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Agricultural Education Development Project

Sri Lanka

(Project No. 383-0049)

REPORT OF PROJECT EVALUATION

conducted by

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Preface

It would have been desirable to include on the team at least one experienced evaluator who had had no previous connection with the present project. This had been planned, but could not be implemented due to limitations on resources available for this evaluation. Consequently, all members of the team have been involved in operation or monitoring of the project for two years or longer. To minimize the problem of maintaining objectivity in evaluating the project, the team took two major actions in addition to themselves making a conscious effort throughout the evaluation to view the project as outsiders rather than as project participants.

First, information concerning the major topics in the evaluation scope of work was solicited from key staff in the PGIA/FA, all present and former training participants, CAED members, and USAID. Responses were tabulated and summarized for reference by the evaluation team. No interpretations were placed on any responses at that stage.

Second, copies of the response summaries were distributed back to the respondents and later discussed at a Faculty academic committee meeting in which the evaluation team participated. Project reports, participant files, etc., were also utilized to spot check the factual information received. The verified responses were used as a basic information source for reaching conclusions, supplemented by official project documents and reports and team observations.

In addition to making recommendations concerning the present project, the team has also included recommendations applicable to future projects of similar nature for aspects in which the AED project is already in an advanced stage.

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Acronyms, Abbreviations, Definitions

AED Project	- The Agricultural Education Development Project.
AID, AID/W	- The United States Agency for International Development.
BSc	- Bachelor of Science degree awarded by the University of Peradeniya.
CAED	- The Consortium for International Agricultural Education Development comprised of the Academy for Educational Development, Pennsylvania State University (Penn State), Texas A&M University (Texas A&M), and Virginia Polytechnic Institute and State University (VPI). The Consortium is providing technical services to the AED Project.
Contract	- Negotiated Contract No. AID/ASIA-C-1397 to provide technical services to the PGIA and FA under the AED Project.
Contractor	- Academy for Educational Development.
COP	- Contractor's Chief of Party in Sri Lanka.
Dodangolla	- FA experimental farm located about 12 miles from campus.
EOP	- End of Project.
FA	- Faculty of Agriculture of the University of Peradeniya.
GSL	- Government of Sri Lanka.
Local advisor	- A scientist resident in Sri Lanka (usually Sri Lankan) who provides guidance and direction to a participant's PhD research conducted in this country.
M.I.	- First year FA unit at Maha Illuppallama, about 70 miles from campus.
Mawela	- Animal Science field laboratory/farm, near campus.
Meewatura	- Agricultural Engineering experimental farm, near campus.
MPhil	- Master's degree awarded by PGIA; requires both coursework and thesis.
MS	- Master of Science degree awarded by a U.S. university.
MSc	- Master's degree awarded by PGIA; primarily coursework.
PACD	- Project Activity Completion Date (presently 30 Sept 1985).
Participant	- A junior staff member of the FA being trained under AED Project.
PGIA	- Postgraduate Institute of Agriculture of the University of Peradeniya.
PhD	- Doctor of Philosophy degree.
PI	- Plan of Implementation.
PP	- Project Paper.
p.mos., p. yrs.	- Person months, person years.

- Sub-Contractor** - Penn State, Texas A&M, VPI.
- T.A.** - Technical assistance.
- UGC** - University Grants Commission of the Ministry of Higher Education.
- University** - The University of Peradeniya.
- U.S. advisor** - The major advisor of a participant trainee.
- USAID, Mission** - AID Mission in Sri Lanka.

1.0 EXECUTIVE SUMMARY

A 1977 study of Sri Lanka's needs for high level agriculturally trained manpower revealed a large unmet demand. The capacity of the Paradeniya Faculty of Agriculture (FA) and Postgraduate Institute of Agriculture (PGIA), the only agricultural degree-granting institutions in the country at that time, fell far short of meeting that demand in the foreseeable future. The Agricultural Education Development (AED) Project was consequently initiated in 1978 with a \$6.0 million grant, for institution building and technology transfer, to expand and upgrade the capacity of these institutions to produce BSc and postgraduate degree holders. (Project funding was increased to \$7.5 million in 1982 through an additional grant of \$1.5 million).

1.1 Purpose of Evaluation

The purpose of the present evaluation, the first since project initiation, was to review what has been accomplished to date, and to determine if any mid-course corrections are necessary to improve project effectiveness and efficiency. The methodology included review of project documents and reports, solicitation of information from both recipients and providers of the project's technical services, and three days of inspection visits to on and off campus facilities of the PGIA/FA. The Project Paper (PP) Supplement of early 1982 was used as the primary reference document for assessment of progress to date in relation to expected outputs. Reference was also made to the original PP prepared in early 1978 in assessing specific inputs and outputs projected.

1.2 Findings

The combined annual output of agricultural BSc graduates from the three now existing faculties of agriculture is now expected to exceed 180 by 1985-86 and to reach the 200 stated in the project purpose about 2 years later. (The delay in reaching the targeted level is due to delay in completion of planned expansion of the FA off campus facility for first year students). The target of tripling the annual output of indigenously trained agricultural postgraduates should be reached by 1985-86 as anticipated.

It is now estimated that the expected output of 38 additional PhDs will be reduced to 36 PhDs plus 1 MS due to the failure of two participants to complete their PhD programs. (This may be increased by 2 additional MS's depending upon an anticipated project amendment on number of trainees.) Other expected outputs will be achieved by the end of the project according to present estimates except that some construction by the PGIA/FA will still be in progress and total academic staff may be 4-5 percent fewer than projected in the original PP.

Project progress to date was found to be satisfactory, taking into con-

sideration the higher than anticipated impact of inflation that resulted in the necessity to reduce the level of some inputs (primarily technical assistance under the AID grant and vehicles under the GSI contribution) and the necessity of the PGIA/FA and Contractor to develop new procedures during the course of the project related to training. Training completion dates are a source of concern, however, as it is estimated that not all PhD training will be completed by the present project activity completion date (PACD). Few major in-course corrections are indicated, although a number of opportunities for further improving project performance were identified.

Although not a part of the project per se, the evaluation also examined briefly the present situation with regard to employment opportunities for agricultural graduates. The team concluded that a re-assessment of present and future demand for agricultural graduates and postgraduates is needed as there appears to be a slackening of demand for graduates at present.

1.3 Recommendations

In all, some 66 specific recommendations are included in the body of this report. It is impossible to place all in order of priority, as many are considered to be of equal importance; but four, which imply substantive mid-course changes or corrections are considered to be most critical as indicated below. All recommendations are listed in the body of the report as "major" or "other", and those in the "major" category are summarized below.

Recommendations of highest priority

1. The PACD for training should be extended through December 1986 to permit completion of all PhD training if, despite maximum pressure exerted by CAED (Consortium for International Agricultural Education Development) and PGIA/FA, not all participants can complete by the present PACD.
2. All U.S. advisors of participants who return to Sri Lanka for PhD research should come to Sri Lanka on short term T.A. assignments.
3. Two additional junior staff should be admitted for MS-level training provided such training can be completed by the present PACD and sufficient funds are available in the present training budget.
4. Recruitment for technical assistance (T.A.) assignments should be limited to staff of U.S. institutions.

Other major recommendations

5. Implementation through the remainder of the project should adhere to the modified plan of implementation (PI), although flexibility should be maintained to adjust as required to achieve maximum project performance.
6. Some modifications (detailed in the body of the report) should be made in determination of the length and timing of T.A. assignments to increase the overall effectiveness of that input.
7. Participants should, with few exceptions, conduct their PhD research in Sri Lanka; although each case should be assessed on its own merits.
8. Greater attention should be given to the identification, involvement and recognition of local advisors of PhD research.
9. The GSL should continue to give high priority to meeting the capital and recurrent expenditure needs of the PGIA/FA to enable them to reach enrollment targets and maintain world standards in quality of education provided.
10. The University and GSL should make every possible effort to continue to improve staff salaries, perquisites and support.
11. Consideration should be given by donor agencies to providing early support for a comprehensive study of Sri Lanka's future needs for development of higher education in agriculture, including a reassessment of present and future demand for agricultural graduates and postgraduates.
12. The next major evaluation of the AED Project should be scheduled in late 1984 or early 1985, with emphasis on project and Contractor performance.
13. An impact evaluation should be made approximately five years after the PACD.

