable supplies, it is recommended that a marketing strategy be developed that permits alternative responses to handle varying market supplies or meet varying marketing conditions. It is further recommended that the development of this strategy be the responsibility of the PIC Marketing Specialist if one should become available in the reasonably near future. While the staff of the Marketing Department now being created will doubtlessly be willing to consult and assist to the extent possible, it is clear that, with their new duties, they cannot provide extensive assistance. If the PIC Marketing Specialist is not available within the next few months, it is recommended that a short-term consultant, who preferably would be available to return for a series of short-term consultancies, be recruited to initiate this work which has been delayed much too long already.

It also is recommended that project funds be used to contract with a local firm familiar with the existing marketing system and local customs and preferences to assist the Marketing Specialist carry out studies that must be done in the process of developing the market strategy. These studies must include very area-specific market assessments. These assessments should include estimates of demand in each area of each commodity or commodity class; a description of the structures and appraisal of degree of competitiveness of the marketing system of each area; inventory and description of conditions of physical marketing facilities; and estimates of marketing costs particularly costs of transportation between major production and consuming centers. In collaboration with the staff of the Marketing Department, the feasibility of developing a marketing information service should be explored - particularly the development of estimates of total supplies by areas.

c. A third set of items requiring early attention relate to staffing.

1) In regard to the irrigated horticultural production technical assistant staff, it is recommended that; (a) the requests for extension

for two years of the appointment of the engineer/farm planner and the second horticulturalist be approved as soon as possible; (b) that a replacement for the pomologist be provided and arrangements made for an overlap with the departing pomologist in order to minimize the disruptions of the very good program that has been started; (c) in addition to obtaining professional assistance in developing and putting a workable program in place for PCU as recommended above, it is recommended that the Sociologist, now extensively involved in data manipulation, be assigned full time duties as a Sociologist in either PIC or ARC or to divide his time in a specified manner and (d) that a farm management specialist be added to the staff.

2) In regard to the technical assistance staff for the livestock phase (output 7), it is recommended that, to the extent budget constraints permit, at least four and if possible five, members of the present LCRD staff be transferred and retained on the LAPIS staff.

3) It is recommended that USAID support the contractor's request for Peace Corp Volunteers to assist in the continued development of the crop production (outputs 2 and 3) and range/livestock (output 7) phases of PIC.

d. In view of the basic flaw in design and unsatisfactory status of the CARE nursery Project (output 5) identified by the evaluation team (Annex 3), it is recommended that the Project paper be revised taking into account the evaluation results, the first season's sales and subsequent nursery assessments.

e. It is recommended that LCCUL continue to study factors accounting for the high delinquency rate both among LAPIS and regular cooperative borrowers and explore alternative means of lowering this rate.

f. In view of the need to find alternatives for movement of livestock from lowland to upland areas that will be involved in the adjudication process, it is recommended that the LAPIS encourage team participation in developing intensive livestock enterprises.

B. AGRICULTURAL EDUCATION COMPONENT

1. INTRODUCTION

a. Goal Purpose and Assumptions

The goal of the education component of LAPIS is to increase agricultural production, incomes and employment in Lesotho by strengthening the capacity of Ministry of Agriculture to provide improved agricultural education and to disseminate practical and applied agricultural information. This was to be accomplished through improved, more practical course work at LAC; more extensive training of MOA field staff and farmers; and the production of

agricultural leaflets and radio programs. At the time of project design, it was assumed that rural income could be substantially increased through these measures.

b. AEC Overview

The team's overall opinion is that the LAPIS Educational Component is successful. This is especially so for the Lesotho Agricultural College. Two major project purposes, improving agricultural education and dissemination of practical information, are being met.

LAC changes both in curriculum and policy have been well planned. Drawing on past experiences of both the school and key personnel, LAC has been given a major academic upgrading. This upgrading is continuing through the participant training that has sent nine members of the faculty to the US for degree training. The end result of this should be wider career choices for LAC graduates outside of the MOA which traditionally has been the major employer. LAC graduates who run their own farms or are involved in Lesotho's small but growing agribusiness industries will represent a multiplier effect for the project. However, because the project is still in an early stage, the success of those graduates has yet to be demonstrated.

Nonformal training has proceeded as planned in the project paper, and the content and quality of the short courses offered are fine, but the evaluator found that there is little follow-up or continuity.

Material and administrative support for this component has been excellent. The teaching staff that is supported by LAPIS is very good. The principal of the school emphasized in discussions how pleased she has been with the quality of expatriate instructors.

One major problem is the level of teacher salaries at LAC. At their current low level it will be difficult to retain well qualified personnel. In general, however, considerable progress is being made towards this component's objectives.

c. AEC curriculum at LAC: A notable Success

One of the outputs of the AEC envisioned a major change in LAC curriculum. The bureaucratic language of the project's logical framework speaks of improved curriculum being established and institutionalized, thereby continuing to impact on agriculture after the project ends. Analysis in the project paper annex states that the curriculum at LAC needed to train young Basotho to manage farmers' associations, produce high value crops and raise livestock. Other areas listed are agricultural marketing and processing (Technical Analysis Annex page 89). Overall the PP analysis points out the lack of practical, hands-on training in LAC's curriculum in 1984.

The LAPIS team and LAC's administration deserve much credit for taking this vague but sweeping mandate and creating a cohesive, practical program. The school now offers four three-year diploma courses, two two-year certificate

programs and a new two-year forestry diploma program. Cooperation with the National University now allows students in education to continue their training at the University's Roma campus.

The evaluation team was able to monitor several classes at LAC, including a session of field work. A questionnaire was given to students to solicit their opinions of course work as well. These observations indicate that the changes instituted under LAPIS are working well.

d. GOL contributions to the AEC

As specified in the project paper, the GOL was to provide Basotho salaries, overseas training allowances and local transportation costs. These basic levels of support have been met. The evaluation team is concerned, however, about the general level of support that LAC is receiving from the government. As mentioned elsewhere in this report, the lack of MOA funded teaching positions in the basic sciences remains a constraint. We would also like to mention the maintenance of the school's physical plant, much of which was in a dilapidated condition before LAPIS interventions. Routine items such as new roofing for sheds and renewal of orchards were not being accomplished. Government funding for the college is further complicated by the slow release of funds during the year. The LAC administration has stated that often the full budget is not released before the end of the year.

e. Counterpart staff

Counterparts have worked well throughout the education component. The acting principal of LAC commented that although there were some adjustments to be made when the technical assistance team first arrived, relationships have been very smooth. The evaluator found that cooperation in a wide variety of activities was going on between the TA's and the local staff without difficulty. These include both teaching and extension duties, including the organization of the workshops.

2. AEC OUTPUTS

a. Output 1: Improved teaching, curriculum and administration at LAC

1) Improved Courses

An examination of the past (1977-83) and current (1987-88) LAC catalogue demonstrates improvements in courses. In the earlier catalogue, courses in a single subject in theory covered many topics. For example, the introductory crop husbandry course at that time covered seven major topics in a single semester. Harvesting, soil management, irrigation, pests and plant disease were all covered in this one course. The practicals listed in the catalogue that went with this course were mostly observations of farm practices carried out by others. These earlier courses spread material very thinly, given their broad scope. In contrast, the current catalogue indicates that subjects are now taught as individual courses, with greater depth. Practicals have been

greatly expanded. The crops course that is offered to second year students is now backed up by an equal number of units in practical field work. Irrigation is now the subject of three separate courses.

The evaluator would also like to comment favorably on the lecture notes that are being developed by the LAC faculty. These give information specific to Lesotho in such topics as soils and range management, and have been developed into text books in some cases. They are clearly written and should add considerably to the students' understanding of key subjects.

2) Hands-on, practical education

One of the strongest elements of the LAC curriculum changes is the provision of hands-on, practical education for students in the Agriculture and Agricultural Education program. These include work on the production farm, student involvement in joint research projects between LAC and the research component, and student enterprise projects. All of these are in addition to the considerable practical experience that is included in the students' regular course work. A review of the college catalogue indicated that for most courses of study about half of the training was practical hands-on experience or lab work as opposed to classroom lectures on theory. In addition, there are three well equipped workshops that are on campus: carpentry, welding and machinery.

As mentioned above, the school's production farm plays an important role in practical training. First year students milk and feed livestock on a daily basis. Vegetable plots are managed by students. Additional student inputs in running the farm are required to complete certificate requirements. In addition to these formal settings for practical training, the evaluation team was pleased to find that LAC students participated informally in the preparation of workshops and other training activities of the college and research station.

The student enterprise projects, which were initiated last year, have worked out very well. The evaluation team believes that by demonstrating the profitability of agricultural production, a major contribution is being made to the practical aspects of student training. Enterprise projects are the main activity of the students during their third year. The purpose of the projects is to immerse students in a real life situation. Capital for these projects is provided through loans from the LAC Credit Union with a 12% interest rate. Since this is a new program, its overall effectiveness is yet to be proven, but initial results have been very good. Of the five projects undertaken, all have returned a profit to the students. We understand of course that the subsidized interest rate helped. The projects are realistic and appropriate in scope. Most of the projects have dealt with livestock production. Currently only one student is working with crops and this has been the least profitable of the projects, although a small net return has been made. The LAC faculty is to be commended for the good supervision they are providing to these projects.

Another element of practical education that the students are receiving is in

the area of cooperative management. Starting this semester, a weekly lecture is offered to second and third year students through a linkage to the newly established Cooperative College of Lesotho. The evaluation team believes that this strengthens the practical aspects of the curriculum.

3) Improved training in the Basic Sciences

A continuing weak point in the LAC curriculum is the basic sciences and math training that is received by students. Although many steps are being taken by the school's administration and LAPIS to overcome this, two major obstacles have thwarted much of this effort: poor student preparation at the secondary level; and the lack of permanent science and math teaching positions at the college.

The first of these problems is clearly outside the scope of this project, but the lack of permanent science and math teachers is being addressed by the LAPIS project and hopefully there will be changes in MOA policy. Currently the math and science training at the college is considered only secondary and, therefore, the Ministry of Agriculture which authorizes and funds teaching positions has not given the school full-time positions in science and math. These courses are to be taught on a part time basis by instructors in the agricultural sciences.

The principal of the school pointed out that since previously most of the instructors at the college were graduates of the college, this ignorance in math and science was feeding on itself. For example, when the evaluation team asked several faculty members if they thought that LAC graduates could read an ANOVA table (a type of statistical table) giving the statistical results of crop variety trials, the answer was universally no. At the Leribe campus, the director was even less sanguine about basic science instruction. Although the evaluation team learned that faculty and resources from the Maseru Campus were available to Leribe, the director stated that the level of instruction was lower. Bluntly he told the team that students were taught a little of everything and learned nothing in sciences and math.

In spite of these problems steps are being taken to remedy the situation. First, the college is recruiting some students from a Dutch sponsored program (LESPEC) that gives secondary school graduates additional training in the sciences and math. Secondly, a full-time sciences instructor has been hired with LAPIS funds as well as an instructor in statistics from the research component. However, there is a question as to whether the MOA will continue these positions after the project has ended.

The third area where basic science instruction is being improved is the overall upgrading of faculty. Participant training under LAPIS and the recruitment of university graduates will hopefully raise the level of science input in all of the agricultural courses. At the end of the project, 66% of the faculty will have university degrees. This is up from 38% before the project started.

To put this issue into perspective, one could compare LAC with the University

of Maryland's Institute for Applied Agriculture. This is a two-year certificate program at the University of Maryland's College Park campus that is in many ways analogous to LAC. There, too, student preparation in the basic sciences is generally poor, and providing upgrading in these fields is a challenge to the faculty, even with the immense resources of the University of Maryland and nearby USDA facilities. Practically oriented chemistry and math courses are offered at the Institute, but attrition in the first year is high, since those who do not make the grade are failed.

While the evaluation team was in-country, the LAC administration released a report by the faculty suggesting additional curriculum changes for students in the Diploma in Agriculture Program. Presented by individual departments, the report emphasizes ways in which practical training can be further improved at the College. Although none of these measures has yet been implemented, they have been approved by LAC Administration. Longer time periods for field work are recommended, as well as consolidation of some courses and expansion of others. This report demonstrates that the course improvements are now considered an ongoing process at the college.

4) AEC Long-Term Training

Long-term degree training started in August 1986, and since then nine members of the LAC faculty and two AIO staff have been nominated for degree programs in the US (3 M.Sc, 8 B.Sc). Only one of them has completed the program, so it is too early to comment on the effectiveness of this training. However, two comments should be made on the type of training selected. First the number of fields of study seems narrow. Four of the candidates are in Animal Science, two in Home Economics, two in Journalism/Communication, one each in irrigation science, agricultural economics and extension. Presumably the candidates own background and their suitability dictated these choices. Fields of study that are supposed to become more important at the school are not represented. Agribusiness, marketing, farm management, and other subjects that support commercial agriculture have not been selected. Also questionable is the value and relevance of US-style home economics training for use here in Lesotho. Future degree training should consider a range of fields that reflects the AEC's training goals.

The second comment concerns what additional incentives returning graduates will be offered to remain at LAC or AIO. Pay scales at LAC are half of those at the National University. Even better salaries are being offered at newly established universities in the South African homelands. The assumption that returning graduates will stay with LAC or AIO is not realistic. Currently there are few incentives for staff to do so. The following table demonstrates how low LAC salaries are.

COMPARISON OF LAC SALARIES WITH OTHER GOL PAY SCALES

	Minimum	Maximum
LAC		
Lecturer	8,880	10,080
Senior Lecturer	10,344	11,664
NUL		
Lecturer	12,504	17,064
Senior Lecturer	15,864	20,326
COMPARABLE CIVIL SERVICE		
Senior Official, B.Sc. degree	18,000 (approx)	

b. Output 2: Improved Training programs for MOA field staff, farmers, and public/private sector personnel

The project paper called for a major nonformal training effort to be launched by LAC in coordination with the Ministry of Agriculture and the research and production components of LAPIS. The project design spelled out very specifically the dates, subject matter and participants of these courses (PP page 35).

While the exact timing and type and level of participation have been altered somewhat, the training has taken place. Furthermore, extensive documentation has been kept of all of these activities. In reviewing this documentation, the evaluation team believes that the letter of the project paper has been satisfied. Proceedings from LAC sponsored training programs list subjects covered, participants and schedules. In addition, a questionnaire is given to participants to assist in the planning of other training sessions. The annual report gives courses completed as of May 1987. The 1987-88 work plan lists courses to be given, such as the livestock course offered in January 1988. The training also has been carried out with a high level of participation between all concerned, LAC, LAPIS, Research Division and other MOA divisions.

The effectiveness of this training has, however, been compromised by several factors. First, the evaluator found that there is a lack of follow-up. The LAPIS staff pointed out that two courses on irrigated vegetables for extension agents were given six months apart. The second of these courses was for a selected group of agents and was believed to be highly effective in bringing greater depth to the subject. What is not clear is whether additional courses will be follow-up instruction for those who have already attended at least one workshop, or the courses will be only for those who have not yet attended a workshop. In-service training should be a continuing process. If the project is to generate lasting effects, then a mechanism or model for continuous

in-service training must be developed and implemented, either using LAPIS resources, or if those are unavailable using other Ministry resources.