2.0 Basic Project Identification Data

1. **Country:** Sri Lanka
2. **Project Title:** Agricultural Education Development
3. **Project Number:** 383-0049 (Grant)
4. **Project Dates:**
 - a. **First Project Agreement:** August 31, 1978
 - b. **Final Obligation:** March 15, 1982
 - c. **Project Activity Completion Date (PACD):** September 30, 1985
5. **Project Funding:**
 - a. **AID Bilateral Funding (Grant):** \$7.5 million
 - b. **Other Major Donors:** *
 - c. **Host Country Counterpart Funds:** \$5.4 million
6. **Mode of Implementation:** AID direct contract with Academy for Educational Development, Inc.
7. **Project Design:** The Government of Sri Lanka and USAID/SL with the assistance from contracted technical assistance team.
8. **Responsible Mission Officials:**
 - a. **Mission Director(s):** T. Arndt, S.J. Littlefield
 - b. **Project Officer(s):** C. Antholt, T. Wilson, R. Kriegel, J. Bonner
9. **Previous Evaluations:** None
10. **Cost of Present Evaluation:** Evaluation costs borne by contracted and implementing agencies.

* Omitted because dollar value difficult to obtain.

3.0 Summary Of Major Findings, Conclusions And Recommendations

Project performance to date was found to be satisfactory, and any adjustments made during the course of implementation appear to have been justified. Few mid-course corrections are needed, although a number of opportunities for further improving performance were identified. Major conclusions and recommendations are summarized below.

3.1 The Sri Lankan situation with regard to higher education in Agriculture (from Section 4.0)

Two additional faculties of agriculture have been established in Sri Lanka since 1978, developments that have both negative and positive implications for the Postgraduate Institute of Agriculture (PGIA) and Peradeniya Faculty of Agriculture (FA). The PGIA is still the only institution offering agricultural training at the postgraduate level. Total undergraduate agricultural training capacity now under development will exceed 1977 projections of sustained demand for BSc graduates; there is some evidence of slackening demand at present, although this may be temporary.

Major conclusions

- The establishment of two new agricultural faculties has potential for increasing the total impact of the higher education system in terms of total output of trained agricultural manpower, agricultural research and outreach.
- By the mid-1980s, the PGIA should have the capacity to satisfy most of the demand for postgraduate training in the principal areas of agricultural specialization.
- There is urgent need for a comprehensive reassessment of present and future demand in Sri Lanka for agricultural graduates and postgraduates.

Major recommendations

- Collaborative research and outreach programs and development of teaching materials involving the Peradeniya, Ruhuna and Batticaloa faculties of agriculture should be encouraged, and supported by the UCC, to obtain maximum benefit from the total investment being made on higher education in agriculture by Sri Lanka.
- A comprehensive study of Sri Lanka's future needs for development of higher education in agriculture, including a reassessment of present and future demand for agricultural graduates and postgraduates should be undertaken as soon as possible.

3.2 Overall project assessment (from Section 5.0)

Increases in FA enrollments have been delayed pending expansion of its off-campus facility for first year students. However, total intake of first year students by the three faculties was 205 in 1982. It is estimated that the combined annual output of BSc graduates will exceed 180 by 1985-86, and that the project purpose of 200 annually will be reached in about 1987-88. It is estimated that the stated purpose of tripling postgraduate output by 1985-86 will be achieved, although the relative proportion of MSc, MPhil and PhD degrees will be somewhat different than originally projected.

3.3 Faculty development (from Section 6.0)

Faculty development is a long term process whose impact can be measured only after staff in training have been back in place long enough to effect changes in existing programs and/or develop new programs in their respective areas of specialization. Thirty eight junior staff entered training as targeted, but termination of two prior to achieving the PhD will decrease the expected output of PhDs to 36. The addition of two participants for MS level training is proposed to replace those who failed to complete the PhD. The distribution of entries into training over three instead of the originally projected two academic years partially alleviated serious PGIA/FA problems, but will make it impossible according to present estimates to complete all training by the project activity completion date (PACD).

It is still estimated that nearly all participants will conduct their PhD research in Sri Lanka as planned and that local advisors will be identified to assist in their guidance and supervision. Direct in-country supervision of participant research, and interaction with local advisors, by the U.S. advisor are considered by the PGIA/FA and Consortium for International Agricultural Education Development (CAED) to be crucial to the success of this phase of the training program.

The total PGIA/FA staff complement has risen from 39 in 1977-78 to 74 in September 1982, and is expected to reach 87 by the end of the project (just four less than projected in the original PP). The staff attrition rate to date has been low, although resignations of five senior faculty members since 1977 have resulted in short range problems for the PGIA/FA and project. Future success in maintaining an acceptably low attrition rate will depend upon a number of factors, including salaries and associated perquisites.

Major conclusions

- The output of training under the project can now be estimated at 36 PhDs plus 1 MS. This output may be increased by 2 MS's depending upon action taken on the recommendation to increase the number of trainees for this purpose.

Major conclusions

- The distribution of entries into training over 3 academic years was justified.
- It will be impossible to complete all PhD-level training by the present PACD.
- The return of participants to Sri Lanka for dissertation research is strengthening the project's training component.
- The system developed for supervision and support of PhD research in Sri Lanka is sound, although greater attention needs to be given to the local advisor aspect.
- The priority being given to bringing U.S. advisors to Sri Lanka for short term direct research supervision and associated responsibilities is justified on the basis of past experience.
- Academic and research training received by participants is generally satisfactory and appropriate to PGIA/FA and Sri Lankan needs.
- PGIA/FA progress to date in faculty development has been satisfactory and the staff attrition rate has been acceptably low.

Major recommendations

- The PACD for training should be extended through December 1986 to permit completion of all PhD training if, despite maximum pressure exerted by CAED and PGIA/FA, not all participants can complete by the present PACD.
- Participants should, with few exceptions, conduct their PhD research in Sri Lanka; although each case should be assessed on its own merits.
- Two additional junior staff should be admitted for MS-level training provided such training can be completed by the PACD and sufficient funds are available in the present training budget.
- All U.S. advisors of participants who return to Sri Lanka for PhD research should come to Sri Lanka on short term assignments.
- Greater attention should be given to identification, involvement, and recognition of local advisors of PhD research.
- The University and CSL should exert every possible effort to continue to improve staff salaries, perquisites and support, including resources for teaching, research and outreach of the expanded PGIA/FA staff.

3.4 Facilities development (from Section 7.0)

The expected outputs, as defined in the PP Supplement, are adequately equipped facilities for teaching and research. Expected inputs include 10 jeeps and equipment valued at approximately \$ 792,000 (excluding shipping) to be procured under the AID grant, and procurement of two vehicles plus the construction or renovation of 25 large and small buildings on and off campus to be contributed by the GSL. All vehicles and about 48 percent of the equipment have been delivered to the PGIA, and it is estimated that up to 90 percent of total equipment procurement will be completed or in process by the end of 1982. The GSL has completed its equipment procurement; and the construction program is well underway, although it is not meeting the time schedule projected in the original PP due to GSL contracting procedural delays.

Major conclusions

- Progress to date in vehicle and equipment procurement is satisfactory.
- The present equipment procurement system is effective and functioning well, as reviewed by AID/AUDIT/Karachi.
- Commodities procured under the project, when added to those being acquired through other donors and from University appropriations, should meet most of the highest priority needs of the PGIA/FA, as the system of commodity selection allows the PGIA/FA to determine their priorities.
- Acceleration of procurement to minimize the impact of inflation was justified.
- The originally projected PGIA/FA construction schedule was highly unrealistic, and its substitution with the present plan was justified.
- Present progress of the GSL in vehicle procurement and facilities development is satisfactory, considering currently prevailing economic conditions in Sri Lanka.

Major recommendations

- The present procurement system, including utilization of an approved purchasing agent, should be continued as is.
- The PGIA/FA and Contractor should have flexibility to procure commodities from non-U.S. sources if such is required in order to obtain items suitable for local conditions and needs, in accordance with AID procurement regulations.

3.5 Library development (from Section 8.0)

The PP supplement provides for procurement of a small increment of equipment, 8,000-10,000 books, and 60-65 journal subscriptions to provide adequately equipped library facilities. Library equipment procurement has been virtually completed and 64 journal subscriptions have been purchased. Book procurement is behind schedule, but the projected end of project (EOP) status will be achieved if the present rate of acquisitions is maintained.

Major conclusions

- Procurement of library equipment and journals has been virtually completed.
- After a slow start, the present rate of book acquisition is acceptable; but procurement of materials on film/fiche should be accelerated.
- The present library acquisition procurement system is efficient and functioning well.

Major recommendations

- The present library procurement system, utilizing an established book purchasing agent, should be continued as is, and the present rate of book acquisition should be maintained. The procurement of materials on film/fiche should be accelerated.
- The PGIA proposal to utilize funds presently projected for a library development T.A. assignment to provide, instead, short term training in the U.S. for an assistant librarian from the PGIA library should be approved and the training arranged as early as possible.

3.6 Curriculum and teaching (from Section 9.0)

Expected project inputs toward the expected output of revised and improved curricula being used in agricultural science, as projected in the PP Supplement, will include about 19 person-years (p.yrs.) of short and long term visiting faculty with responsibility, among other things, to assist in curricula development. To date, the entire BA undergraduate curriculum has been revised and more than 20 subjects added to it since 1977. The six PGIA boards of study have revised their postgraduate course offerings and more than 15 new courses are now included. Some areas specified in the original PP can be developed only upon the return of staff currently in training.

Major conclusions

- EOP status with respect to curriculum development will meet and, in fact, far exceed the outputs anticipated in the original PP.
- For the areas of specialization in which planned T.A. can be provided, visiting faculty contributions to teaching and curriculum development have to date been satisfactory.

Major recommendations

- Curriculum development in the PGIA/FA should continue along the same lines as at present.
- Scopes of work for T.A. assignments should clearly identify assistance in curriculum development as one of the areas of responsibility.

3.7 Research programs (from Section 10.0)

Contributions under the AID grant toward achieving the output projected in the PP Supplement of operating research programs in all six FA/PGIA departments/boards of study include T.A. assistance in research planning and development and graduate degree research supervision, and provision of vehicles and equipment. The original PP identified 7 expected types of outputs related to experimental farm development, research, and research training, of which 4 have been finalized, 2 are well advanced, and 1 is in the discussion stage.

Major conclusions

- Overall progress in development of research programs has been excellent to date, and it is estimated that all EOP targets will be met or exceeded.
- Assistance to research program development provided by visiting faculty has been generally satisfactory.
- The provision of equipment for laboratories and experimental farms, discussed in section 7.2, has been a crucial element in the development of PGIA/FA research programs.

Major recommendations

- Greater attention should be directed toward development of an effective system for coordinating research both within the PGIA/FA and with other research organizations.

Major recommendations

- Scopes of work for T.A. assignments should clearly identify assistance in research planning and development as one of the areas of responsibility.

3.8 Outreach programs (from Section 11.0)

Contributions under the AID grant toward achieving the output of operating outreach programs in all six FA/PGIA departments/boards of study projected in the PP Supplement include T.A. and equipment to establish a media unit. The T.A. impact has been minimal to date due to premature timing of a long term assignment and the pressure of administrative duties of the Chief of Party (COP) who was also designated for the extension T.A. assignment, and the necessity to eliminate a short term assignment due to funding constraints. All departments/boards of study are now actively involved in outreach activities, although the program has not yet been institutionalized.

Major conclusions

- The originally projected schedule of outreach program development and, consequently, timing of the T.A. assignment in extension were unrealistically early; but projected EOP status still appears achievable.
- The media unit being equipped with commodities procured under the project should be adequate to support the envisioned outreach program provided that: 1) waivers are granted for purchase of non-U.S. equipment where required, and 2) the University provides additional qualified staff needed to man the unit.
- A long term specialist in communications would contribute significantly to development of the media unit and, consequently, the outreach program.

Major recommendations

- Emphasis should be given to early institutionalization of the PGIA/FA outreach program to impact upon all its identified audiences, when staff out for training return to full time duty.
- Waivers should be granted for purchase of non-U.S. items to equip the media unit where there is no viable U.S. alternative.
- The Department of Agricultural Economics and Extension should soon determine the full staff complement required for the media unit and other outreach program support functions, and the University should take necessary action to provide those staff.

Major recommendations

- It would be desirable to select a specialist in communications to replace the retiring COP, provided he/she also meets the other qualifications required for that position.

3.9 Technical assistance (from Section 12.0)

Approximately 19 p.yrs. of technical assistance are projected in the PP Supplement 3 p.yrs. less than in the original Contract, of which about 12 p.yrs. have been provided to date. Some adjustments in projected discipline, timing and duration for T.A. assignments have been made following periodic reassessments of need. Twenty-four of the 26 disciplines projected in the original PP will have been covered by the end of the project. Assignments in 17 additional disciplines are also now anticipated, 13 of which are related to participant PhD research supervision to which the PGIA/FA and CAED award high priority. As the result of the overall reduction in level of effort and addition of more disciplines, many assignments have had to be shortened. All assigned T.A. functions except outreach have received satisfactory attention and most of the highest priority needs of the PGIA/FA for technical assistance will be satisfied at least partially, although at least six areas will receive less than desired assistance. It is estimated that about 90 percent of the T.A. assignments over the life of the project will be filled with long term staff of the CAED institutions.

Major Conclusions

- Modifications and adjustments in original PP projections for T.A. made during the course of the project are consistent with project purposes and objectives, and have been in the best interest for achieving maximum benefit from T.A. provided.
- Distribution of T.A. assignments among the various disciplines in the six departments and the PGIA Library has been good, and most high priority needs will have been met at least in part by the end of the project. However, the T.A. contribution will be less than planned and needed in communications, agronomy, entomology, soil physics, agronomy, and agricultural waste management due to the reduction in level of effort.
- Planned emphasis on assignments to provide in-country PhD research supervision and associated curriculum, research and outreach assistance is justified.
- Although longer assignments would have been desirable in some cases, the shortening of assignments as done to date and projected for the future represents a reasonable compromise in terms of satisfying highest priority T.A. needs of the PGIA/FA within the constraints of available resources and availability of outstanding T.A.

Major Conclusions

- General T.A. performance has been good and End of Tour reports have been consistently well prepared and well received by the PGIA/FA.
- The high percentage of T.A. personnel who have come from long term staff of the CAED institutions is commendable. However, recruitment of non-U.S. citizens not associated with a U.S. university should be avoided.

Major recommendations

- Assignments involving U.S. advisors of participants should be scheduled at times that will permit most effective supervision and guidance of PhD research, with the proviso that they should normally fall within an academic term of the PGIA/FA.
- To the extent permitted by resource constraints, assignment lengths should be sufficient to provide time at the outset for orientation and familiarization, and at the end to prepare required documentation (reports, course syllabi, etc.).
- Recruitment for T.A. assignments should be limited to staff of U.S. institutions.

3.10 Project design and implementation (from Section 13.0)

The following factors related to design and implementation were examined as part of the overall assessment of the project: basic design; inconsistencies among project documents; implementation; and USAID, Contractor, and GSI support and involvement. The conclusions and recommendations resulting from such examination are summarized below.

Major conclusions

- The basic project design is still appropriate, although three significant flaws in design detail were identified: the implementation schedule was unrealistic, flexibility to adjust to changing needs was not built into the design, and no alternative courses of actions were anticipated for coping with situations in which original assumptions proved invalid.
- Inconsistencies among the various project documents, which caused problems in early implementation, have been largely resolved through the PP Supplement and modified PI.
- Project implementation has been satisfactory thus far. The modified PI, which adheres closely to the PP Supplement, is appropriate and feasible in the present situation.