A second problem is application of information given to agents at LAPIS sponsored courses. Again using the example of the second irrigated vegetables course, we were told that only three of the 15 agents trained is working with the project at irrigation sites. With no or little further field experience with irrigated vegetables, the value of the training conducted can be called into question.

Another area that is of concern to the evaluator is the level of Basotho input into the course development process for nonformal training. In reviewing the proceedings of two workshops given in January of this year (Livestock and Home Gardening Program), it appears that expatriates dominated the program (somewhat less so in the livestock workshop). While this may not reflect the organization of all workshops, it is an issue which should be considered by all TA when preparing and conducting workshops.

While in-service training is falling short of meeting project objectives, the LAPIS staff emphasized to the team that some of the criteria outlined in the Benchmark Report have been achieved. They believe that the workshops are contributing to MOA staff motivation and team work and allow the LAPIS staff to identify superior field agents. AEC staff have also pointed out that longer courses for selected MOA staff are being planned. For example we were able to examine a proposal for a new in-depth irrigation course that LAC will offer to extension personnel. Other efforts to upgrade in-service training have been suggested at a workshop that was held in Mohale's Hoek in November 1987 by MOA. One section of the report addresses in-service training and calls for expanded LAC activity in this area.

Programs for lead farmers appear to have gone very well, both in terms of content and farmer receptivity. We were told that farmers appreciated being selected for training and had participated in courses with great enthusiasm. We would like to add that costs have been kept low for these sessions, only 160 m. per farmer. Costs for workshops for MOA staff have been between 150-200 m. per participant.

c. Output 3: Improve the dissemination abilities of the AIO

The assistance provided to the Agricultural Information Office has greatly enhanced its ability to carry out its functions. It has also permitted the AIO staff to take initiatives in producing training materials. Both the provision of equipment and technical assistance has been effective. A complementary FAO project has also helped AIO's activity.

The evaluation team reviewed both the 1985-86 (pre-LAPIS) and the 1986-87 (post-LAPIS) annual reports. Increases were noted in the number of agricultural notices on the radio, direct advice to farmers and, most dramatically, the number and quality of pamphlets and press releases produced. The team also noted that topics shifted from reporting ministerial activities to more technical subjects. We were told that about half the

material produced is done in collaboration with ARC personnel. These tended to be material aimed at extension personnel, while material for general distribution to farmers has been put together by AIO staff. Most of AIO's senior staff are LAC graduates with a genuine interest in agricultural topics.

The evaluation team also reviewed topics that had been discussed during a one week period on the AIO's daily radio program. Again, the subjects were technically oriented and relevant to Lesotho's small farm environment. Also, AIO staff has helped in the preparation of materials used in training workshops conducted by AEC.

Major problems include difficulty in using some of the offset equipment provided by LAPIS, and a lack of documentation of their activities and transportation. Additional technical assistance and training in computerized typesetting is needed, and both the director of AIO and the head of the AEC suggested additional assistance. Additional training would protect and enhance the prior investment in equipment. Although the AIO was able to compile a list of topics for one week of broadcasts, no records are usually kept of these topics. Similarly, no plans are made for further broadcasts. In general there seems to be little planning of activities and only the barest sort of records of what has been done. Finally, as is the case with other parts of the MOA, transportation to field sites remains a problem. The team was told that AIO could do much more if vehicles were available.

d. Output 4: Upgraded Physical Facilities at LAC, the Agricultural Information Office and two Farmer Training Centers

The upgrading of physical facilities has gone smoothly. The evaluator was informed that equipment needs had been met and had contributed significantly to the training effort. A review of AAI's annual report (1986/87) shows that the contractor has implemented the physical improvements that were called for in the project paper.

At the LAC Maseru Campus, building improvements include:
- A new tuck shop
- A new staff room
- An expanded refectory
- Three new faculty offices
- A computer room
- New parking facilities
- New Livestock facilities

As called for in the project paper, both physical improvements and new management plans have been carried out at LAC's Maseru farm. These include:
- A development plan prepared for the demonstration village at the farm.
- New grain storage facilities were constructed.
- A new 100 m. greenhouse was constructed.
- A four hectare vegetable plot was fenced.
- The campus orchard was renovated.
- The irrigation system is being redesigned.

In spite of this progress, problems of maintenance remain. Contributing to this is the fact that no allowances are currently being made for depreciation

of equipment of the school's commercial farm operation. Currently the "profit" that is made from food sales is turned over to the government without consideration of capital costs.

At Leribe Campus of LAC, a greenhouse was put up along with construction of a storage shed. The principal of the Leribe campus said that physical facilities at the campus were sufficient to carry out all activities. Other physical improvements at the Farmer Training Center at Leribe and Mohales Hoek have been completed, including the provision of facilities such as fertilizer, seeds, seedlings, tools and oxen. These have been documented in a recent status report released by the LAPIS staff in January 1988.

e. Output 5: Improved formal linkages between MOA Training/Information Services and MOA Technical Services

The improvements to formal linkages between MOA Training/Information Services and MOA technical services have just started. The expanded activities of the agricultural information service have taken place over the last year. This has resulted in AIO participation in field work with MOA technical services and greater involvement with LAC.

The AEC has also attempted to strengthen formal linkages to technical services within the MOA through the formation of several coordination committees.

The training/extension task force appears to be the most active of these committees. Chaired by the MOA's senior extension officer, it has met four times to review and approve AEC nonformal training activities. The research/training coordination committee has set up joint LAC-ARD research and has coordinated activities between the two. In addition, an Extension/Training Coordination Committee chaired by the LAC principal has reviewed and approved the five year work plan for LAPIS nonformal training. This committee also includes MOA extension and technical personnel.

While these committees probably serve a useful purpose, it would be a mistake to put much emphasis on this output. Informal association and linkages seem to be the most effective way for those with initiative to achieve results. An example of this would be the Agricultural Information Office which has put out some training materials on its own initiative outside of its formal links with the technical services.

3. AEC-RELATED RESEARCH COMPONENT OUTPUTS

The following two ARC outputs are discussed below in terms of their relationship to agricultural education.

a. ARC Output 5: Dissemination of Research Results

Discussion of this output can be brief since not much dissemination of research results has taken place. A review of information prepared by the Agricultural Information Office, LAC and PIC for extension purposes indicates

that very few of these are based on documented testing from the LAPIS research component. Most recommendations that are used for the irrigation and home gardening programs come from pre-existing tables, not necessarily specific to Lesotho although some information from previous studies has been used. The research component has been involved in suggesting topics, writing texts and reviewing other extension materials, but most of these activities are not "effective dissemination of research results".

The recently produced Fertilizer Recommendation Guide for Vegetable Crops based on soil tests, is the results of work done by the soil testing Lab. Other work by the research component that has been disseminated includes soil liming tests, control of grain storage pests and some potato trials.

It is interesting to note that the description of the Research Component in the project's annual report makes no mention of continuation of work started or completed under the previous Farming Systems Research Project nor does there seem to be any effort to disseminate information generated from the preceding seven years work.

b. ARC Output 7: ARC Impact on LAC Curricula

The Benchmark Report states that there should be a "demonstrable impact of ARC work on LAC curricula" but what is meant by "ARC work" is open to debate at this point. A careful reading of the project paper shows that it assumed research results would be very significant. This highly productive research would then be used to continuously update information on Lesotho's agriculture as presented at LAC. Given the recent start-up of the LAPIS-sponsored research, there has been little opportunity so far for this to take place. However, the presence of research staff on the faculty at LAC and the start-up of joint research means that ARC work is definitely influencing and enriching the curriculum by bringing research experience and greater depth to course work. For example, staff from two of the most active branches of research, soil fertility and plant protection (E. Pomela and G. Massey), have taught at the college. Students have been involved in the joint LAC-ARC livestock research program. In summary, while it is too early for the direct effects of research to have an impact on curricula, such as subject selection or content, there is considerable evidence that ARC work is having an indirect yet very beneficial effect on the LAC curriculum.

4. ADMINISTRATIVE AND STAFFING CONSIDERATIONS

Advisors of this project component have helped to improve LAC's administrative, personnel and financial operating procedures. Initially there were a number of operational problems stemming from LAPIS staff and LAC staff working parallel to one another and not collaboratively. For the most part the parallelism has been solved and this is attributable to the good working relationship established between the Principal of LAC and the LAPIS Education Component Team Leader, combined with their leadership. Administration at the LAC has improved but there remain areas that demand attention, as noted below, which are particularly important to the sustainability of the improvements undertaken.

The need continues for additional administrative support staff (see LAPIS-AAI "Quarterly Report" Sept.- Nov. 1987). No steps have been taken to organize the present administrative structure of LAC to create a Vice-Principal post at Leribe. The recommendation to designate a Director of Studies to serve LAC's campuses at Maseru and Leribe has been implemented and now the Vice-Principals serve as the Director of Studies at their respective campuses. In addition to his teaching functions, the head of the Department of Agricultural Engineering lectures and serves as the Director of Student Affairs at the Maseru campus but the combined workload is overtaxing. The position has undergone little development and serves essentially as the contact point for requests for student activities such as sports events.

The chronic shortage of qualified (degree-level) staff in irrigation, horticulture, animal science, and extension/education (see "Quarterly Report" Sept.- Nov. 1987) has been slightly alleviated but all indications are that the problem will exist until at least 1990. There is no Mosotho irrigation lecturer; LAC wants two but only one Mosotho is in training and expected to return in 1990; there is one LAPIS/AEC irrigation lecturer; LAC is in the process of integrating the Research Station with the College's Irrigation System and someone will eventually be responsible for its management. LAC employs one degree-level Mosotho in horticulture and one diploma holder; one MS returns in 1989; one is completing a diploma in 1988 but aspires to the B.Sc.; one from the Leribe Campus is working on a B.Sc.; and LAC has requested an extension of the LAPIS lecturer in agronomy.

The College currently has no Mosotho lecturer in extension/education since the last individual resigned; one person is in training. LAPIS employed a sociologist as a counterpart to work with the LAPIS Extension/Education lecturer yet the long-term need persists for lecturers in this discipline.

The interchange of research personnel serving as lecturers in LAC teaching programs and participation of LAC personnel in research programs is working well. A Research and LAC Education Component Coordinating Committee was established to handle all arrangements. However, the teaching, field work and other demands made on lecturers make for a bulging schedule. LAC staff are involved in two ARD research projects: (1) pigs and improving low-cost feeding, and (2) sheep and improving meat and wool simultaneously. AEC horticulture and irrigation specialists will continue to cooperate with the agricultural research staff in overall horticultural research and irrigation layouts at Maseru Stations. The LAC Curriculum Development Committee has not yet been expanded to include representatives from MOA's Research, Extension and Planning Divisions.

The Operation/Management Specialist provided by LAPIS has worked with the College to improve operating procedures in the development of several computer programs designed to establish an historical students' data base (currently includes data covering calendar years 1987, 1986 and 1985) and to generate reports of student grade point averages (Annex 8); monthly financial returns on the sale of farm produce (Annex 8); fees generated by the College (Annex 8); transcripts; and results of student enterprises. The College plans to

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computerize activities of the tuck shop and the book shop. A model for recording commodity procurement of the education component was also designed. The identification of management, administrative and personnel operating procedures and policies appear in the recently revised Lesotho Agricultural College Staff Handbook and the LAC Information Outline for the 1987/88 Academic Year. The sustainability of the efforts of the Operations/Management Specialist and their impact upon improving LAC administration are already being explored. The Assistant Bursar, who works closely with the above is considered the strongest and the likeliest candidate to pickup where LAPIS technical assistance leaves off. The Operations Management Specialist has taken the initiative to develop a proposed, 9 month training program to complement experience already gained by the candidate. All training, estimated conservatively at $ 15,000, would be U.S.-based.

The LAC Library, housed in a separate building at the Maseru campus, contains an inventory consisting primarily of textbooks. It has undergone no improvements and its publication inventory has not been increased although the College recently acquired additional textbooks from the Ministry of Education. As of this writing, the books have yet to be processed and shelved. Audiovisual training aids purchased under LAPIS are not kept in the library but elsewhere temporarily to retain close accountability and pending the GOL's decision with regard to the permanent location for the Ministry's Agricultural Library.

5. Outstanding Issues

a. What exactly are LAC students being trained to do?

One of the most pressing issues facing the formal education component of the LAPIS project is what types of employment are LAC students being trained to do, and, in a more general sense, does this training fit into a realistic view of Lesotho's development needs. In keeping with LAPIS's goals, training criteria should be broadened to include elements that promote successful commercial agriculture. Until two years ago, the overwhelming majority of LAC students was hired by the Ministry of Agriculture in various positions. Budget restrictions and presumably policy changes have stopped this practice. The question remains then, what are LAC students trained to do? Would graduates from this program make good extension agents? Are they qualified to help stimulate growth of Lesotho's infant agribusinesses?

Of the ten original goals that are set out in the college's catalogue describing how it will serve the nation, three address student employment:

- To provide the Ministry of Agriculture, as well as other Ministries and parastatal organizations with trained manpower in fields related to agriculture.
- To provide the Ministry of Education with Agricultural and Economic teachers.
- To train young Basotho wishing to engage in commercial agriculture.

These employment placement targets seem straight-forward and appropriate, but

the evaluation team believes that they need to be expanded. There is little doubt that the schools' current emphasis is still on government employment for its graduates. To obtain a better picture of this, the evaluation team did a survey of 28 first-year students at the college. Of these students only two mentioned private farming as their career goal. Most were interested in teaching or extension work. Are the students right? Do opportunities really exist outside of government employment and donor sponsored projects? This is one of the most basic questions.

One of the major assumptions of the LAPIS project is that commercial farming is viable in Lesotho and will eventually generate higher income and agribusiness development. This remains to be seen. While the college is definitely taking steps to promote commercial farming, this should be assessed against what opportunities actually exist. Courses that are usually associated with commercial agriculture such as Agribusiness, Marketing, Crop Reporting, etc. are not adequate in the curriculum.

b. Are any of the training programs sustainable?

This issue touches both formal and nonformal aspects of LAPIS training. Already mentioned in other sections of this report have been most of the obstacles to project sustainability. Underlying many of these problems is insufficient support from MOA. As a result, the LAPIS project is not developing capabilities, but temporarily filling voids. The return of long-term degree trainees should help, but given the low salaries at LAC and opportunities elsewhere, it is uncertain how long they will help. We have been told that other projects have made demands on staffing as well. As a result, many activities have been done without substantial Basotho input, calling into question the sustainability of progress to date.

c. Can the quality of the administrative and teaching staff be maintained even to the end of the project?

Currently the LAC faculty in general and the LAPIS technical assistance team specifically is considerably overworked. Extension is a good example. Mr. Tyson, the extension specialist, teaches or supervises over twelve courses a year, as well as organizes and participates in workshops and other extension duties. Other faculty members are also stretched thinly. Based on classroom observation, the comments of the acting principal, and a survey of students, it can be said that despite the demands made on staff, the quality of the teaching has been maintained. For example, most first year Agricultural students at the College listed extension as the most interesting course they were taking. How long the faculty can keep this up remains in question.