Major conclusions

- USAID support and involvement, although uneven in the early stages of project implementation, is now generally satisfactory.
- Overall Contractor performance has been satisfactory, although a few possibilities for improvement were identified.
- The CAED Consortium Council has been an effective vehicle for formulating and reviewing policies relating to the project.
- The GSL has met or exceeded its commitments to date in everything except vehicle procurement, and has increased its projected LOP contribution. Even so, there is concern about its capability to continue to increase appropriations rapidly enough to meet expanding requirements of the PGIA/FA.

Major recommendations

- Implementation through the remainder of the project should adhere closely to the modified PI, although flexibility should be maintained to adjust as required to achieve maximum project performance.
- The GSL should continue to give high priority to meeting the capital and recurrent expenditure needs of the PGIA/FA to enable them to reach enrollment targets and maintain world standards in quality of education provided.
- The PGIA/FA should continually reassess their priorities and needs to make most effective use of resources received.

3.11 Other donor contributions (from Section 14.0)

Although no firm estimates could be obtained, it appears that original PP estimates that other donors would provide 180 p.mos. of technical assistance and 12 postgraduate training scholarships may well be exceeded. In addition, other donors have provided substantive assistance to library development and to research projects.

3.12 Need for follow-on assistance (from Section 15.0)

It is anticipated that the present project will achieve its objectives in terms of institution building. Additional assistance may be required, however, for development of research and outreach programs and some additional facilities.

Major recommendation

- Consideration should be given by donor agencies to providing early support for a study of Sri Lanka's future needs for development of higher education in agriculture, including a re-assessment of present and future demand for agricultural graduates and post-graduates.

3.13 Evaluation methodology (from Section 16.0)

A key element in the evaluation methodology utilized was solicitation of information from the PGIA/FA, participants, CAED and USAID. Problems encountered included inability to include an outside evaluator on the team, inconsistencies in and among project documents, and an after-the-fact request to include factors in the evaluation not specified in the initial evaluation scope of work.

Major conclusions

- The methodology utilized in the present evaluation is considered to have been satisfactory, taking into consideration resource and time constraints.
- It would have been highly desirable to have an outside evaluator as a member of the evaluation team, and financial support outside the contract for his/her participation.
- Time and effort required for the evaluation were unnecessarily increased by compliance with the request from USAID for additional information outside the initial evaluation scope of work.

Major recommendations

- An evaluator with international experience in agricultural education projects who has had no previous experience with the AED project should be included on future evaluation teams.
- The general methodology used for the present evaluation should serve as the basis for future evaluations.
- USAID/AID should take a more active role in mid-term evaluations by supporting (funding) an outside evaluator or, at the minimum, more actively involving the Mission Evaluation Officer to provide active guidance throughout the evaluation; scopes of work for future evaluations should be approved in writing by USAID, with copies going to all team members and their organizations.

- The next major AED project evaluation should be scheduled in late 1984 or early 1985, with emphasis on project and Contractor performance.
- An impact evaluation should be made approximately five years after the PACD.

4.0. The Sri Lankan Situation With Respect To Higher Education In Agriculture

The system of higher education in Sri Lanka consists of six universities, two university colleges, six institutes (including the PGIA) of which three deal with postgraduate studies, and an open university. The University Grants Commission (UGC), an intermediate body between the centers of education and the Government, is responsible for the planning and coordination of all institutions in the system.

At the time of project initiation the Faculty of Agriculture (FA) at Peradeniya was the only agricultural degree-granting institution in the system, and the Postgraduate Institute of Agriculture was the only one offering postgraduate training in agriculture. The GSL has since changed its policies regarding undergraduate training and two additional agricultural faculties have been established, at Ruhuna and Batticaloa university colleges. (One more is planned, to be located at Jaffna.) The PGIA remains the only institution offering agricultural training at the postgraduate level.

4.1. Undergraduate education in agriculture

Two new faculties of agriculture have been established since 1978 as the result of a series of decentralization policies implemented by the GSL. Both new faculties are affiliated with the Peradeniya faculty; the FA is responsible for their curriculum and for examinations of students, and the graduates of the new faculties will receive Peradeniya degrees.

The large investment required to build and equip facilities and to staff the new faculties has increased the cost per agricultural graduate appreciably (the same number could have been trained by the Peradeniya Faculty at lower cost). Diversion of funds for development of the new faculties has undoubtedly reduced the level of resources available to the PGIA/FA for proceeding with their own development as planned, and has resulted in even greater competition for the present limited supply of manpower highly trained in agriculture. Also, FA responsibilities for assistance to the new faculties have significantly increased workload of an already overburdened staff.

Creation of the new faculties also has some highly positive implications for higher education in general, and for the PGIA/FA in particular.

Student enrollments. Total undergraduate enrollments are increasing more rapidly than would have been possible had Peradeniya remained the only agricultural faculty on the island, although Peradeniya remains in the forefront. Annual new student admissions in the FA and agricultural faculties of the two university colleges have been as follows:

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
FA	111	120	122	122	130
Ruhuna	-	15	25	25	50
Batticaloa	-	-	-	25	25
TOTAL	111	135	147	172	205

It is estimated that annual student intake by the FA will increase to 200 per year by about 1984-85 when expanded facilities at the first year unit* become available. With facilities to be developed at Batticaloa and Ruhuna, their eventual capacity for annual student intake are estimated at 100 and 50, respectively. Thus, total annual student intake could rise to as many as 300-350 by 1985, including the 150-200 by Peradeniya. Increases in BSc graduate output will, of course, parallel increases in intake with a four year lag.

The FA turned out 109 graduates in 1981 (final examination results were still pending for 23 of this group at the time of writing the 1981 annual project report). The combined BSc output of the three faculties is expected to reach more than 180 by 1984-85, and the annual number of graduates from Peradeniya alone is expected to stabilize at 200 by about 1987-88.

Research/outreach. The location of Ruhuna in the South and Batticaloa in the East, combined with Peradeniya in the mid-country, will provide opportunity for development of concentrated region-specific research and outreach programs in three important agricultural areas of the country. Collaboration of the PGIA/FA with the new faculties, utilizing facilities being developed at the new locations, will extend their sphere of impact and provide additional facilities for PGIA student research. Similar opportunities exist for development of collaborative outreach programs.

A basic assumption in the design of the AED project was that all undergraduate training in agriculture in Sri Lanka would be provided by the Peradeniya Faculty of Agriculture. The subsequent GSL decision to establish regional universities has impacted on the project in two major senses. First, the rate of increase in FA (Peradeniya) enrollments has been slower than originally projected with the result that the FA output is not now expected to reach 200 BSc graduates annually until two or three years after the end of the project. The original purpose of doubling undergraduate

* Incoming FA students receive the initial six months of their first year training at an off-campus facility situated at Maha Illuppallama. The annual FA intake will be limited to approximately 130 students until planned expansion of these facilities is completed.

enrollments at Peradeniya still appears achievable, however. Second, establishment of the regional universities provides opportunity for improved teaching, research and outreach programs that could significantly increase the total impact of the Sri Lankan system of higher education in agriculture.

4.2. Postgraduate education in agriculture

As stated earlier, the PGIA is still the only Sri Lankan institution offering agricultural training at the postgraduate level, a situation that is expected to remain unchanged for the foreseeable future. Three postgraduate degree programs are offered: MSc, consisting primarily of coursework; MPhil, coursework plus research thesis; and PhD, which also includes both coursework and research.

Enrollments in the PGIA have increased markedly since the Institute's first year of operation, 1975, when 29 students were admitted and 15 registered. Thirty-three students were admitted to postgraduate study in 1978/79 and 35 in 1979/80. Annual intakes since that time, by Board of Study, have been as follows:

	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
Crop Science	11	6	7
Agric. Biology	12	13	13
Agric. Chemistry	7	4	10
Agric. Econ. & Ext.	23	14	18
Agric. Engineering	3	14	15
Animal Science	5	8	11
TOTAL	61	59	74

Note: The PGIA is organized into six Boards of Study that parallel the six Departments of the FA.