On the administrative side, major personnel changes will occur before the end of the project. The Education component Team leader, Dr. Rooyani will be leaving in June 1989, his deputy Dr. Rusk in August 1988. Furthermore, the acting Principal Mrs. Mathaha will face mandatory retirement next year. There is also a possibility that the vice Principal, Mr. Keta, will be transferred to other duties in the MOA. Obviously,this much change will greatly effect the administration of this component. Steps will have to be taken now to assure smooth transition.

d. Should LAPIS support Home Economics Education as well as Agriculture.

The acting principal has correctly pointed out that the current distinction that the LAPIS project makes between Agriculture and Home Economics is invalid given the setting here in Lesotho. The women who grow food on subsistence farms are also the same people who store and prepare food. We agree that separating these two reflects a cultural bias that does not reflect the reality of the small farm environment. LAPIS is currently only assisting agricultural courses at LAC.

e. Will the MOA fund Math and Science positions after the project?

This is of utmost importance if the progress in upgrading academic standards is to be maintained. LAPIS might consider some transitional support to MOA at the end of the project to accomplish this.

f. Can in-service training be reorganized?

Some major rethinking should go into the in-service training component. As mentioned earlier in the text, the effectiveness of the workshops for MOA personnel has been weakened by insufficient follow-up and field work, superficial treatment of some topics, and at times excessive expatriate participation.

g. Should LAC become a degree granting Institution?

This concept was given a through examination by T. M. Sutherland in a report done in 1982. His conclusion was that such a move would be beneficial. The current effort to improve education in general in Lesotho makes this question even more important. However, we believe that given the resources available, this should remain very much a long-term goal (perhaps twenty years hence) and in any case should not be initiated under LAPIS.

6. RECOMMENDATIONS

a. Long-Term Training

- Any future training should include fields of study that are relevant to commercial agriculture.
- The possibility of training in South Africa should be explored.

b. Curriculum at LAC

- Additional courses related to commercial agriculture should be considered. Specifically, agricultural marketing, agribusiness, and crop reporting could fill out the program.
- An honors program to provide additional challenge to students who demonstrate superior ability should also be considered. This would be in keeping with efforts to upgrade the school's academic standing.

c. Nonformal training

- Short general workshops which cover many subjects under one topic should be used only for direct farmers' training.
- A new in-service training plan for MOA field staff should be developed that includes longer more in-depth training. The short workshops should be eliminated and these resources used to support longer courses for fewer people.

d. Administration

- Contract extensions should be considered for Rooyani and Rusk, or if extensions are not possible the positions should be extended and recruitment started to fill the positions.
- Mrs. Mathaba's continued employment in her current position should be encouraged. She is the school's third principal since the start of the project and further change would be disruptive.
- LAPIS should consider increased support to LAC's home economics program.
- LAC should reorganize the present administration structure of LAC to create a Vice-Principal at Leribe.
- Consideration should be given to formal, short-term, training of the Assistant Bursar to assume functions currently undertaken by the Operations/Management Specialist.
- Representatives to the Curriculum Development Committee should include MOA's Research, Extension and planning division.
- The number of instructors at LAC needs to be increased, especially in extension.
- LAC needs to recover capital costs from on-farm food sales to cover depreciation of equipment. A system should be devised whereby LAC can retain, under special arrangement with Treasury, funds from farm sales for operations of the College program.
- The chronic shortage of qualified staff can only be addressed by increasing salaries to levels comparable to university levels and those of the upper levels of the civil service. A major policy decision of this sort goes outside of the scope of the LAPIS project and presumably would have to be part of USAID's ongoing dialogue with the government.

e. Technical Assistance

- The contract for the Horticulturalist lecturer at LAC should be extended for a period of two (2) years.
- The contract for the Operation/Management Specialist should be extended for a period not to exceed one year.
- The contract for the livestock lecturer at LAC should be extended for a period of two years.
- Additional technical assistance and training is needed for the Agricultural Information office. Special training in maintenance of the offset equipment is needed, and training in the use of the computer system. At least a six month consultancy should be considered.

ANNEX 1

LIST OF RECOMMENDATIONS

The following is a list of the recommendations which appear in the text of the evaluation report.

A. Recommendations on the subject of "Project Organization and Management":

1. Improved monitoring and implementation

a. The COP should perform increased supervision, and consider direct interventions in project implementation to promote integration of project components. The COP and USAID project manager should assess whether the coordinating function of the COP can be adequately performed as the project is currently structured. The COP should delegate administrative and other day-to-day operational problems to Administrative Manager and Component Team Leaders, respectively. If necessary, USAID and COP should consider a technical director/deputy COP to monitor achievement of project objectives and identify issues for the COP's attention.

b. As proposed by USAID, a team-building or organization effectiveness training exercise should be planned that includes but is not limited to establishing collaboratively working relationships; understanding goals and objectives; reinforcing roles, building confidence and exercising initiative. In preparation for this exercise, USAID project management, LAPIS COP and component team leaders, and MOA department heads should discuss the purpose of the exercise. Included as one purpose should be resolution of project documentation issues, i.e. how the various design and implementation documents relate to each other, and when formal documentation is necessary in the revision of project design and/or implementation. The target population organized by groups follows:

(1) USAID's ADO/PDO and COP/Administrative Manager/Component Team Leaders;
(2) COP/Component Team Leaders and TA staff;
(3) All MOA Department Heads/Chief, Planning and Project Coordination and COP/Administrative Manager/Component Team Leaders;
(4) MOA counterpart personnel only; and
(5) MOA counterpart personnel and TA staff.

d. The USAID project manager(s) should conduct regular field visits at least on a quarterly basis, in addition to representational visits.

e. The project manager(s) should establish regular, scheduled meetings with LAPIS management in lieu of ad hoc meetings. Scheduled meetings

should include the PDO, and other USAID offices should be invited. At a minimum, this could be accomplished through regular Project Management Committee meetings. However, if these are irregular or inadequate in content, another mechanism should be found.

f. The MOA Office of Planning and Project Coordination and Central Planning and Development should be involved to a greater extent in monitoring the project on behalf of the Government of Lesotho.

g. Project TA should not be restricted to a narrow definition of what is LAPIS-related activity. They should be permitted to do what is necessary to achieve all of the project objectives in the most effective manner. Confusion over the ground rules for TA activities may be the result of a misunderstanding, but in any case resolution of the issue is necessary.

h. The USAID Mission should conduct a formal review of all major project documents (PP, grant agreement, Benchmark Report, AAI contract, implementation plans and work plans), determine what is appropriate in each, and revise the PP, grant agreement and/or contract as necessary. This could take place in conjunction with the team building exercise recommended above.

2. Improved organization

a. The PS/MOA must take the lead in establishing the Project Management Committee, and the PMC should include in its membership both the USAID Project Manager and Project Development/Evaluation Officer.

b The Marketing Working Group should be established as soon as the Marketing Specialist is on-board and meetings should be conducted at least monthly initially.

c. Minutes of all committee and working group meetings should be distributed to all interested parties through the respective committees or Administrative Manager.

3. Improved administration

a. The DPS for Administration should receive a copy of all administrative documentation dealing with procurement, personnel, and staffing, and identify two contact persons to represent her/him in her/his absence.

b. The LAPIS Administrative Manager should assume responsibility for coordinating submission of the Quarterly Project Monitoring Report distributed by the MOA. These reports should include data on: progress toward meeting objectives; expenditure status; commodity status; major problems and recommended actions; and expected progress toward meeting objectives next quarter.

B. Recommendations on the subject of "Production Initiatives Component":

1. The most urgent area requiring attention,is the necessity of establishing more effective coordination if the potential of the several components are to be realized and the objectives of the Project attained. The contractor is responsible for compliance with the terms of the contract regarding coordination. USAID is responsible for determining that the terms of the contract are complied with. MOA likewise has responsibility for seeing that effective coordination is attained. Attainment of effective coordination is a function of the resolve and leadership of the Project management and the willingness of the individual whose activities are to be coordinated to cooperate in the effort. At least some members of the Project staff have indicated their willingness to have their activities coordinated. Thus it is the responsibility of the management group to develop the necessary resolve and to test their leadership abilities.

No organizational structure can assure attainment of coordination, effective monitoring and improved management. However, establishment of PCU as envisioned in the original Project and more precise designation of the duties of some of its members would facilitate such attainment. If it is decided to establish PCU, the following steps are recommended.

a) Carefully review the data specified for collection to see if additional data needs have developed or if all data specified are still required. If the requirements can be reduced or refined, sustainability prospects will be improved.

b) Arrange for a short-term farm-management consultant, with African experience if possible, to assist in improving the reliability and usefulness of performance data being collected from participating production units.

c) Arrange for the assistance of the REDSO/ESA Regional Computer advisor to developing a scope of work for a computer programmer to develop a workable program for processing the complex of data that PCU is charged with collecting, analyzing and making accesable to Project management.

d) Employ local computer operators as a part of the PCU staff to input the data and operate the system.

e) Reconsider the make-up of the PCU membership. Authority for enforcing coordination among the LAPIS staff necessarily rests with the Chief of Party. If he is unable to serve as the counterpart of the Director of Field Services and exercise his coordinating role, then he must delegate this authority and responsibility to some other member of the staff. This could be to the present PIC Team Leader who currently is identified for this role. However, in view of his added responsibilities as Team Leader when LDRC is merged with PIC, assignment of responsibility to function as coordinator of all LAPIS functions appears unfair and likely to be ineffective.

2. A second area requiring attention is marketing of the expanding supply of horticultural products. While it is realized that marketing was the floundering point for many development programs over the past two decades, the seriousness of the present situation, with many large new producers coming into production, probably is not realized. It is not possible to establish a marketing system and have it on a stand-by basis ready to absorb any given supply unless one is willing to accept a highly subsidized inflexible parastatal or state controlled organization such as PMC or Coop Lesotho. These types of organizations have been tried and found ineffective and unacceptable. As an alternative to trying to establish a stand-by system to handle uncontrolled and highly variable supplies, it is recommended that a marketing strategy be developed that permits alternative responses to handle varying market supplies or meet varying marketing conditions. It is further recommended that the development of this strategy be the responsibility of the PIC Marketing Specialist if one should become available in the reasonably near future. While the staff of the Marketing Department now being created will doubtlessly be willing to consult and assist to the extent possible, it is clear that, with their new duties, they cannot provide extensive assistance. If the PIC Marketing Specialist is not available within the next few months, it is recommended that a short-term consultant, who preferable would be available to return for a series of short-term consultancies, be recruited to initiate this work which has been delayed much too long already.

It also is recommended that project funds be used to contract with a local firm familiar with the existing marketing system and local customs and preferences to assist the Marketing Specialist carry out studies that must be done in the process of developing the market strategy. These studies must include very area-specific market assessments. These assessments should include estimates of demand in each area of each commodity or commodity class; a description of the structures and appraisal of degree of competitiveness of the marketing system of each area; inventory and description of conditions of physical marketing facilities; and estimates of marketing costs particularly costs of transportation between major production and consuming centers. In collaboration with the staff of the Marketing Department, the feasibility of developing a marketing information service should be explored - particularly the development of estimates of total supplies by areas.

3. A third set of items requiring early attention relate to staffing.

a) In regard to the irrigated horticultural production technical assistant staff, it is recommended that; (a) the requests for extension for two years of the appointment of the engineer/farm planner and the second horticulturalist be approved as soon as possible; (b) that a replacement for the pomologist be provided and arrangements made for an overlap with the departing pomologist in order to minimize the disruptions of the very good program that has been started; (c) in addition to obtaining professional assistance in developing and putting a workable program in place for PCU as recommended above, it is recommended that the Sociologist, now extensively involved in data manipulation, be assigned full time duties as a Sociologist in either PIC or ARC or to divide his

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time in a specified manner and (d) that a farm management specialist be added to the staff.

b) In regard to the technical assistance staff for the livestock phase (output 7), it is recommended that, to the extent budget constraints permit, at least four and if possible five, members of the present LCRD staff be transferred and retained on the LAPIS staff.

c) It is recommended that USAID support the contractor's request for Peace Corp Volunteers to assist in the continued development of the crop production (outputs 2 and 3) and range/livestock (output 7) phases of PIC.

4. In view of the basic flaw in design and unsatisfactory status of the CARE nursery Project (output 5) identified by the evaluation team (Annex 3), it is recommended that the Project paper be revised taking into account the evaluation results, the first season's sales and subsequent nursery assessments.

5. It is recommended that LCCUL continue to study factors accounting for the high delinquency rate both among LAPIS and regular cooperative borrowers and explore alternative means of lowering this rate.

6. In view of the need to find alternatives for movement of livestock from lowland to upland areas that will be involved in the adjudication process, it is recommended that the LAPIS encourage team participation in developing intensive livestock enterprises.

C. Recommendations on the subject of "Agricultural Education Component":

1. Long-Term Training

- Any future training should include fields of study that are relevant to commercial agriculture.
- The possibility of training in South Africa should be explored.

2. Curriculum at LAC

- Additional courses related to commercial agriculture should be considered. Specifically, agricultural marketing, agribusiness, and crop reporting could fill out the program.
- An honors program to provide additional challenge to students who demonstrate superior ability should also be considered. This would be in keeping with efforts to upgrade the school's academic standing.

3. Nonformal training

- Short general workshops which cover many subjects under one topic should be used only for direct farmers' training.
- A new in-service training plan for MOA field staff should be

developed that includes longer more in-depth training. The short workshops should be eliminated and these resources used to support longer courses for fewer people.

4. Administration

- Contract extensions should be considered for Rooyani and Rusk, or if extensions are not possible the positions should be extended and recruitment started to fill the positions.
- Mrs. Mathaba's continued employment in her current position should be encouraged. She is the school's third principal since the start of the project and further change would be disruptive.
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- LAC should reorganize the present administration structure of LAC to create a Vice-Principal at Leribe.
- Consideration should be given to formal, short-term, training of the Assistant Bursar to assume functions currently undertaken by the Operations/Management Specialist.
- Representatives to the Curriculum Development Committee should include MOA's Research, Extension and planning division.
- The number of instructors at LAC needs to be increased, especially in extension.
- LAC needs to recover capital costs from on-farm food sales to cover depreciation of equipment. A system should be devised whereby LAC can retain, under special arrangement with Treasury, funds from farm sales for operations of the College program.
- The chronic shortage of qualified staff can only be addressed by increasing salaries to levels comparable to university levels and those of the upper levels of the civil service. A major policy decision of this sort goes outside of the scope of the LAPIS project and presumably would have to be part of USAID's ongoing dialogue with the government.

5. Technical Assistance

- The contract for the Horticulturalist lecturer at LAC should be extended for a period of two (2) years.
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- The contract for the livestock lecturer at LAC should be extended for a period of two years.
- Additional technical assistance and training is needed for the Agricultural Information office. Special training in maintenance of the offset equipment is needed, and training in the use of the computer system. At least a six month consultancy should be considered.

D. Recommendation on the subject of "Agricultural Research Component":

As presented in the project paper, farming systems research methodology should be adhered to in the implementation of the Research Component.

However, given the reservations displayed by project management toward this methodology, a workshop should be organized during which the direction and program of the Research Division be assessed. Alternative strategies should be discussed, and a stronger program with a more clear direction should be developed. If a decision is made as a result of the workshop and possible second ARC evaluation to revise the research component strategy which is set forth in the project paper, then proper documentation should be prepared and the PP amended if necessary.

PES ABSTRACT

The project purpose is to provide direct production and marketing assistance to small farmers and to strengthen Government of Lesotho (GOL) institutional capabilities in agricultural research and extension education for contributing to small farmer production, in order to increase incomes and employment of the rural population of Lesotho. The life of project is six years (8/85 - 8/91). Project implementation (arrival of contract team) actually began about August, 1986. The prime contractor is American Agriculture International; there are also two cooperative agreements, one with CARE and another with World Council of Credit Unions. This first evaluation was conducted by an eleven member external team on the basis of project documents, site visits and interviews with project participants, and interviews with Government, USAID, and technical assistance team personnel. The purposes of the first evaluation were to assess progress to date toward achievement of project objectives, and to identify areas requiring implementation and/or design modification.

Project activities are in three areas: production, research, and education. All activities involve strengthening Ministry of Agriculture (MOA) capabilities to provide integrated technical services to smallholders engaged in producing high-value marketable crops. Production activities are geared to providing technical information and extension services to project participants, research activities to improving the quality of technical information provided by the MOA's Research Division, and education activities to strengthening the Lesotho Agricultural College and providing increased agricultural training. Project assistance includes the provision of technical assistance, funds for overseas training, and some commodity support.

The project has been successful in meeting its quantifiable targets, eg. number of irrigated farms established and number of trainees sent for training, but has been less successful in making progress toward the achievement of its institutional objectives with the exception of the work at the Lesotho Agricultural College

Significant progress has been made in the areas of establishing irrigated crop production units, upgrading the academic standards of the Lesotho Agricultural College, placing participants in long-term training programs, and fielding a qualified technical assistance team.

Areas of concern are the institutionalization of project achievements and level of MOA field support, the relevance of the project to current GOL agricultural development strategies, the utilization of farming systems research methodology, and the marketing of crops produced with project support.

A major lesson learned is that the current design of the project will not allow both institutionalization and provision of long-term training simultaneously.

PES SUMMARY

INTRODUCTION

The Lesotho Agricultural Production and Institutional Support Project (LAPIS, USAID Project No. 632-0221) Agreement was signed on August 30, 1985, and has a Project Assistance Completion Date of August 31, 1991. The total life of project funding is $31,600,000, of which $26,100,000 is the Agency for International Development (AID) contribution. The prime contractor for the project is American Agriculture International, with which a contract was signed in March, 1986, and contract personnel began to arrive in-country in June, 1986. The project also includes two cooperative agreements, one with CARE ($629,200) and the other with CUNA/WCCU ($1,898,700). These agreements were signed in March and August, 1986, respectively. This is the first evaluation of the project, and it was conducted with a view to identifying areas which may require further review and possibly redesign. The evaluation team was in-country from January 25 to March 4, 1988, and interviewed project personnel, Government personnel, project participants, and USAID staff.

The project purpose is to provide direct production and marketing assistance to small farmers and to strengthen Government of Lesotho (GOL) institutional capabilities in agricultural research and extension education for contributing to small farmer production, in order to increase incomes and employment of the rural population of Lesotho. In this way, the project is attempting to increase employment opportunities in Lesotho in part to provide alternatives to employment outside of Lesotho, in particular in South Africa.

The primary objective of the project is that farming households are involved in intensive horticulture, cash crops, and livestock production activities, which have measurably contributed to increased employment and income. The project is to support this overall effort by: establishing a coordinating structure within the Ministry of Agriculture (MOA) to facilitate support to smallholder production projects; strengthening the capabilities both of the MOA Research Division to address the constraints to smallholder agriculture, and of the training institutions to train MOA extension and technical staff, farmers, and public and private sector personnel; and providing direct training to Basotho to support and maintain the objectives of the project.

ACHIEVEMENTS

When considering progress toward achievement of project objectives, it must be remembered that actual implementation of LAPIS started only about 1 1/2 years prior to this evaluation. Despite the fact that the project is in an early stage, significant progress has been achieved in a number of areas, as noted below.

Progress on the irrigated crop production activity of the Production Initiatives Component (PIC) has exceeded expectations in terms of units established. The dedication and technical effectiveness of the PIC team and the Lesotho Council of Credit Union League (LCCUL) team, the Peace Corps volunteers, the District Production Officers (DPOs), and the assigned extension personnel in providing support to the participating farmers are particularly noteworthy. By the end of project year two, the original project design expected that there would be 20 individual farmers and no farmer associations in production. In fact, after one and one-half years, there are 39 individual farmers and two farmer associations (with 70 total members) in production.

The Education Component is well organized and has made considerable progress in upgrading the academic standards at the Lesotho Agricultural College (LAC).

Long-term training of LAC faculty and the marked increase in the amount of practical hands-on training have addressed some of the basic weaknesses of the program prior to LAPIS interventions. The level of technical assistance has received much praise from the LAC administration and the students themselves. However, the relatively low level of salaries paid to LAC professional staff results in loss of staff members to other institutions in and outside of Lesotho.

Long-term training: Thirty-eight individuals have been placed in U.S. universities for BSc. or advanced degree training. That the project has managed to identify and send off this large number of training participants is impressive. The contractor's monitoring and progress reporting has also been commendable. The individuals sent for training are those who will be primarily responsible for sustaining project achievements after the departure of the expatriate technical assistants.

Fielding and composition of the TA Team: Once contract negotiations were completed, the contractor fielded its large team within a short period of time. The speed with which the contractor was able to do this undoubtedly contributed to the achievements discussed above which have been accomplished over the past 1 1/2 years. In addition, overall the team is highly qualified and has performed its technical duties in a professional and effective manner.

ISSUES

Resolution of the following issues will require increased attention on the part of project management to project monitoring and implementation.

Institutionalization and Level of MOA Support: The LAPIS project is not being successfully incorporated into MOA operations, nor is the MOA providing adequate personnel support to the project particularly in the field. Because this project is in its early stage and many of the MOA professional staff are overseas being trained, it is not expected that the Ministry's capabilities would be fully strengthened already, but more progress toward that objective should be apparent by now. In particular, unless the MOA creates an institutional structure such as the Production Coordination Unit within the MOA to coordinate and stimulate support for smallholder commercial production, it is unlikely that such support will continue past project completion. In addition, without this structure, project objectives which require coordination are less likely to be achieved. Finally, if the project concept is to be followed past the project's completion, increased MOA field personnel are required now to work directly with the farmer participants, and, at a minimum, it is essential that when those who are being trained overseas return, they fill the TA positions and continue to perform the TA functions.

Relevance of LAPIS to Current GOL Agricultural Development Strategies: Given recent GOL policy statements which raise as an issue "the donor preference for 'small farmer' individual production strategies" vs "the Government's preference for small farmer 'cooperative schemes' (irrigation) and capital intensive cooperative block (TOU) approaches", it is questionable whether the LAPIS project continues to be relevant to GOL agricultural development strategies. When this issue was raised with the MOA, the response was that the above statement referred not to total dissatisfaction with donor-sponsored projects, but rather to the reluctance of donor-funded technical assistants to work on MOA projects not directly related to the donor-specific activities. However, given the ambiguity of the policy statement, USAID should review the relevance of LAPIS smallholder individual irrigation activities to current GOL agricultural strategies, and decide what action to take. It is likely that if these activities do not fit into current

strategies, there will be weak MOA support both during project implementation and after the end of the project.

Utilization of Farming System Research Methodology: Farming systems research (FSR) methodology is an integral part of the LAPIS project design as presented in the project paper. However, the intended emphasis on FSR was not continued in the Benchmark Report, which gives details of the nature of data to be collected for the purposes both of implementation and monitoring/evaluation, nor is it evident that FSR methodology has been successfully incorporated into the implementation of the project's Agricultural Research Component. It is the evaluation team's view that this methodology is appropriate to LAPIS. However, there is disagreement on this point within the project management. In any case, for some time the research program has lacked direction and has not contributed as expected to the achievement of LAPIS project objectives.

Marketing: Marketing the expanding supply of horticultural products requires particular attention. Many large new producers are coming into production, and the resulting increased supply of horticultural products may flood the market. The LAPIS team should be developing a marketing strategy that permits alternative responses suited to varying market conditions and to varying market supplies.

LESSON LEARNED

Project implementation has suffered from an attempt to simultaneously strengthen an institution structurally (the MOA) and send a large number of professional staff overseas on long-term training. A longer life of project time frame, the spreading out of trainee departures, and expatriate TA presence before trainee departure, during their absence, and after their return, all would help as part of the project design to promote successful achievement of project objectives. Otherwise, to try to accomplish all LAPIS project objectives during a five or six year period is unrealistic. Any extension or redesign of the project in the future should consider these factors.

PRINCIPAL RECOMMENDATIONS

1. The Production Initiatives Component requires a functioning Production Coordination Unit with effective leadership in order to attain both the coordination necessary for successful project implementation, and the sustainability of project achievements. In addition, a marketing strategy should be developed that permits alternative responses to varying market supplies.

2. The chronic shortage of qualified staff at LAC can only be addressed by increasing salaries to levels comparable to university levels. A similar problem exists with respect to other professional staff in the MOA.

3. As presented in the project paper, farming systems research methodology should be adhered to in the implementation of the Research Component. However, given the reservations displayed by project management toward this methodology, a workshop should be organized during which the direction and program of the Research Division be assessed. Alternative strategies should be discussed, and a stronger program with a more clear direction should be developed, along with necessary PP amendment documentation.

4. Project management requires strengthening. Increased supervision and direct intervention is required on the part of the technical assistance team chief of party in particular to assure project component coordination and achievement of overall project objectives. Quarterly meetings of the Project Management Committee should be held to improve communication among the MOA, technical assistance team

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and USAID, and to provide a forum in which implementation and management issues can be resolved before they become major problems. USAID project managers must take a more active role in monitoring project performance, and must be prepared to intervene in as direct a fashion as necessary when the MOA or the contract team is not meeting their respective commitments. Finally, a team-building exercise should be held by a professional consultant to improve communication and understanding of project objectives among the entire project team (MOA staff, contract team, and USAID project managers).

XD-AAZ-172-B

Interim Evaluation

Agricultural Research Component

of

Lesotho Agricultural Production and Institutional Support Project

(632-0221)

by

Joe N. Busby

and

Sherman F. Pasley

Submitted to the U.S. Agency for

International Development Mission

to Lesotho

August 6, 1988

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Executive Summary

Lesotho is unique in all of Africa south of the Sahara. The climate is temperate but with high mountains capped with snow in the winter months. These same mountains cause warm moisture-laden air circulating from over the ocean to dump torrential rainfall in the summer. The steep slopes and huge surpluses of water that exceed the water-holding capacity of the soil result in rapid run-off and erosion problems without precedence.

The Basotho people have accomodated to their role of a land-locked island nation within their larger South Africa neighbor. Large numbers of young Basotho men from rural areas seek employment in the mines of South Africa. This seems to have solved the problems of urban migration that have plagued other countries of the region.

As a result, Lesotho is faced with sociological and environmental problems that must become a part of long-range planning for continued agricultural development and growth. Of increased importance to the country are institutions of Agricultural Research and Extension capable of not only solving problems of feeding the nation, but also of developing income-generating agricultural enterprises that are competitive with wage income available in South Africa. Thus, Agricultural Research must find solutions to today's problems, and be encouraged and supported to find ways to avoid problems that may occur in the year 2000; i.e., assume a reactive and proactive stance.

With the foregoing as our philosophical base, the following represents a summary of an evaluation of the Agricultural Research Component (ARC) of the Lesotho Agricultural Production and Support (LAPIS) Project No. 632-0221, a cooperative agreement between the Government of Lesotho (GOL), the U.S. Agency for International Development Mission to Lesotho (USAID), American Agriculture International, the project Contractor. The project started in mid-1986 and is scheduled to end in mid-1991.

Summary Conclusions

1. The potential exists in the Agricultural Research Division (ARD) of the the Department of Field Services, MOA, to make a positive contribution to agricultural development in Lesotho. To do so, however, will require: a) provision of ARD scientists who are peers in terms of technical training and scientific competence to their ARC counterparts; b) a change in ARD's emphasis/strategy to a more balanced comprehensive approach through complementary on-farm and on-station research; c) making farmers and Extension full and equal partners in problem identification and prioritization, and in technology verification

and transfer; d) an objective and systematic means of prioritizing research program areas, and research projects within areas; and, e) a clearly articulated MOA policy statement regarding the expectations of agricultural research in Lesotho.

2. The Soil Analysis Laboratory is providing a valuable service to scientists and farmers, and the Agricultural Library has the potential to provide invaluable services to researchers in their quest for improved technology that would increase agricultural production and improve the well-being of the farmers of Lesotho. These two areas do, however, require assistance and support if they are to realize their full potential.

3. The GOL, the Contractor and USAID have, to varying degrees, demonstrated their commitment to and support of achievement of the objectives of the ARC of the LAPIS Project. The Contractor demonstrated awareness and responsiveness by making a needed change in leadership of ARC.

4. Problems of coalescence and coordination exist between and among components of the LAPIS Project. These problems, if left unresolved, will certainly detract from full realization of Project objectives and goals.

5. The progress made by the predecessor Farming Systems Research Project has not been capitalized upon or built upon by the LAPIS Project.

Principal recommendations follow. Other recommendations can be found in Section II of this report.

Major Recommendations

1. That there be planned and implemented as soon as possible a team building exercise that will make full use of the expertise found in the LAPIS components thus complementing and strenthening the outputs of individuals toward achievement of identified goals.

2. That linkages and communication lines be developed within LAPIS and ARC and ARD counterparts. That these linkages be then improved within the Field Services Department between ARC/ARD and Extension Service with particular attention to the decentralized District Agricultural Officers, District Extension Officers, Extension Agent and farmer units.

3. That working teams of Long-Term Technical Assistants (LTTA's) and ARD counterparts, along with representation from other components as appropriate, be organized along commodity lines. That these teams be charged with: including farmers'

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problems in the prioritization and design of research projects; and, the immediate transfer of improved appropriate off-shelf technology requiring no adaption.

4. That Research, Extension and farmers be made full and equal partners in problem identification and prioritization, and in the technology verification and transfer processes. That achieving a balance between complementary on-station and on-farm research is critical to the stated goals of MOA.

5. That the Maseru site may not appropriate to implement research to solve the winter feeding problem of livestock. We suggest relocation of the ARC livestock LTTA and ARD counterparts to an appropriate location more suited to the range management and winter forages emphasis of the project.