By degree program, the annual PGIA intake since 1978/79 has been as follows:

	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
MSc	24	13	34	29	48
MPhil	6	19	21	27	23
PHD	3	3	6	3	3
TOTAL	33	35	61	59	74

The total number of postgraduate degrees awarded by the PGIA through 1981 was distributed as follows:

MSc	91
MPhil	16
PhD	9

Annual admissions to the PGIA have been seriously restricted due to lack of staff to provide research supervision and research facilities. At the time the AED project was designed, approximately 80 percent of the teaching and research supervision had to be done by qualified people outside the FA (academically qualified scientists associated with other Sri Lankan institutions who are appointed to the PGIA Panel of Teachers), and the majority of student research had to be conducted on facilities of other research organizations. The percentage of courses taught by outside staff has now decreased to about fifty and will drop further as FA staff currently in training return to duty. It is estimated that about 80 percent of the teaching will be done by FA staff by the end of the project as projected in the PP, and that University facilities (Peradeniya, Ruhuna, Batticaloa) will be utilized for the preponderance of postgraduate research.

In the interim, the PGIA has been able to accommodate less than half of the applicants who have qualified for admission in most years. The number admitted to MPhil and PhD programs has been most seriously restricted. (The policy adopted for the 1982/83 academic year has been to admit new students initially into the MSc program with the expectation that those who so desire will be transferred later to the MPhil program, provided their first year academic performance is satisfactory.)

Creation of the two new agricultural faculties discussed in the foregoing section has positive implications for the future development of the PGIA in that staff of these faculties will increase the total number of trained staff available in the higher education system to teach PGIA courses and supervise graduate students. Also, their graduates will provide additional sources of candidates for postgraduate study in the PGIA.

4.3. Demand for graduates and postgraduates in agriculture

A late 1977 study indicated an average annual demand for agricultural graduates (BSc) of about 245 for the 1978-82 period, of which some 170 would arise from the agricultural sector and the rest from the school system--as secondary school teachers. The same study projected a sustained demand of 200 to 250 graduates and at least 70-80 postgraduates annually for the foreseeable future.

The accelerated Mahaweli Development Project and other major agricultural and rural development programs now underway were still largely in the planning or conceptualization stage in 1977, so their potential impact on demand for agricultural graduates and postgraduates was necessarily somewhat over speculative. Furthermore, an important assumption made in the

study was that the general Sri Lankan economic situation would remain relatively stable; the recent weakening of the economy could not be projected and, consequently, the impact of this development on demand was not estimated. Still another factor not anticipated in 1977 was what now appears to be an increasing demand on both the FA and PGIA to admit students from other countries in the region.

As discussed earlier, the Peradeniya, Ruhuna and Batticaloa agricultural faculties are expected to develop a combined capacity to turn out 300 or more graduates annually, about fifty percent more than the sustained demand projected in late 1977. Yet, casual observation reveals that, although finding employment has not been a serious problem with postgraduates, as many as 15-20 1981/82 Peradeniya graduates have not yet found permanent employment (all are currently working on short term temporary appointments). At this point, it is not known whether this is a temporary phenomenon resulting from present economic conditions in the country or an indicator that sustained demand will likely be less than earlier projected.

There is urgent need for a reassessment of present and future demand for graduates and postgraduates to guide future planning.

4.4. Conclusions regarding higher education in agriculture

- The establishment of two new faculties of agriculture, although resulting in dilution of resources and a slowdown in the rate of expansion of the FA, has potential for increasing the total impact of the higher education system in terms of output of trained agricultural manpower, agricultural research and outreach.
- Although the PGIA cannot at present meet the in-country demand for postgraduate training in agriculture, that situation should improve by the mid-1980s to the point that such demand can be largely satisfied in the principal areas of specialization and an increasing number of students from other countries in the region can be accommodated.
- Total undergraduate training capacity will exceed the 1977 projections of demand for BSc graduates in agriculture by the mid-1980s; and there is some evidence of slackening demand at present, although this may be temporary. There is urgent need for a comprehensive reassessment of present and future demand in Sri Lanka for agricultural graduates and postgraduates.

4.5, Recommendations regarding higher education in agriculture

Major

- Collaborative research and outreach programs and development of teaching materials involving the Peradeniya, Ruhuna and Batticaloa faculties of agriculture should be encouraged, and supported by the UGC, to obtain maximum benefit from the total investment being made on higher education in agriculture by Sri Lanka. (Action: FA, Ruhuna, Batticaloa, UGC, donor agencies).
- A comprehensive study of Sri Lanka's future needs for development of higher education in agriculture, including a reassessment of present and future demand for graduates and postgraduates should be undertaken as soon as possible. (Action: GSL, donor agencies).

5.0. Overall Project Assessment

The findings of the evaluation team with respect to project performance, and present and estimated EOP status are discussed in detail in Sections 6.0-13.0. They are presented in overview below.

5.1. Project performance to date

Project performance to date was found to be satisfactory, and few significant mid-course corrections are recommended. A number of opportunities for further improving specific aspects of project performance were identified, for which recommendations are made. Adjustments made during the course of project implementation to date have been appropriate and justified.

5.2. Progress toward achieving project purposes

Increases in undergraduate enrollments in the FA have been delayed pending expansion of the off campus facility for first year students. The annual intake of first year students by the FA has risen about 30 percent since 1977-78; the two recently established agricultural faculties have admitted a total of 75 new students this year (see Section 4.1). The total intake of new undergraduate students in agriculture in 1982 in Sri Lanka stands at 205. This number minus dropouts (which have been historically low), will translate into graduates in 1985/86.

Postgraduate admissions into the PGIA have doubled since 1978/79 (see Section 4.2). Further significant increases in admission will become feasible as staff presently out for training return to fulltime duty in the PGIA/FA.

5.3. Anticipated EOP status

It is estimated that the combined annual output of the three agricultural faculties will reach more than 180 graduates by 1985-86. The project purpose of doubling the annual number of graduates to 200 will, according to present estimates, be achieved by about 1987-88. This delay in achieving the project purpose for undergraduate enrollments will result from the delay in completing expansion of the first year facility as described previously.

The stated project purpose of tripling the annual number of postgraduates will be reached in 1985-86 according to present estimates, although the degree mix will vary somewhat from that projected in the original PP. It is now estimated that the number of MPhil degrees granted will be four times that projected in the PP, while the number of MSc and PhD degrees granted will be about half of those originally anticipated (see Section 17.3.8).

6.0. Faculty Development

Faculty development, considered by the PGIA/FA to be the highest priority component of the project, is a long term process whose impact can be assessed realistically only after staff have completed their training and have been back in place long enough to develop new programs and influence those already existing. Therefore, this mid-course evaluation is focused principally on progress and estimated EOP status in quantitative terms.

6.1. Projected outputs (from PP Supplement)

"Trained faculty of an additional 38 PhDs in six departments."

6.2. Input status

As stated in the PP supplement, the inputs being financed by the AID grant include 38 faculty members from PGIA/FA receiving PhD degrees from U.S. universities. The evaluation team examined quantitative progress toward reaching that target, various operational aspects of the participant training program, and the relevance of training being provided. Their findings are discussed below.

Quantitative progress. Thirty-eight junior faculty, the targeted number, entered training under the project. Of these, one was terminated without degree due to unsatisfactory academic performance and another was terminated upon completion of the MS degree when denied admission as a PhD candidate. In the latter case, this student has since started PhD training at the PGIA. Thirty-six are currently expected to complete the PhD as projected. A net EOP shortfall of 2 PhDs is estimated, as time remaining in the project is not sufficient to permit any new participants to complete a PhD program.