6. That market and economic feasibility be designed into all research projects with recommendations made to reach the maximum profit point on production curves. On-farm and prototype research using farmer conditions should reflect considerations for farmer management practices and competition for his/her limited resources.

7. That ARC and ARD access International Agricultural Research Centers (IARC's), the U.S. Land Grant College network, and regional National Agricutural Research Systems (NARS's) to identify improved off-the-shelf technology that is directly, or with minor adaptation, applicable to Lesotho agricultural problems.

8. That a careful assessment of training and problem needs be made to identify those that can be solved with Short-Term Technical Assistance. Utilize where possible, expertise from nearby countries and IARC's, and commit individual consultants to a responsibility for follow-up.

9. Carefully assess the role and level of support required from support facilities as a part of the institution building process. For example, the soils laboratory and a plant tissue analysis capability, a research farm management structure, library and plant disease diagnostic laboratory.

10. Carefully assess levels of formal training for ARD personnel required to insure a functioning NARS and negotiate with MOA for the provision of counterparts having levels of training commensurate with the research leadership required. In some instances overlap between counterparts with a LTTA is critical to leaving a functioning unit at the end of the project.

11. That the MOA make sustainable agricultural systems a mid-term program priority for the purpose of preventing further degredation of the agricultural resource base.

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ACKNOWLEDGEMENTS

We would like to express our gratitude to all who helped us in the conduct of this evaluation. If we forget to mention anyone in particular, please excuse us because everyone we met was extremely forthright and cooperative. The time we have spent in Lesotho has been personally and professionally rewarding to both of us, and we look forward to the opportunity to visit Lesotho again.

- - We would like to thank the Honorable Minister of the Ministry of Agriculture (MOA), the Permanent Secretary, MOA, and the Director of Field Services, MOA for taking time from their busy schedules to share with us the state and expectations of agricultural research.

- - We would like to thank the Acting Director of the Agricultural Research Division (ARD) and his staff for the frank discussions we held with them regarding the contribution of the LAPIS Project to achievement of ARD's mandate.

- - The Agricultural Research Component Team was most cooperative and patient with us. Our gratitude goes to the Team Leader for his time, and for arranging a meaningful agenda. Other LAPIS component Team Leaders and Team and Team Members were equally helpful.

- - It has been a pleasure to work with USAID. Mr. Snyder, the Mission Director, Mr. Hill, the Agricultural Development Officer, and Dr. Moustafa, the Deputy Agricultural Development Officer were all willing to listen and provide insightful guidance. Our special thanks go to Mr. Lazarus Malefetsane Mathe, Agricultural Assistant who did an excellent job of handling our logistics and making appointments for us on short notice.

- - Lastly, we thank Mrs. Annie Stephens for helping us put this report together. Her assistance was greatly appreciated.

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I. INTRODUCTION

A. General

This is a report on the evaluation of the Agricultural Research Component (ARC) of the Lesotho Agricultural Production and Institutional Support (LAPIS) Project No. 632-0221, a grant agreement between the Government of Lesotho (GOL), the U.S. Agency for International Development Mission to Lesotho (USAID), and American Agriculture International, the project contractor. Project activities were launched in June 1986, the date when USAID signed a contract with the contractor.

B. Evaluation Methodology

This evaluation was carried out by Joe N. Busby and Sherman F. Pasley, both of whom were contracted by USAID through the University of Florida. The evaluation began on 10 July 1988 when both evaluators arrived in Lesotho and ended on 6 August 1988 when both left the country.

The project outputs anticipated in project design under this component, the Project Implementation Plan (PIP), the LAPIS Benchmark Report, and the Scope of Work given the evaluators by USAID provided the general framework for the evaluation. The Scope of Work, combined with the anticipated outputs and evaluation factors in the Benchmark Report, provide the general outline for this report.

1. Expected Project Outputs

The following is a summary of the the outputs described in the Project Paper (PP) to achieve the sub-goal of the ARC "to increase production, income and employment by increasing the capabilities of the Ministry of Agriculture to develop and extend improved agricultural technologies to farmers."

a. Research priorities are based upon, and responding to systematic assessment of farmers' constraints and goals.

b. Use of on-station and on-farm trials to test the validity and applicability of research results is increased.

c. Additional production technical/management packages recommended by research are tested and transferred to farmers.

d. Research institutionalization, FSR capacity, skills and supporting services are improved.

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e. Linkages among researchers, extension workers, farmers, production input services, agriculture policy planning personnel and other supporting institutions are improved.

f. Soils laboratory is equipped, staffed and effectively performing its role.

g. Feedback from Research Division is linked to curriculum planning and training systems.

2. Evaluation Scope of Work

The Scope of Work provided the evaluators described the following actions.

a. Examine the impact the sub-project has had to date on developing the Research Division's institutional capacity to carry out effective national agricultural research activities and developing and transferring production/management packages to the production component and the Basotho farmer.

b. Assess composition, appropriateness [to] technical skills and functions of the technical assistance team particularly as related to staffing and funding levels.

c. Closely examine and assess effectiveness of utilization of inputs provided under the sub-project and the impact these inputs have had on achieving project outputs to date.

d. Examine level and quality of outputs achieved to date against those projected in the original project log-frame.

e. Evaluate commitment, adequacy, timeliness and level of support from Contractor, Government of Lesotho (financial and human resources) and USAID in project implementation.

f. Recommend modification of the component's strategy, implementation, inputs, outputs as may be required to ensure achievement of the component's goals and purposes.

g. Identify problems and constraints which have been encountered in the implementation of this component, and make recommendations to alleviate them.

3. Evaluation Procedures

Upon arrival in Lesotho, the evaluators reviewed: the LAPIS PP and Annexes; LAPIS Benchmark Report; Contractor 5-Year Management/Implementation Plan; Contractor Annual Plan of Work; Contractor Progress Reports; Draft Ministry of Agriculture (MOA) Fourth Five-Year Development Plan; and, Final Evaluation Report of the predecessor Farming Systems Research Project.

During the course of the in-country evaluation large numbers of draft and final reports and documents were reviewed. Particularly useful were: ARC Annual Implementation Plans and Annual Reports; and, the Proposed Development and Decentralization Plan for the Agricultural Research Division (ARD) prepared by the ARD.

The evaluators interviewed all ARC Team Members and their counterparts as available. The physical facilities of the Maseru Research Station were observed including field experiments, laboratories, library, offices, and field equipment, as well as those of the Lesotho Agricultural College (LAC) Campus.

The evaluators visited the Team Leaders of the Production Initiatives Component (PIC) and Agricultural Education Component (AEC) of the LAPIS Project, and with Team Members of these components as available, to discuss linkages and complementarities to be realized from these linkages. Visits were also made to the Agricultual Information Office (AIO) to better understand the mechanisms available for technology transfer.

Field visits were made to the Lekubane Substation, the Nyakosoba prototype area, and to the District Headquarters and the Farmer Training Center at Leribe.

Visits were made to the Honorable Minister of Agriculture, Dr. D. Phororo, the Permanent Secretary, MOA, Mr. R. L. Ntokoane, and the Director of Field Services, MOA, Mr. M. Motsoene.

Initial orientation discussions were held with the USAID Mission Director, Jesse Snyder; the Agricultural Development Officer, Barry H. Hill; and, the Deputy Agricultural Development Officer, Abdel M. Moustafa. There were frequent informal discussions with all of the aforementioned, and Dr. Moustafa attended several meetings and accompanied us on our field trip to Leribe, as well as giving leadership to the initial meetings with ARC Team Members and ARD counterparts. Dr. E. Loomis, ARC Team Leader, arranged all of the meetings with ARC Team Members and ARD counterparts as well as with the AEC and PIC Team Leaders and members.

Following 12 days of activities as outlined above, the evaluators began synthesis of information, tempered by judgements, into a report. Our recommendations reflect our firm belief that appropriate agriculture research is essential to agricultural development in any country. Hopefully our recommendations will be useful to the GOL in its efforts to improve agricultural production while maintaining this very important resource base, and in improving the financial, physical and social well-being of the Basotho people.

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II. RESPONSE TO SCOPE OF WORK

Prologue: The Agricultural Research Component (ARC) of LAPIS was assigned to a facility contiguous to the Lesotho Agricultural College (LAC) campus where they were housed with the Agricultural Research Division (ARD) of MOA. There did not appear to have been a formal team-building exercise to develop a clear understanding of component goals and purposes. As a result, each Long-Term Technical Assistant (LTTA) designed research projects that were highly discipline-oriented as contrasted to a problem-solving team approach. As often happens with projects having a participant training program, the USAID concept of counter-parting has been slow to reach fruition. Furthermore, an austerity program in GOL has limited personnel growth of the ARD.

The Project Agreement between USAID and the GOL gives the Component sub-goal for Agricultural Research as: "The sub-goal of the Research Component is to increase production, income, and employment by increasing the capabilities of the Ministry of Agriculture to develop and extend improved agricultural technologies to farmers. This component will directly assist the Research Division to produce tested, production oriented, technical packages."

The Component Purpose is stated as: "The purpose of this component is to assist the Research Division to strengthen its Farming Systems Research (FSR) program to produce and deliver a continuing flow of improved technologies for increasing the productivity of Lesotho's farmers."

As stated, the clear intent was for the ARC to build on the previous Farming Systems Research Project under Washington State University. It also reinforced the MOA's perception that ARD would continue to conduct on-farm research.

Unfortunately, there was a gap in time between the completion of the FSR Project and the arrival of several of the discipline-oriented LTTA's in the ARC. The FSR Project did design, and with USAID assistance, left a small functioning research library, soils testing laboratory, office space for ARD and ARC, some equipment, vehicles and a research farm with roads and plots laid out. Essentially the ARC had the nucleus of a functioning facility with which to begin their program.

The FSR Project was, initially at least, heavily influenced by the input of social scientists. USAID's decision not to include expertise in Agricultural Economics on the ARC Team contributed to the failure of the ARC to utilize and build on the results of the previous projects - even to the point of rejecting the work as inappropriate to their discipline. The project emphasis shifted from on-farm trials heavily involving extension

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agents and farmers to controlled research on the central station or at prototype areas also using project designs parallel to the central station but in the climatic zones resulting from altitude and availability of water, and to multi-location trails in farmers' fields.

The LTTA's were only recently impressed with expectations of administrative policy levels of MOA. Prior to this time, both ARC and ARD had become targets of much criticism and pressure to do a multitude of tasks. There were internal problems of administrative leadership and communications that seemed to have further added to their inability to respond coherently. As a result, morale of personnel has been at a low level and there has been a tendency to react to criticism rather than to respond positively.

The internal administrative problem has been corrected and with the arrival of a Marketing Specialist on the PIC and a Farm Management Specialist for ARC we believe the ARC and ARD to be ready for a positive team-building exercise that will develop research priorities commensurate with MOA expectations. A balance between on-station and on-farm research needs to be achieved which will be oriented toward solution of major production problems of important crops and livestock.

There are capable people in ARC and ARD that are willing to work toward the agricultural development of Lesotho. If given some direction, encouragement and support, we believe they will react positively. Dr. Scott Myer, long time Industrial Psychologist, Texas Instruments, claims that the best personnel motivation comes from a worker having a full understanding of the institutional mission and goals and then being given the opportunity to participate in planning ways to achieve them. He follows up to say that there must be constant feed-back from management on how they are doing. A worker that contributes and is recognized for his contribution is a productive worker. If ARC and ARD are to make a meaningful contribution to agricultural development in Lesotho, make sure they understand the goals, are involved in planning and implementation of projects targeted toward solving problems preventing achievement of the goals and are given full recognition for contributions they make. We believe the potential for successful problem-solving, transfer of technology and adoption of technology is in place if properly managed and supported.

The following evaluation report examines each task in the Scope of Work. Many of the recommendations or comments under the Scope of Work are designed to be used more as suggestions to ARC on how they might improve their contribution toward ultimate achievement of the output. We did, however, summarize a list of recommendations in the Executive Summary that are of high priority and, in our opinion, require action by USAID or LAPIS or MOA or through collaborative action among all three Agencies.

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Details of findings and recommendations from which the summary was taken follows:

A. Task A: Examine the impact the sub-project has had to date on developing the Research Division's institutional capacity to carry out effective national agricultural research activities and developing and transferring production/management packages to the production component and the Basotho farmer.

1. Definition of an Institution

Institutions mean many things to many people. For our purposes, we will define an institution as an organization or body that: has a well defined mission or goal; provides a product or service that benefits a great number of people, in this case the Government and the Basotho farmers; can be counted upon over time to provide this product or service; has effected enduring linkages with entities that allows it to provide services and to persist, in this case the MOA which provides the support necessary for ARD to function and the Extension Service which disseminates its product or service to the Basotho farmer; and, is responsive to the needs of its clients, the Basotho farmers.

2. ARD Mission Definition

It is our perception that some confusion exists in ARD, and among the ARC Team as well, over MOA policy vis a vis agricultural research and, as a result, Research is uncertain of the direction they should take. In our meeting with the Honorable Minister of the MOA he articulated this policy. We understood the Minister to say that: 1) in view of the fiscal constraints of Government, research must be priority-oriented to achieve maximum impact; 2) Research must change its strategic approach to adaptive-type research to: make what is known available to farmers as a first priority; identify those real problems that the MOA can tackle; answer questions for the MOA such as why fertilizers aren't being used at recommended rates; and, advise the MOA and Extension on packages to take to the farmers; 3) Research must work with Extension, MOA Production Departments, and farmers to prevent breakdowns in the technology identification and dissemination continuum; 4) Research must work with the Crops Department to provide advice on the technical aspects of seed production, and to give advice on just what seeds and seedlings Lesotho can and cannot produce; 5) Research must constantly be on the lookout for new crops that the average farmer can grow and market, asparagus as an example; 6) Research needs to conduct ecomonic and social studies for the MOA on topics such as land leasing and contract plowing to determine the economic, social and political implications; 7) more emphasis must be given to decentralized on-farm trials for problem identification and prioritization, and to assist in technology

verification and transfer; 8) livestock research should focus on finding solutions to the winter gap feed problems; and, 9) Research must be innovative and aggressive. It is our understanding that there is to be a workshop conducted in the very near future during which policy for each MOA Department will be formalized, and protocols for linkages and working relations between Research and Extension will be developed. We consider this workshop to be essential to the development of an effective and efficient technology identification/development and transfer continuum in Lesotho.

Recommendation

That, during this workshop, a clear and specific Mission Statement be developed for ARD.

3. Program/Project Prioritization

When human, physical and financial resources are limited, as they almost always are, it is incumbent upon agricultural research to employ its resources on those problems that, when solved, will have a major impact on achieving Government development objectives and solving farmers' most pressing problems. However, reaching a consensus on the most important problem is always difficult because each person's problem is, to them at least, the most important. Thus, there must be some systematic effort whereby problems are identified and prioritized.

Recently, the ARC Team and their ARD counterparts have addressed problem identification and research prioritization which we consider an important step. However, the mechanism described seems largely subjective in nature in that it is based upon the scientific judgement and problem perception of a very few individuals.

Several other countries in this part of Africa, Malawi and Zambia in particular, have addressed this problem through two distinct but mutually dependent stages; the first being through a high-level body of Government officials, and representatives from the agribusiness and farming sectors. This body assists the Minister of Agriculture, or an equivalent authority, set agricultural research policy as it regards program areas requiring research in order to meet Government development objectives and goals. This body usually has a technical advisory committee that gathers and anyalyzes data to assist in deliberations and decisions. Near-, mid- and long-term priorities are established through the use of weighted criteria such as: importance of the commodity or enterprise in terms of the value added to the economy; importance of the commodity or enterprise in terms of its saving or earning of foreign exchange; importance of the enterprise in terms of its maintaining/ improving the agricutural resource base; etc. The second stage

involves a group of scientists who use their collective technical wisdom, and knowledge of farmers' problems and objectives, to establish priority projects within those programs identified in the first stage. Again weighted criteria are used to evaluate proposed projects such as: the time required to solve the problem; human, fiscal, and physical resources required to solve the problem; expectations in terms of increased production if the problem is solved; etc. If during the latter deliberations conflicts arise between Government development objectives and farmers' problems and objectives, the matter is referred to the high-level body for resolution. Also, the high-level body is usually the final decision authority on research projects that require a capital input of some base figure or higher.

Recommendation

> That the ARC assist the MOA and ARD in developing and employing a systematic objective method for identifying priority research programs and projects.

4. Project Review

At present, the Deputy Director of ARD is charged with monitoring each ARD Section to assure that proposed projects have been implemented, and to resolve problems as they arise. It is proposed that there will be an annual external evaluation of programs and experiments to ensure that they are answering relevant questions and meeting ministry goals. We endorse this proposal because after priority research projects are identified and implemented, it is essential that progress toward meeting the research objectives of the project is determined because: other solutions to the problem may be identified exogenous to Lesotho; a new problem may be identified that has higher priority and, therefore, warrants investment of limited resources; the research approach employed may not be meeting the benchmarks described in the original research proposal; etc. In any event, research projects must be tracked so that limited resources are expended on only those projects that are achieving priority objectives.

The ARC Team and their ARD counterparts have made significant progress in reviving a neglected aspect of a viable National Agricultural Research System (NARS); that being, on-station research. In their enthusiasm to do so, however, there seems to have been a proliferation of trials some of which could not be properly implemented, and others, we believe, that have little to do with the development needs of the Government or the priority problems of the farmers of Lesotho. If resources were unlimited, serendipity would probably account for eventual successes through this broad approach. When resources are a severely limiting factor as is the case with ARD, research

planning becomes far more important, and requires much more time and reasoned thought, than research implementation in terms of return to research investment.

Building and strengthening external linkages between ARC/ARD and the Extension Service should be a planned part of the project planning and review process. If a District Agricultural Officer (DAO) or Extension Agent [collectively the District Extension Officer (DEO), the Senior Extension Agent (SEA), and/or the Extension Agent (EA)] has participated in the problem identification phase of project planning, including that person in a project review can be mutually beneficial because they can make a valuable assessment of the research progress and its appropriateness for farmers. Equally as important would be their judgement on when and how to prepare the research results for Extension Service use in the field. They can also help ARC/ARD determine whether the transfer of a recommendation can be easily included in a farmer's management practices with little or no modification, or whether both Extension Agent and farmer training will be necessary to obtain adoption in the field. We were told that Basotho farmers often adopt practices directly from South Africa, and that many of these practices are already widely accepted and in use by the time research in Lesotho is ready to release information from adaptive trials in-country. Inclusion of a DAO or Extension Agent on the project review should identify and permit early cancellation of a project that is redundant.

Recommendations

1. That the ARC Team assist ARD in the development of a systematic project review mechanism to annually review the progress of all research activities. This mechanism should entail procedures to curtail or to expand/lengthen research projects if warranted.

2. That ARC/ARD and representatives from Extension and the Districts meet to review on-going and proposed research projects. The goals of this review should be: improved quality and reduced quantity of trials; research focused on a collective best estimate of farmers' problems and Government development objectives; research that has a high probability of success in the very near future; to acquaint Extension with improved technologies that might be appropriate for their area of responsibility; and, to make Development and Extension full and equal partners in the research prioritization and planning processes.

3. That consideration be given to making this an annual meeting for the reasons previously described.

5. Human Resource Development

Well-trained dedicated people are the foundation for institutional development. The LAPIS Project provides for both long- and short-term training opportunites for ARD personnel. The PP calls for the long-term training of 20 ARD personnel and numerous short-term training opportunities. However, we have found that the long-term training has been reduced to 9-11 personnel, and that short-term training has been, in many cases, programmed on an ad hoc basis. Further, some of the short-term training has resulted from opportunity rather than need which may in some cases impede rather than assist ARD in terms of fulfilling its mandate. Nor, have we found evidence of any formal short-term training conducted for ARD staff by the ARC Team although several of the ARC Team Members have carried on extensive, and very important, in-service training activities within their own sections. Thus, there is need for a coordinated effort of human development, specifically as it relates to short-term training, that addresses ARD needs in terms of identifying/developing appropriate technology to meet the development goals of the GOL and the priority problems of the Basotho farmers.

Recommendations

1. That the ARC Team and their ARD counterparts conduct a training needs assessment of all sections to identify priority short- and long-term training requirements.

2. That as many of these prioritized needs as possible should be met by the ARC Team. The remaining should be made known to the MOA Training Office so that they may match needs against opportunities. For those needs that cannot be satisfied by the Training Office, the LAPIS Project should use its resources, and those of the International Agricultural Research Centers (IARC's) and regional IARC programs in Africa, to fill the gaps. Further, the Director of ARD should have the opportunity to veto those training opportunities that do not meet the priority training requirements of the ARD.

6. Research Management

Organizations or bodies that make up institutions require creative management if they are to mature and grow. And, effective management requires communication and understanding between management and those they are managing. In an effort to be more efficient, the ARC Team and their ARD counterparts have made structural adjustments within ARD through a significant reduction in the number of sections such that more human resources could be brought to bear on a single area. We were told by ARD administration and staff that very recently the ARC Team has markedly improved communication and dialogue with their

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ARD counterparts, and now refers to problems and possessions in the collective we rather than yours and ours. For the foregoing, we commend both the ARC Team and ARD. But, inherent management ability is a rare gift, and most of us have to learn effective management techniques by trial and error. Given the rather severe human, fiscal and physical resource limitations of ARD, ARD personnel who manage any resource have little or no time to learn effective management practices by trial and error. Unfortunately, graduate training in a specific agricultural discipline rarely includes management training, at least in the U.S. university system.

Recommendation

> That the LAPIS Project employ an outside consultant, such as the U.S. Department of Agriculture (USDA), to provide research management training to all ARD management, and to all Research Officers.

7. Decentralizaton of Research Activities

In a subsequent section of this report, we discuss the need to understand farmers' problems in order to conduct appropriate farmer-oriented research. Understanding of farmers' problems requires frequent contact with farmers, or, at least, a frequent opportunity to observe farmers' practices in order to make an objective assessment of their problems. Further, farmer-oriented research requires verification of technology in conditions similar to which it will be employed. After a tour of the research facilities at Maseru, both the station and the LAC, and a visit to a sheep and goat production area at Lekubane, we can find little similarities between the two locations. And, the land available at Maseru would seem to severely limit the livestock research that could be carried on there. More frequent contact with livestock farmers, and a better understanding of their problems; more appropriate farmer-oriented research; and, cost-effectiveness (the transport costs to visit substations where livestock research is being conducted probably exceed the cost of the research) seem sufficient justification to consider moving the ARD Range and Livestock Section to a more appropriate location.

Regarding other commodities, the opportunity to use supplemental irrigation at the Maseru Station on those crops grown under dryland conditions seems worthy of our comments. Although a researcher might argue that the use of supplemental irrigation during the dry spell that is normally experienced in the middle of the growing season was necessary to assure that a year of data was not lost, our counter argument would be that the data are not valid because the conditions from which it was derived bears no correlation to the conditions that farmers normally experience. Thus, the opportunity exists at the Maseru

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Station to create an artificial situation such that the technology derived on-station is totally inappropriate to farmers.

Recommendation

> That a feasability study be made of moving the ARD Range and Livestock Section from Maseru to a more appropriate location.

B. Task B: Assess composition, appropriateness [to] of technical skills and functions of the technical assistance team particularly as related to staffing and funding levels.

1. Composition and Appropriateness of ARC Team

We have found the ARC Team to be made up of well-qualified, highly-motivated individuals. It would have been desirable for each to have had a previous significant long-term assignment in a developing country. Evidence of this experience, we believe, is reflected in the differing degrees of in-service training for those sections who have a LTTA with significant development experience and those who do not; i.e., an appreciation for institution building through counterpart development. We do, however, seriously question the exclusion of a social scientist, specifically an Agricultural Economist, in the composition of the initial ARC Team as described in the Project Paper. Without socioeconomic input, sound recommendations cannot be made, and a viable FSR effort, as called for in the output section of the PP, cannot be mounted. We, therefore, endorse the inclusion of an Agricultural Economist on the ARC Team.

Recommendation

> That significant long-term experience in a developing country be a primary selection criterion for the Horticulturist now being being recruited, and for any LTTA recruited in the future. Another criterion that would be appropriate would be experience as an Extension Specialist in a system having joint appointments with research.

2. Research Focus

We have examined most of the research projects implemented by the ARC Team and their ARD counterparts and have found that the majority were designed and implemented along disciplinary lines. Further, we found that the majority of these experiments were not designed to gather data that could be subjected to economic analysis. While the former only leads to duplicative experiments, the latter could lead to recommendations that are not economically sound or do not take into consideration the farmer's resource limitations over a cropping/enterprise cycle. To illustrate, suppose that a fungicide was tested that

controlled a major disease of an important crop, and that, in a research setting, the control was justified economically. But, supppose the cost of the fungicide competed for the scarce cash resources of the farmers and they, through their system of establishing priorities, could not justify the expenditure. This lack of understanding of the economic circumstances of the farmer would have resulted in the expenditure of limited research resources on the testing and recommendation of a management practice that would not be adopted by a significant majority of farmers producing that particular crop.

Several other countries in this part of Africa now conduct research using a coordinated commodity approach. This approach optimizes scarce resources by bringing the expertise of several disciplines to bear on a priority program area (usually a commodity or farm enterprise), and allows for answers to several disciplinary questions with a single trial. Further, it requires researchers to have a complete understanding of the total production sequence of that commodity because the objective of the coordinated commodity approach is a production guide, or package if you will, which includes alternative practices to cover circumstances a farmer is likely to encounter, and an enterprise budget which is very helpful to farmers and planners particularly as it relates to the introduction and adoption of a new commodity or enterprise. It might be useful at this point to use an illustration to describe what is meant by alternative practices. We know that it is recommended that maize be side dressed when it is knee high. We also know that it would not be advisable to side dress maize at that time if it were stressed by lack of water. And, we also know that maize responds to nitrogen application up to tasseling. Therefore, the production guide should include what the farmer should do if his/her maize is water stressed at the time fertilizer is usually applied as a side dressing.

Recommendation

That ARC and ARD adopt a coordinated commodity approach.

C. Task C: Closely examine and assess effectiveness of utilization of inputs provided under the sub-project and the impact these inputs have had on achieving project outputs to date.

In general, the only inputs described in the PP for the ARC are: technical assistance; commodities; and, training. In previous sections of this report we have made observations and recommendations pertaining to the long-term technical assistance and training inputs. From our limited observations, and conversations with the ARC Team and their ARD counterparts, we believe that the commodities purchased for this component were badly needed and have been judiciously employed to achieve Project outputs. We did, however, find that no Short-Term

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Technical Assistance (STTA) had been utilized other than in an administrative capacity. It has been our experience that STTA, especially when used on a recurring basis, can be a valuable resource when used for in-service training and project development. The development of the Research Data Bank and the Agricultual Library would probably benefit from expertise which is not now resident in LAPIS Project LTTA or in Lesotho. And, an Agricultural Engineer with experience in providing appropriate technology in countries where animal traction provides much of the on-farm power should be recruited for STTA in Lesotho. There are several IARC's in Africa where such an individual might be located. To make the most effective use of this STTA, we suggest that he/she be recruited for several visits to Lesotho to follow-up on the adaptation of technology to Basotho conditions, and that he/she be committed to identifying and supplying other applicable off-shelf appropriate technology from sources within the appropriate technology network.

Recommendation

> That the ARC Team, and their ARD counterparts, conduct a needs assessment to identify project and service areas that would benefit from STTA.

D. Task D: Examine level and quality of ouputs achieved to date against those projected in the original project log-frame.

PP Output 1: Research priorities are based upon, and responding to, systematic assessment of farmers' constraints and goals.

and

PP Output 2: Use of on-station and on-farm trials to test the validity and applicability of research results is increased.

1. Research Focus Relating to Problem Identification

In general, research now being conducted is based on a need perceived by the responsible researcher after a poll of individuals in the Crops and Livestock Departments of the MOA, management and extension agents in the Districts, in some cases farmers themselves, and in another case, after a fairly comprehensive review of the research that had been conducted in Lesotho. This method of setting research priorities has been explained by the fact that the ARC is working with the ARD to revive the on-station aspects of the ARD, probably as a result of the criticisms leveled against the FSR Project. Although it is easy to question this decision from benefit of hindsight, we would have liked to have seen a more comprehensive and balanced approach to research, that being an integrated approach based on the synergistic effect realized from complementary on-station and on-farm research (OFR). But given that the starting point in terms of on-station research was very low, we believe the ARC Team and their ARD counterparts have made progress albeit along traditional disciplinary lines. However as a result of these

endeavors, the OFR aspects of an integrated effort have received little attention, and problem identification and prioritization have suffered. OFR as described by CIMMYT, and the Consultative Group for International Agricultural Research (CGIAR) requires a technology support base which is usually found on-station in most viable NARS. The ARC Team and their ARD counterparts have certainly reached the point where the technology support base is adequate for development of a viable OFR effort.

2. On-Farm Trials versus On-Farm Research

At this juncture, we would like to make a clear differentiation between on-farm trials (multi-location) and OFR. The ARD is conducting trials in farmers' fields. However, these trials are not capitalizing on the benefits that can accrue from properly executed OFR efforts; those being farmer and Extension participation in problem identification and prioritization, and in technology verification and technology transfer.

3. Multidisciplinary Nature of On-Farm Research

OFR is implemented through a multidisciplinary effort of biological and socioeconomic scientists, and requires special skills and techniques which are not usually found in the repitoire of most of these scientists. To date, there has not been a Socioeconomist on the ARC Team, and none of the ARC Team, to our knowledge, have had any specific training in the planning and conduct of OFR. And, even though some of the ARD scientists were trained in FSR methodology under the aegis of the predecessor FSR Project, FSR methodology and thinking have evolved since that time, in particular as it relates to the need for inputs from biological scientists, and for a viable on-station research program and the linkages that must be effected between on-station and OFR if both are to be complementary and effective.