In the interest of providing the maximum possible assistance in faculty development to the PGIA/FA, the evaluation team concludes that consideration should be given to admitting two additional participants for MS level training to replace those who did not complete the PhD, provided that: 1) savings from those terminated early are sufficient to permit same, and 2) such training is completed by the present FACD. (If desired, the departments concerned could later seek other sources of funding through which these participants might continue for the PhD.)

As of September 1982, one participant had completed the PhD and returned to duty in the PGIA/FA, and 35 were in varying stages of their postgraduate training. Initial, present and estimated EOP status with respect to participant training are shown in Section 17.1.1.

Training completion schedules. The project design specified that all 38 junior staff to be trained under the project begin their studies within the first two years of project implementation. The evaluation team concludes from its investigation that such concentration of departures for

training was neither feasible nor desirable.

Prior to project implementation, the PGIA/FA questioned the desirability--or even the possibility--of sending out so many staff so quickly; and they discussed with USAID and the Contractor the possibility of extending the period for entries into training over an additional year. Based on these discussions, such a modification was included in the Plan of Implementation (PI), and departures for training were distributed over the period mid-1979 through 1981. Two major factors were involved.

The pool of high quality candidates who meet the University requirement of a minimum of one year of teaching experience to qualify for training abroad is limited. In order to send out 38 high quality candidates over the 2½ year period ultimately utilized, it was still necessary to select many recent graduates with no teaching experience for whom waivers of the experience requirement had to be obtained from the University and University Grants Commission (UGC). The fact that nearly all participants have performed remarkably well in both coursework and research is a tribute to the care and judgment exercised by the PGIA/FA in their selection.

The release of so many staff for training also posed serious problems for senior FA staff responsible for undergraduate and postgraduate teaching, research, research supervision of PGIA students, and outreach. Some departments were left with only one senior staff member, and all have been seriously overburdened. The sacrifices made by senior staff to make it possible for junior staff to enter into training is indicative of their solid commitment to the cause of agricultural education in Sri Lanka and is to be highly commended.

Extension of the training entry period helped to alleviate the problems of candidate selection and staff overloads, although it by no means eliminated them. However, that extension created an issue that is now of serious concern due in part to the delay of approximately ten months between the date of the original Project Grant Agreement and the beginning of project implementation. Due to this delay, the first group of participants could not be sent out for training until August/September 1979. As a result, several of the final group of six participants are not now expected to complete their training by September 1985, the present Project Activity Completion Date (PACD).

Another factor not recognized in the project design that has serious implications for training completion schedules is the necessity for many participants to make up deficiencies and enroll in pre-requisite courses before proceeding to the full graduate program. For this reason, about one fourth of the participants are not now expected to complete within the originally scheduled number of training months. In perhaps three cases, this problem will result in the participants' training not being completed by the present PACD.

The combination of the two factors just discussed will make it impossible for all training to be completed by the present PACD, although the CAED

Consortium is maintaining maximum pressure on all participants and their advisors to complete training in the shortest possible time consistent with obtaining degrees of acceptable quality. At least four and perhaps as many as nine participants are now expected to obtain their PhD degrees in 1986. Therefore, although the present project training budget is adequate, an extension of time for completion of the training component will be required to achieve the presently projected output of 36 PhDs.

PhD research in Sri Lanka. An important feature of the project design with respect to training was the provision that participants would return to Sri Lanka to conduct their PhD research, a departure from the more customary practice of providing all postgraduate training abroad. The evaluation team concurs with the PGIA/FA, most participants and CAED that this innovation is adding strength and relevance to the training being provided.

Seven participants have thus far returned to Sri Lanka to undertake PhD research. Four have successfully completed their research programs, one will complete by the end of this year, and the other two are in the early stages of their research. The five who have already completed, or nearly so, their PhD research in Sri Lanka have found that their presence here has helped them to maintain participation in departmental activities and development, and that it has been possible to establish contacts and relationships with other scientists in their fields that will be of benefit to them when they return to fulltime duty.

Initially, the PGIA/FA encountered difficulties in providing facilities, logistic support, and local supervision--due in large part to lack of previous experience on the part of either the PGIA/FA or CAED. In at least one case, the participant was overburdened with departmental responsibilities, primarily teaching, which delayed the start of his planned research. The evaluation team found that the facilities and logistic support situations have now improved greatly as the result of equipment and vehicles procured under the project. Also, all FA departments now indicate that they are firmly committed to holding teaching and other departmental responsibilities to a level that will not disrupt or delay the participants' PhD research programs.

Based on experience to date, it appears feasible for PhD research to be conducted locally, provided that sufficient thought and attention are given at the time of research proposal preparation to selection of a topic relevant to Sri Lanka and methodology that can be employed under local conditions. Each participant's case should be examined on its own merits, however, as there may be exceptional cases in which required research facilities and/or local advisors are not available. Financial constraints must, of course, also be recognized.

A system for supervision and support of PhD research undertaken in Sri Lanka had to be developed as the project progressed, as there were few precedents to follow. Early difficulties in reconciling divergent viewpoints concerning the responsibilities and prerogatives of the U.S. university and PGIA/FA, respectively, have been largely resolved; and the

system is now functioning reasonably well. The evaluation team has identified two areas of concern, however, that merit early attention and action.

Both the PGIA/FA and CAED consider in-country supervision of student research and interaction with local advisors by the U.S. advisor to be crucial to the success of the provision that PhD research be conducted in Sri Lanka. In recognition of this need, the PI provided for such visits by U.S. advisors. Due to present financial constraints, however, this will be possible only through curtailment of some other planned technical assistance (see Section 12.1). The team concurs in the need for this modification in the types of technical assistance to be provided. Early action should be taken to assure that sufficient person-months of technical assistance are reserved for this purpose.

Although not included in the GSL commitments specified in the original or amended Project Grant Agreement, it was anticipated in the PI that local advisors would be identified to provide guidance and supervision to participants engaged in PhD research in this country. It is the judgment of the evaluation team, based largely on responses received from the FA departments, that this phase of the PhD research supervision and support system still requires improvement. Adverse consequences to the overall training program can be largely avoided through early attention and appropriate action, however, as few participants have been affected to date.

The first problem with respect to local advisors is related to their identification and nomination by the FA departments concerned and approval of their service in this capacity by the CAED universities. Although the PGIA/FA reported that qualified local advisors could be obtained in most broad areas of research provided that such advisors were offered suitable incentives, FA departments have not yet identified potential local advisors for all participants who have returned for research to date or who expect to do so in 1983. In a few cases, the CAED universities have not responded to nominations submitted by the department heads.

More attention should also be given to assuring that local advisors receive appropriate recognition for the service they render to the project through supervision of participants' in-country research.

All of the foregoing appear to be due largely to lack of adequate attention and communication, and should be amenable to early resolution.

The provision of suitable incentives to encourage scientists to serve as local advisors presents a somewhat more difficult problem. The major incentive projected in the PI was that those local advisors who provide major guidance and supervision to participants would serve on their advisees' graduate committees and travel to the U.S. university for the dissertation defense; funds were included in the projected PI budget for that purpose. (Such a provision is consistent with academic regulations and custom with respect to determination of the composition of a graduate student's committee.) The use of project funds for this purpose was not approved, however, so that incentive could not be utilized. As cited above, the incentive that could result from formal recognition of the local advisor's

contribution has also not been forthcoming in most cases to date. No incentives have yet been provided locally by the PGIA/FA.

Unless acceptable incentives can be provided, it is likely that some qualified local scientists not in the PGIA/FA, who are already fully engaged in their own work, will be reluctant to accept the added responsibility of supervising graduate research of project participant trainees.

Recommendations for improving PhD research supervision and research are given in Section 6.5 below.

Communications. The need for frequent and effective communications at both the institutional and individual level is self-evident, and information concerning the adequacy of communications related to training was solicited from the PGIA/FA, CAED and participants. Based on this feedback and their own experience, the evaluation team concludes that CAED university-participant, CAED-COP and PGIA/FA-COP communications are generally good. The information system instituted by the COP is commendable; monthly/quarterly project reports, periodic participant status reports, etc., have been quite useful.