Recommendations

1. That all of the ARC Team, their ARD counterparts, and as many of the Subject Matter Specialists (SMS) and Extension Agents from the Districts as possible receive short-term training in OFR techniques. This capacity is extant, and available through USDA and several of the Consortium for International Development (CID) member universities.

2. That a focused OFR effort be mounted to: sharpen OFR skills; develop linkages and working relations with Extension and farmers for problem identification and prioritization, and for technology verification and transfer; and, identify priority problems that might be solved by technologies that have been verified on-station, or elsewhere, over the past years.

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3. That the MOA enlist the support of the CIMMYT Regional East Africa Economics Program to facilitate the establishment of a viable OFR Program.

NOTE: For the benefit of the MOA, USAID, LAPIS, ARC, and ARD, there is little to be gained by planting trials in farmers' fields all over the country to comply with our recommendation to mount a focused OFR effort. Instead, time would be better spent, for the first year at least, by: learning how to do effective OFR; developing the necessary linkages between and among Research, Extension and farmers; developing a comprehensive understanding of Basotho farming systems to include the limiting factors over the entire cropping/enterprise calendar; and, determining, to the extent possible, how Basotho farmers prioritize use of their limited resources.

PP Output 3: Additional production technical/management packages recommended by research are tested and transferred to farmers.

1. General

Usually scientists are hesitant to make recommendations based on one year of data, and given that the ARC Team and their ARD counterparts have just this year collected two years of data on trials initiated in 1986, it is unreasonable to expect research recommendations to be made from those trials. Additionally, from our point of view at least, the verification of this technology is incomplete because the farmer and Extension Personnel have not been active participants in the process.

2. Technology Dissemination Opportunities

The Agricultural Information Service (AIS) has excellent capability for reproducing and distributing information. Recently acquired through LAPIS support was an off-set press and electronic plate maker which will produce circulars and other publications of high quality. FAO has provided a consultant to AIS to put in place management procedures for efficient operation of the unit. AIS also has audio taping facilities of radio broadcast quality, graphic artists and film processing. Although a memorandum had been written to the the former Team Leader of ARC from the AEC Team Leader outlining procedures to follow for getting publications printed and circulated, this apparently never reached most individual LTTA in ARC or their ARD counterparts. Although some management recommendations have been made by the Soil Science Section, evidently their LTTA knew the process, we found other ARC LTTA with manuscripts written but placed in their desk drawer.

3. Production Campaigns

We also found a campaign on maize production had been developed by the LAC Training Office, AIS and Extension. There had been no involvement of Research for input of technical information or the design of complementary OFR in support of the campaign. Effectiveness of the campaign had been evaluated through measurements of increased knowledge of farmers and extension agents. Increased knowledge is only the initial phase of the adoption process, and there must be designed follow-up steps to a media campaign to increase the on-farm adoption of recommended technology. We were also told that there were plans to develop as many as five additional media campaigns and allied training meetings by AIS and the LAC Training Office over the next year.

4. Dissemination of Existing Appropriate Technology

One thing that seemed striking to us was that there had been little effort by the ARC Team and their ARD counterparts to make what is known, and directly transferrable without testing, available to Extension and the farmers. A case in point is the pruning of peach trees. This technology is not location specific, and there are adequate references in the Library, and throughout the USDA Cooperative Extension Service which is in the public domain and can be used directly, that could be used to prepare technically sound recommendations on the practice. Additionally, there are a multitude of undated bulletins and circulars prepared under the aegis of the FSR Project that should be reviewed, updated if necessary, and distributed to Extension and the farmers.

Recommendations

1. That ARC LTTA and ARD counterparts be involved in the planning stage of future campaigns. The review of technical inputs into the campaign, the assurity of the accuracy of recommendations, and the design of OFR to complement campaign goals, be a Research responsibility.

2. That the ARC Team and their ARD counterparts place high priority on making what is known, and directly transferrable, available to Extension and farmers.

PP Output 4: Research institutionalization, FSR capacity, skills and supporting services are improved.

1. Soils Laboratory and the Agricultural Library

Two facilities designed and put in place under the previous FSR project that appear to be working well are the library and the soils laboratory. The soils laboratory has been discussed in some detail in this report. The library is functioning well;

has a large collection of reference books, texts and journals appropriate for support of the present ARD. All materials are catalogued and organized on shelves by reference number. The librarian, Mrs. Thabisi, has a diploma but was well trained and is to be commended for a superior level of performance. This is the one place where institutionlization has been effective and is functioning without LTTA. Acquisitions of additional volumes for the library and the proposed adoption of the Library of Congress System of Cataloguing are supported but could require some STTA to implement. Present shelf space is near capacity but we did find one area that is being used for storage of a large number of the Lesotho Farming Systems Research Project, Program Reports, 1979-1986.

2. Plant Diagnostic Laboratory

A plant protection diagnostic laboratory is operating on a very limited basis. The identification of plant diseases and insect pests depends almost entirely on visual recognition by technicians from training by the LTTA whose position has been terminated. It is our understanding that a participant trainee in Plant Pathology will be returning to operate this facility within the year. Again STTA may be an appropriate way to help this service laboratory to become a functional support unit.

3. FSR Capacity

The FSR capacity has actually regressed. The Masotho Farm Management Specialist does not have the knowledge and understanding of the process necessary for him to function as a team member responsible for economic input into OFR projects. As stated elsewhere in this report, farm management expertise is badly needed and we are pleased that this need has been recognized, and that a LTTA Farm Management Specialist has been recruited and will soon be placed.

4. ARD Skills Assessment

In general, there has been improvement in skills at the technician level. Research counterparts with training to the M.Sc. level are not available for all disciplines. We disagree with the present philosophy expressed by MOA administration concerning training levels required for research personnel. We agree that the adaptive research may not require a Ph.D. but believe that there should be at least one Masotho trained to a M.Sc. in each area where a counterpart to LTTA is needed. Students with a diploma or even a B.S. degree do not receive training in very necessary research protocols. Unless there are people trained to that level it will be very difficult to institutionalize Basotho research capacity.

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5. Research Farm - Maseru Station

The FSR project placed strong emphasis on the development of OFR and only very late in the project gave priority to the development of a NARS for Lesotho. The land area was mapped, access roads to plots laid out and some laboratory support facilities put in place. The LAPIS project has made further contributions to facilities and added a team of LTTA that are potentially capable of institutionalizing this facility. One area that did not seem to have been addressed is a management component for the station.

Although plots have been laid out and are being used for research projects designed within a discipline, we could not find in place a system for maintaining a history of treatments on each plot. One of the long-term benefits of a central station vis a vis OFR is the inclusion of interactions in the research design for various treatments. For example, there is often a synergistic effect from lime and fertilizer applications that is more pronounced on some crops than others. The liming effect on fertilizer efficiency may last for several years and may occur at lower levels of application than can be determined from Ph readings alone. Plot treatment and cropping history with trials designed to measure interactions can best be done on a central station under controlled conditions but can have long-term benefits in Lesotho agricultural productivity.

Managing a research farm to effectively support research projects, maintain continuing records of pest management and fertilizer treatments, maintenance of support equipment and supervision of farm labor should not be fragmented among indivudal research personnel. Management of a research farm is an important administrative function that is highly specialized.

Recommendations

1. That the Library be assessed for space requirements commensurate with planned acquisitions in the interim period prior to construction of the planned National Agricultural Library. That the librarian be supported in plans to convert to the Library of Congress System of cataloguing and STTA be provided.

2. That the Plant Protection Diagnostic Laboratory be evaluated in terms of its long-term support and service function. If the priority need is high enough, provide support necessary to develop a functioning laboratory.

3. The use of computer capability to access data banks and acquire tapes of specific scientific journal articles would further enhance a functioning library and we recommend that this be considered.

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4. That ARC and LAPIS identify training opportunities for management of research farm facilities and that the MOA nominate a person to be trained as Research Farm Manager. STTA should then be used to reinforce and help ARD put in place a Research Farm Management system.

PP Output 5: Linkages among researchers, extension workers, farmers, production input services, agriculture policy/planning personnel and other supporting institutions are improved.

1. LAPIS Committee Network

The PIP describes an inter-locking system of committees with membership from LAPIS Projects and GOL counterparts as a primary means of developing linkages necessary for the identification and transfer of knowledge to farmers. These Committees have not functioned as envisioned. They have not met to consider important problems on a regular basis. Minutes of Committee meetings indicate minimal discussion on topics related to the Committee purpose and often report one or more key members of the Committee absent from the meeting. The involvement of research to help them identify those problems that need further research or to adapt technology to Lesotho is totally inadequate and contributed to the implementation of research projects which are viewed to be of marginal value by the MOA.

2. Research/Extension Linkages

Although the Ministry of Agriculture is organized with both Research and Extension Divisions within the Department of Field Services, effective linkages have not been developed between the agencies. The breakdown seems to be most serious in the field where cooperation is needed between and among Research Personnel, Extension Agents and the farmers.

3. Research/Agribusiness Linkages

The suppliers of agricultural inputs such as credit, fertilizers, seeds, etc., have good communications with LAPIS although the only mechanism that has been developed for research input of changes of varietal recommendations requiring new seeds; plant protection requiring new chemicals; and the availability of soil amendments such as lime in the agricultural support system is through the National Inputs Committee to Coop Lesotho. But, not informing all other suppliers of agricultural inputs (e.g., Pioneer Seed Company) of changes in recommendations could result in critical shortages of required inputs at the beginning of a cropping season when new technology is released through coordinated campaigns to the farmer.

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Recommendations

1. Revision of the Formal Standing Committees: LAPIS should re-evaluate its complex committee structure and design improved internal linkages. It would appear that a Deputy Chief of Party with responibility for program coordination is needed. In many cases the appointment of ad hoc committees made up of individuals with expertise to solve an identified problem may be preferable and more effective than Standing Committees. LAPIS technical assistance personnel should be assigned to complementary teams to plan and support educational campaigns and research projects. For example, there must be close coordination between the PIC Marketing Specialist and the research teams to identify those crops for adaptive variety trials that have either a possible internal or external market. It is essential that research be involved at the planning stage of media campaigns or training activities. This will give research personnel the lead-time necessary for input of known technical information and provide them with a basis for design of complementary OFR that will assist the adoption process.

2. Formal Research and Extension Linkages: The Research and Extension Divisions of the Department of Field Services need to strengthen lines of communications and reach agreement on the role of Extension Agents and the DAO in support of OFR. The process of farmer, Extension Agent and DAO involvement with research in problem identification must be supported by both Divisions. An administrative policy statement that clearly enunciates the role and responsibility of personnel in both Divisions needs to be approved by the Director of Field Services and distributed to all personnel in Research and Extension. We believe this process to be evolving in the Department of Field Services and it should be fully supported by LAPIS.

3. In-Service Training: For personnel to perform at levels acceptable for achieving the desired adoption of technology by farmers, there will be continuing need for in-service training. Much of the training of field personnel should be done by technical assistants in cooperation with the DAO's and designed to support priority programs designated by MOA.

The LAPIS ARC must design in-service training for counterparts that will allow them to perform many tasks independent of supervision by the technical assistant. This training has to be commensurate with levels of formal training required for individuals to perform research tasks to the limits of their capabilities. Subsequent to training

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they must be given responsibility to do those tasks independently. They must not be made to feel that they are performing as hired labor.

4. Production Inputs: Agencies responsible for production input services require as much lead-time as possible to permit the purchase and distribution of seeds, chemicals, fertilizers, etc., prior to the cropping season. There are a large number of circulars that carry recommendations published by the FSR Project now in print. It is recommended that research personnel review and revise these circulars as soon as possible and that the date of the revision be printed on the publication. These should be immediately placed in the reproduction and distribution channels of AIS. The mailing lists for AIS should be amended to include all suppliers of agricultural inputs, not just to Coop Lesotho. It is recommended that the ARD initiate a peer review process for the release of all recommendations to insure technical correctness and that an agressive policy for the development and release of technical information needed to solve production problems be adopted. As soon as Economists are available, it is recommended that partial budgets on major crops grown in Lesotho by farmers in the three ecological zones and both for mechanized farms and those dependent on animal traction be developed. These should be made available to Agricultural Credit Unions and banks to assist them in making decisions on loan applications from farmers. The input of the USAID Credit Management Advisor should be solicited.

5. Policy Umbrella: Research projects must be designed under a broad Agricultural Policy approved by the country and articulated by the MOA. It is recommended that most research projects be designed by teams whose sub-projects all contribute to the GOL objective of improved production of an important commodity, i.e. maize, wheat, tomatoes, etc. Recommendations for the crop should be developed annually by the team using results of adaptive research and technology known to be directly applicable. It is suggested that dates be identified for teams to complete the annual recommendations and a work calendar be developed jointly with AIS for the publication and distribution of recommendations well in advance of a cropping season.

6. Other Support Institutions: Much of the research in Lesotho is adaptive research that falls in the gray area between traditional research and extension. Many techniques have been developed and are directly applicable to the production of the crops in Lesotho. It is recommended that research personnel establish communications with regional research centers and applicable U.S. universities to obtain publications relating to the culture of a specific crop of

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importance to Lesotho. Cultural practices and methods directly applicable to Lesotho described in these publications are in the public domain and can be used directly without copyright infringement. Of course, credit to an author quoted directly is a professional courtesy that should be observed. Direct contact with research counterparts in these institutions should be increased to obtain seed for varietal testing that show desired characteristics needed in Lesotho, for example, sorghum varieties resistant to smut and ergot and palatable for human consumption.

PP Output 6: Soils laboratory is equipped, staffed and effectively performing its role.

In general, the laboratory is well equipped and meeting its service role to both farmers and research. Leadership is professional, technicians know their jobs and perform efficiently. Correlation studies are underway and the value and accuracy of recommendations should continue to improve over time.

Recommendations

1. Personnel: The driving force behind the laboratory is Dr. Behjat Badamchian. She is the only person with the professional training and the management skills to make the laboratory function effectively. It is critical that her services be retained until a counterpart with professional qualifications can be trained as her successor. She is to be commended for the training of technicians in the performance of specific tasks, but there is no one presently capable of continuing critical correlation studies, interpreting data for fertilizer and soil amendment recommendations, and overall management of the total laboratory in the event that she departs or her position is terminated.

2. Facilities: The laboratory is operating at full capacity in the space available. If the service function continues to grow at present rates, plans should be made immediately to enlarge parts of the laboratory. Specifically, areas for receiving and drying samples; the routine chemical analysis laboratory; and, the administrative support area where recommendations are processed, mailed, and filed.

There is a well equipped soils physics laboratory that is now under-utilized. It is recommended that production personnel working with farmers on irrigated crops make use of this facility to determine soil moisture holding capacity, characteristics of percolation and capillarity, and depth of soils to impermeable clays. This information

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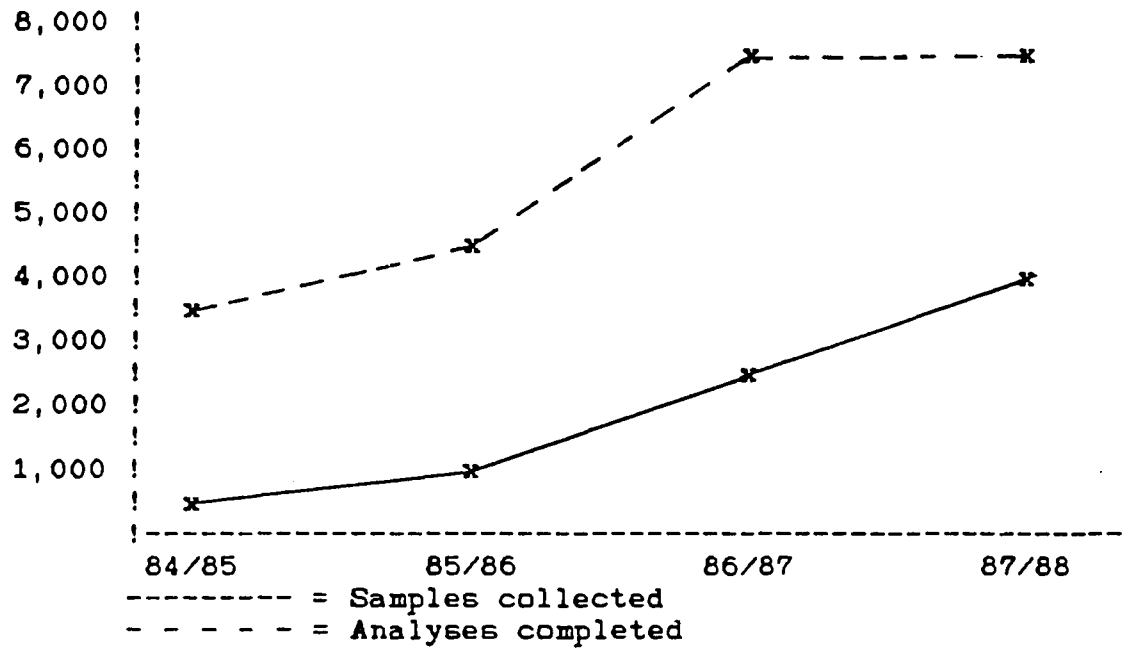
should be useful to farmers on the applicaton of supplemental water, and to Research and Extension Personnel making recommendations for the design of irrigation systems.

Figure 1. Services provided by the ARD Soil Science Section



3. Equipment: The laboratory is well equipped; however, it is recommended that immediate steps be taken to protect sensitive equipment against surges in electrical current. Charges for repair due to electrical surges for one piece of equipment, the Atomic Absorption Spectrophotometer, could cost more than the necessary protection for the entire laboratory.

Correlation data accumulated over time increases the value and accuracy of soil test recommendations. Economic input into research projects to determine maximum profit points instead of raximim yield points on the production curve will need to be reflected in fertilizer and liming recommendations. It is recommended that computer capability be added to the laboratory to make possible storage and retrieval of correlation data to be directly applied in soil test recommendations. Computerized print-outs of recommendations should reduce the time between soil sampling and receipt of recommendations by the farmer. There are many soil test laboratories in the U.S. using computerized recommendations that should be able to assist with applicable software.

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4. Fees: The laboratory has already established the precedent for farmers to pay fees to cover the cost of part of the service of the laboratory. Presently, these fees return to the treasury of the GOL. It is recommended that authority be sought to establish a revolving fund with appropriate accountability to the GOL for fees collected. It is also recommended that a study be made to set fee levels to be charged to farmers, commercial schemes, and other donors. The present increase in the number of samples has resulted in demand for immediate support from LAPIS to replace chemicals and other supplies. A fee system and revolving account are needed to move the laboratory toward operational self-sufficiency. The fee system is only expected to replace expendable supplies and other minor equipment repair.

5. Training and Extension: Soil samples must be taken correctly to obtain a composite sample that accurately represents the area where the crop is to be planted. Instructions on correct sampling techniques must be continually used by crops and extension personnel to train farmers using the soil testing laboratory for the first time. A poor composite sample can give disappointing results to the farmer and damage the credibility of the laboratory.

All farmers and professional personnel should be asked to plan the submission of samples to the laboratory as far in advance of the cropping season as possible. The increased volume of samples just prior to a cropping season creates logistical problems in the laboratory that may delay completition of tests and the return of recommendations in time for appropriate use in making management decisions.

6. Plant Tissue Analysis: The soils laboratory has the capability to do plant tissue analysis with the provision of space and some equipment for use in receiving and handling samples. Training and the demonstration of plant tissue sampling techniques would also be a necessary part of initiating this service. To make plant tissue analysis possible there will need to be additional input of technicians to be trained in analytical procedures and given on-the-job training. The soils laboratory staff cannot absorb this additional responsibility.

Tissue analysis offers an additional means for correlating fertilizer and lime response over a period of time and will refine and sharpen recommendations for farmers based on soil tests and can be of long term benefit to Basotho farmers. The immediate and more pressing need is the analysis of forage to determine forage quality and feed value to livestock. It is known that the stage of cutting of grasses

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for hay has a direct correlation with feeding value. The collection and handling of stover is generally known to influence quality of this common feed for livestock. Since loss of weight through over-wintering is a serious problem identified as a high priority by MOA, we believe tissue analysis to be of immediate importance for the identification, handling, storage and recommendations for feeding forages to livestock.

Thus, we recommend that tissue analysis capability be developed at the soils laboratory at the earliest possible date.

PP Output 7: Feedback from Research Division is linked to curriculum planning and training systems.

1. Curriculum Development

The procedure for curriculum revision is well entrenched in Lesotho's Institutions of Higher Education. We do not believe that it is realistic to expect ARD to be brought into the curriculum planning and revision process at this time. Their contribution should be the communication of research results to individual professors for use in up-dating course content. Improved linkages with the LAC Training Office need to be developed and have been referred to elsewhere in this report. As the ARD builds a body of technical knowledge and recommendations, and publishes these in circular form, we would expect these to be placed in both the LAC Student Library and in the Research Library located contiguous to the LAC Campus.

2. Training Systems

It is our understanding that the ARC Team and their ARD counterparts have served as resource people and trainers in two training sessions sponsored by the AEC and LAC. We believe this to be a very appropriate use of their time if these sessions were geared for the dissemination of appropriate technology to solve priority problems of the Basotho farmers.

Recommendation

That improved linkages be developed immediately with LAC/LAPIS Training Office but that ARD not be held accountable for curriculum revision. We would recommend that information developed by researchers be distributed to LAC professors to be used in revision of course content.

E. Task E: Evaluate commitment, adequacy, timeliness and level of support from Contractor, Government of Lesotho (financial and human resources) and USAID in project implementation.

1. Contractor

In the vast majority of cases, we believe the Contractor has been very responsive and supportive in its efforts to achieve Project goals. However, in the prologue to this section, we suggest that a formal team-building effort should have preceded the fielding of the ARC Team. This omission, we believe, has resulted in: a proliferation of discipline-oriented research instead of more collaborative problem-oriented research; a lack of understanding of ARC goals and how they relate to the LAPIS objectives; a failure to capitalize and build on the progress made by the FSR Project; and, a lack of understanding of how to go about building linkages with other Project components and MOA Departments and Divisions that are necessary to facilitate achievement of ARC goals. We make a recommendation to rectify this omission in a subsequent section.

2. GOL

Due to severe fiscal constraints, the GOL is probably not making the degree of input to the LAPIS Project as was anticipated during project design which is understandable and, to our way of thinking, somewhat justifiable. But, several of the ARC LTTA are now working without counterparts who are peers in terms of technical competence and abilities. This requires those LTTA to assume primary responsibility for project development and implementation. This is perfectly understandable for projects that have a long-term training component, and is valid use of technical assistance time. But, if LTTA never have a chance to work with counterparts, institutional development is hindered and the efforts of the LTTA will probably be transitory.

Recommendation

That the MOA use its best efforts to provide counterparts for all LTTA during their tenure in Lesotho.

3. USAID

The lack of a single complaint from LAPIS personnel and MOA management leads us to believe that USAID has fulfilled its responsibilities in a timely manner. However as we have indicated, the decision not to include an Agricultural Economist in the composition of the ARC Team during project design was a rather serious error. This omission has contributed to: a failure to build on the network the FSR Project had established between farmers, Extension, and Research; research being conducted along disciplinary lines; lack of achievement of PP outputs vis a vis strengthening FSR efforts; and, ARD difficulty in identifying and prioritizing problems. The assignment of a Marketing Specialist to the PIC and and a Farm Management

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Specialist to the ARC coupled with OFR training and team-building training should help put ARC and ARD back on track in their efforts to identify/develop improved appropriate technology.

F. Task F: Recommend modification of the component's strategy, implementation, inputs, outputs as may be required to ensure achievement of component's goals and purposes.

1. Sustainable Agricultural Systems

It was not our intent, nor were we charged, to try in the very short time we were in Lesotho to identify priority research programs. Data in the materials we reviewed for the evaluation indicate that crop yields have declined over time and that 70 MT of topsoil/ha/annum are lost to erosion. This degredation of the natural resource base, to our way of thinking, is alarming because it places the agricultural future of Lesotho in jeopardy. For the near-term, the loss of topsoil can be compensated for by additional inputs such as fertilizer. For the long-term, however, sustainable agricultural systems must be identified that are both appropriate to Lesotho conditions and will prevent further degredation of the resource base. By sustainable agricultural systems we do not mean organic farming or no/limited inputs. What we mean are systems that will maintain crop yields at current levels with the current level of inputs. Practices that come to mind are: agroforestry; nutrient recycling; alley cropping; strip cropping; reduced tillage; farming on the contour; ridging; etc. Several of the IARC's have done extensive research on these practices, and Oregon State University, a CID member, has recently commissioned a Center for Sustainable Agriculture that can be accessed by ARD to identify those practices that hold the most promise for Lesotho.

Recommendation

> That the MOA identify sustainable agriculture systems as a mid-term program priority, and that ARD collect a comprehensive set of literature on the subject.

2. Prototype Area Use

We were asked specifically by a MOA official to make recommendations for use of the prototype areas, and we visited Nyakosoba to assess it facilities. Additionally, we discussed this with the ARC Team Leader from who we found that recommendations for prototype area use had been made in a recent position paper that he and the Acting Director of ARD had prepared for the MOA. They envision using the prototype areas as a step in a sequential process to move technology from Maseru to farmers' fields. In effect, they are planning to use the prototype areas to assess technology x environment interactions, a perfectly valid step in research. To this we add the following for consideration.

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We suggest that the prototype areas might be used to bridge the gap between the research station and farmers' fields. If a promising technology is identified on-station, or elsewhere, it may be advisable to test this technology under simulated farmers' conditions before entering it in OFR, the reason being that technology should never be introduced in farmers' fields if it might be worse than that currently employed by the farmers. If the majority of the farmers in the prototype area use animal traction for plowing, seedbed preparation and cultivation, then the technology being evaluated should be subjected to those same management practices. An additional benefit from this approach is that those technologies that performed well under management practices employed by the majority of farmers could be used as demonstrations during field days or farmer training courses held at the prototype area. And, recurrent costs would be significantly reduced if tractors and farm equipment were not driven/hauled from Maseru to the prototype areas and back.

G. Task G: Identify problems and constraints which have been encountered in the implementation of this component, and make recommendations to alleviate them.

1. Coordination Between and Among Project Components

The PP justifies the multi-component nature of the LAPIS Project in terms of improved technology development and transference. Specifically p. 11 states: "Technology development and transference are emphasized in the three components... In the Education Component, improved curricula will be developed to provide technical training for extension agents and farmers. The Production Component will coordinate and focus the technical resources of the MOA and advise small farmers of the needed technology for increasing crop and livestock production. In addition, the Production Component will act as a catalyst to ensure that communication linkages are developed between research and extension." And p. 8 states: "The multi-component sectoral-type approach offers the framework to bring research, extension and related technical assistance to focus on production needs. By bringing the key activities needed for increased production within one project the required interactions can be better synchronized and coordinated." Although not specifically stated, inherent in this is the complementarities to be realized by all three components from close collaboration and cooperation between and among the components. However, interviews with all three component Team Leaders, and some of the component Team Members, indicate that, in fact, this close collaboration and cooperation has not been realized, and that each component seems to be operating as an independent project under the banner of a single management entity. There is no evidence to indicate that the ARC and ARD have made any input into curriculum for the Agricultural College, nor that ARD had any input into the irrigated vegetable production projects implemented by PIC. Conversely, we have found no evidence of AEC

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or PIC input into problem identification or in the prioritization of research projects implemented by ARC and their ARD counterparts. It was suggested to us that the ARC and ARD could support PIC by visiting on-going PIC-supported vegetable production areas to provide solutions to problems as they arise; i.e., to serve as Extension Agents. Although this may be a very valid use of ARC and ARD time, it does not, however, bring ARC and ARD expertise to bear on problem avoidance.

Recommendations

1. That the LAPIS Project employ an outside consultant, such as USDA's Development Program Management Center, for team building training to facilitate coordination and cooperation within and among Project components and the personnel assigned thereto.

2. That the size, complexity and diverse purposes of the LAPIS Project components make it desireable that a formal orientation training course be developed for all new personnel arriving in-country. This should include programmatic linkages as well as administrative and logistical procedures. This is an internal administrative procedure and can be implemented immediately.

2. Program Coordination and Oversight

From our perspectives as former Chiefs of Party, the multi-component nature of the LAPIS Project coupled with the large number of LTTA assigned to the Project add up to an administrative and logistical nightmare. It is hard to imagine how the LAPIS Chief of Party can find enough time to handle the logistics of the Project and, at the same time, devote the attention that is required to realize effective coordination between and among the components, and provide oversight to component programs as they relate to achieving Project objectives and goals. For these reasons, we suggest consideration be given to adding a LAPIS Deputy Chief of Party with the responsibility and authority for oversight of coordination and programs, but not for administration.

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IV. List of Persons Contacted or Conferred with by the Evaluators

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V. Acronyms and Abbreviations

AID	Agency for International Development
AIO	Agricultural Information Office
AIS	Agricultural Information Service
AEC	Agricultural Education Component
ARC	Agricultural Research Component
ARD	Agricultural Research Division
CGIAR	Consultative Group for International Agricultural Research
CID	Consortium for International Development
CIMMYT	International Center for Maize and Wheat Improvement
DAO	District Agricultural Officer
DFS	Director of the Department of Field Services
EA	Extension Agent
FSR	Farming Systems Research
FTC	Farmer Training Center
GOL	Government of Lesotho
IARC	International Agricultural Research Center
LAC	Lesotho Agricultural College
LAPIS	Lesotho Agricultural Production and Institutional Support Project
LTTA	Long-Term Technical Assistant(ce)
MOA	Ministry of Agriculture
NARS	National Agricultural Research System
OFR	On-Farm Research
PA	Prototype Area
PIC	Production Initiatives Component
PIP	Project Implemenation Plan
PP	Project Paper, Project No. 632-0221
SEA	Senior Extension Agent
STTA	Short-Term Technical Assistant(ce)
USAID	AID Mission to Lesotho
USDA	U.S. Department of Agriculture

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