On the negative side, there has been little direct dialogue between U.S. advisors and FA department heads or local advisors; and communications between participants and the FA/PGIA have been deficient in both directions, including on certain administrative matters such as study leave extensions. A few lapses in communication at the institutional level have also been encountered.

Recommendations for improving communications related to training are included in Section 6.5 below.

Relevance of training. Both FA department heads and most participants agree that MS and PhD coursework have been appropriate to departmental requirements and the needs of Sri Lanka as a whole. For cases in which there are insufficient courses offered in the designated area of specialization, the CAED universities have suggested courses in related fields and, in some instances, have made arrangements for the participant to undertake special studies at another location or do part of his/her coursework at another university. On the basis of responses received and action taken by CAED to make needed adjustments to tailor the participants' graduate programs to meet their needs, the evaluation team concludes that academic training being received by the participants is relevant, satisfactory, and meets the goals/objectives of the project.

The evaluation team found, also, that Master's level research programs have been relevant to the participants' assigned areas of specialization and their anticipated responsibilities upon return to duty in the PGIA/FA. Although perhaps some could have been improved had the U.S. advisors been more familiar with Sri Lankan agriculture, this is not at present a source of concern; the participants are being well prepared to undertake PhD research in Sri Lanka regardless of whether or not the MS and PhD research are closely related.

Experience with PhD research is still limited. The few PhD research proposals received by the PGIA/FA to date have been both relevant and appropriate in the Sri Lankan context. Continuing close attention should be given by the CAED universities and PGIA/FA to assure that all future PhD research proposals meet the requirements of relevance, appropriateness and feasibility for undertaking the proposed research locally.

An important factor in providing relevant training that best meets the training requirements specified by the PGIA/FA is selection of the university in which the participant is to be placed. The final project design approved by USAID specified that each university would assume responsibility for training staff from two FA departments, with those departments to be predetermined. This system was followed in placing the first group of ten participants. It has been modified in the case of all subsequent groups with PGIA/FA, CAED and USAID concurrence.

In practice, it has been found that the lead university concept is not necessarily the most appropriate for providing PhD level training in all the diverse disciplines represented in a given FA department. In a few cases, none of the CAED universities has been able to satisfy fully the training requirements of a department. To date, one student has been transferred from the CAED university in which he obtained his Masters to another for the PhD program, and three have been sent to non-CAED universities for at least a portion of their training. (These transfers have not affected the year in which the participants are projected to complete their training.)

There is strong consensus in the PGIA/FA and among the participants that every FA department will benefit from distributing its participants among two or more U.S. universities in order to broaden the outlook and experience of the department as a whole. It may also be desirable to obtain the MS and PhD degrees from different institutions wherever feasible.

In the judgment of the evaluation team, the flexibility exercised by CAED in placement of participants has strengthened the training component of the project.

The PP Supplement does not specify areas of specialization in which training is to be provided; but, as shown in Section 17.3.1, areas of specialization were identified in the original PP for 37 of the 38 junior staff to be trained. Although those disciplines have been used as a guide (more than two thirds of the present participants fall into one of those categories), some modifications have been made in the interest of providing training most relevant to the total needs of the PGIA/FA within the constraints of qualified candidates available. Substitutions in area of specialization have been made in twelve cases for one or more of the following reasons:

- reassessment of departmental and institutional priorities, taking into account staff changes outside the purview of the project, revealed the need for the substitution (T.A. personnel in most cases participated in such reassessments);

- other donor support for training in a given area of specialization did not materialize, or was granted for training in an area identified in the PP for project support;
- a department did not have a qualified candidate to nominate for training (two cases not subsequently rectified).

The evaluation team concludes from its investigation that the areas of specialization in which participants are being trained are relevant and appropriate, and that substitutions made will result in improving the overall balance both within individual departments and in the PGIA/FA as a whole.

6.3. Current and estimated EOP PGIA/FA status

As stated earlier, a qualitative evaluation of PGIA/FA faculty development will be possible only after staff currently in training have been back on fulltime duty long enough to effect changes in existing programs and/or develop new programs in their respective areas of specialization. From a quantitative standpoint, the evaluation team finds PGIA/FA progress to date to have been generally satisfactory.

The GSL was committed, through the original Project Grant Agreement, to the creation of 27 new permanent positions in the FA to accommodate all those identified for training under the project. Twenty-nine, two more than originally projected, were actually created.

The number of PGIA/FA academic staff, which totalled 39 in 1977-78, had risen to 74 by September 1982. By the end of the project, academic staff are expected to total 87, just four less than projected in the original PP (see Section 17.3.1.). The contributions of other donors toward faculty development are summarized in Section 17.3.9.

The staff development projections discussed above are based on the assumption that staff attrition will not become a major problem. Based on past performance, this appears to be a reasonable assumption. Only five senior staff have left the Faculty for employment elsewhere since 1977, an annual attrition rate of about two percent for the period, based on the present senior staff complement.

Loss of the above-cited staff has adversely affected the PGIA/FA and, consequently, the project, particularly in the Agricultural Chemistry and Agricultural Engineering departments. (Two senior staff, a food scientist and a soil scientist, left Agricultural Chemistry, and Agricultural Engineering lost its department head.) This is considered to be a temporary dislocation, however, as the food and soil scientists have been replaced, Agricultural Engineering is continuing to receive strong leadership under its new Department Head, and staff presently in training under the project or through other donors are expected to fill the gaps created by other departures. Also, appointment of a new staff member in Agricultural Biology

has alleviated what was previously a complete void in the field of entomology.

Future success in maintaining an acceptably low level of attrition will depend upon a number of factors, the most obvious of which are salary and associated perquisites. Faculty salaries have been traditionally low, even by Sri Lankan standards. That situation has improved significantly since 1979, although, according to the PGIA/FA, salaries are still not competitive with the private sector in Sri Lanka or with international agencies and companies seeking trained personnel. Therefore, the University and GSL should continue to exert every possible effort to improve salary scales and other perquisites.

Salaries are not the only factor influencing the decision of a staff member to remain or to leave the Faculty, however, as evidenced by the historically low rate of staff attrition. The prestige and professional satisfaction derived from association with a high quality, forward-looking institution of higher education, the system of sabbatical leaves, and the opportunity to work productively are also powerful incentives.

With regard to junior faculty being trained under the project, two major measures are being taken to minimize the possibility that some may not return to the Faculty. First, University requires each staff member to sign a bond before leaving for training that obligates him/her to 10 years of service in the Faculty after completion of that training. Second, facilities under construction or planned and equipment being provided under the project will provide an environment and means through which the returning staff can become highly productive. Although the departments are actively seeking financial support for additional research, the availability of sufficient resources to support sound research and outreach programs of all returning staff is still a source of some concern. This should continue to be a high priority effort on the part of the PGIA/FA.

In the judgment of the evaluation team, based on historical performance and the factors discussed above, attrition rates in the foreseeable future are not likely to seriously prejudice faculty development, provided that salary scales and perquisites continue to improve at a reasonable rate, and that adequate resources are forthcoming to support viable teaching, research and outreach programs of the expanded staff.

6.4. Conclusions regarding faculty development

- Although 38 junior staff entered training as projected, the early termination of two, for which substitution of two additional participants for MS training is proposed, will result in an estimated output of 36 PhDs and 1 to 3 MS's.
- The distribution of entries into training over three academic years was justified due to the limited number of qualified candidates available in any given year.

- The combination of the above and the necessity for many participants to remove deficiencies and to take pre-requisite courses will make it impossible to complete all PhD-level training by the present PACD.
- The return of participants to Sri Lanka for dissertation research is strengthening the project's training component.
- The system developed by the project for supervision and support of PhD research undertaken in Sri Lanka is sound and is functioning reasonably well.
- The priority being given to bringing U.S. advisors to Sri Lanka for short term PhD research supervision and associated responsibilities is well justified on the basis of past experience.
- Greater attention should be directed toward early identification and effective utilization of local advisors, and they should be offered a suitable set of incentives for their contributions.
- Training-related communications are generally good at the institutional level, but direct PGIA/FA-participant and U.S. advisor-PGIA/FA communications need to be improved.
- Academic and research training being received by participants is generally satisfactory and appropriate to PGIA/FA and Sri Lankan needs.
- The flexibility exercised by CAED in placement of participants and tailoring graduate programs to their requirements has strengthened the project's training component.
- The areas of specialization in which participants are being trained are relevant and appropriate to the developmental needs of the PGIA/FA.
- PGIA/FA progress in faculty development has been satisfactory to date; present estimates of EOP status project a shortfall of only 4 percent from the staffing complement projected in the original PP.
- PGIA/FA academic staff attrition has been historically low, a situation that appears likely to continue in the foreseeable future provided salary scales and perquisites continue to improve and adequate resources are forthcoming to support viable teaching, research and outreach programs of the expanded staff.

6.5. Recommendations regarding faculty development

Major

- The PACD for training should be extended through December 1986 to permit completion of all PhD training if, despite maximum pressure exerted by CAED and PGIA/FA, not all participants can complete by the present PACD.
- Participants should continue to conduct their PhD research in Sri Lanka. Each case should be assessed on its own merits, however, and partial or total exceptions approved if justified on the basis of non-availability of required research facilities or qualified local advisors, recognizing financial constraints. (Action: CAED, PGIA/FA)
- Two additional junior staff members should be admitted for MS level training to replace those who did not complete the PhD, provided such training is completed no later than the present PACD and sufficient funds are available in the present training budget. (Action: PGIA/FA, USAID, CAED)
- All U.S. advisors of participants who return to Sri Lanka for PhD research should come to Sri Lanka on short term assignments for direct supervision of their students' research, interaction with local advisors, and associated teaching, research and outreach responsibilities. (Action: CAED)
- A local advisor should be identified by the PGIA/FA and approved by the U.S. university well in advance of a participant's arrival in-country for research. The local advisor, together with the FA department head, should then be consulted in planning the research proposal and should evaluate it for relevance and feasibility prior to final approval by the participant's committee. To perform these functions most effectively, it is suggested that the local advisor should serve as an "associate" or "adjunct" member of that committee. (Action: PGIA/FA, CAED)
- The University and GSL should exert every possible effort to continue to improve salaries and perquisites and to provide adequate support staff and other incentives to hold staff in the PGIA/FA. (Action: University, GSL)
- The PGIA/FA should place high priority on obtaining sufficient resources to support teaching, research and outreach programs of their expanded staff. (Action: PGIA/FA)

Other

- The CAED should continue as in the past to exercise flexibility in placing participants, and in tailoring PhD programs to best meet the participants' training requirements. (Action: CAED, with concurrence by PGIA/FA and USAID)
- Each participant and U.S. university should assure that the local advisor receives adequate recognition for his/her contribution through such measures as giving acknowledgment in the dissertation, awarding co-authorship of professional papers resulting from research for which he/she has provided guidance, and issuance by the university of a letter of recognition for assistance provided. It is also suggested that a certificate of appreciation from the project would be appropriate. (Action: participants, CAED)
- The PGIA/FA should provide some suitable incentive to encourage qualified scientists to serve as local advisors, with the nature of that incentive to be determined by the PGIA/FA. (Action: PGIA/FA)
- Direct and frequent communications among U.S. advisors, PGIA/FA staff and local advisors should be strongly encouraged. (Action: PGIA/FA, CAED, participants)
- The PGIA/FA should keep all participants informed of their programs and activities through newsletters, circulating copies of reports on Faculty and Department activities and programs, etc. (Action: PGIA/FA)
- Participants should regularly inform their departments of their activities and progress, and attend to official matters such as requests for study leave extensions in a timely manner. (Action: participants)
- The participant, U.S. university, PGIA/FA, COP, and USAID should all be involved in critical decisions related to a participant's program or actions, and should be fully informed of the situation leading to the necessity for such decisions. (Action: the principals most concerned)
- In future projects, staff training should be distributed over a sufficiently long period to assure selection of high quality candidates who qualify under University regulations for training abroad, and to avoid excessive overload on staff in residence at the cooperating country institution.

- In the future, it would be desirable insofar as feasible for candidates to obtain Masters training locally (e.g., in the PGIA or other recognized institution) prior to their selection for advanced study abroad.
- In future projects, placement of participants in U.S. universities should be made on the basis of best meeting departmental requirements, including the avoidance of concentrating all trainees from a given department in a single university.
- In future projects involving local advisors, provision for adequate incentives should be incorporated into the project design.

7.0. Facilities Development

Two major components of facilities development--equipment to be provided through the project, and construction to be done and vehicles to be provided by the GSL--are examined in this section.

7.1. Projected outputs (from PP Supplement)

"Adequately equipped facilities for teaching and research, including laboratories, library and classrooms."

7.2. Input status

As stated in the PP Supplement, the magnitude of inputs being financed by the AED grant include commodities, such as laboratory equipment and vehicles for faculty, laboratories, experimental farms and PGIA library. Neither the original PP nor the PP Supplement list the equipment to be purchased under the project, although reference is made in the PP to a 57 page item list. That list has never been found, so assessment of equipment procurement status can be made only on the basis of the value of equipment purchased to date.

The original PP called for 23 vehicles to be financed by AID. In authorizing the project, AID/W switched the non-U.S. vehicles to GSL financing, a change reflected in the Project Grant Agreement. Through an oversight, funds were allocated in the Contract for the originally planned 23 vehicles, an error detected only after 10 utility vehicles had been purchased and waivers were requested for those of non-U.S. manufacture.

The PP supplement financial plan includes \$ 110,000 under the AID grant for purchase of 10 utility type vehicles (jeeps). These vehicles have been procured and are in service in the PGIA/PA.

Orders for eight of the 10 utility-type vehicles ultimately authorized under the Contract were placed in mid-1979, and the vehicles were received in early 1980. The remaining two vehicles were ordered shortly thereafter and delivered to Sri Lanka in December 1980. Serious delays in obtaining clearance for duty-free entry of the first vehicle shipment were encountered due to lack of well-defined USAID and GSL policies related thereto, a problem that persisted with respect to all commodity clearances until April 1981 when procedures for handling incoming commodities were finally clarified.

The original PP provided for procurement of equipment (excluding vehicles) valued at \$ 692,307, including a 10 percent inflation factor, plus \$ 276,922 for shipping and associated costs. The PP Supplement increased the total equipment allocation by \$ 131,000 from which it is estimated that equipment valued at approximately \$ 100,000 can be purchased. Thus, the revised allocation provides for procurement of equipment valued at

approximately \$ 792,000.

As of September 1982, equipment valued at more than \$ 377,000 (about 48 percent of the revised authorized total) had been received in Sri Lanka and transferred to the PGIA. Additional equipment valued at about \$ 84,000 had been purchased and was awaiting shipment to Sri Lanka, and equipment having a total estimated value of about \$ 190,000 was in the procurement process. It was anticipated that 90 percent of the authorized equipment, based on net equipment cost, will be purchased or in the procurement process by the end of 1982. A breakdown of purchases to date by department and estimated EOP status are given in Section 17.3.3.

Progress to date with respect to procurement of vehicles and equipment is considered by the evaluation team to be satisfactory.

The procurement system. Equipment needs are identified by the FA departments who also have responsibility for preparing detailed specifications. After approval by the FA Dean, PGIA Director and USAID, requests are submitted to the Contractor for procurement. The Contractor, in turn, sub-contracts with a purchasing and shipping agent to purchase the equipment and deliver it to Peradeniya. Quotations obtained by the purchasing agent in the manner specified by AID procurement regulations are returned to the Contractor and PGIA/FA for final review and approval prior to issuance of purchase orders. Equipment is accumulated in a warehouse until enough has been received to fill at least one 20-ft. container at which time it is shipped to Sri Lanka.

Most basic equipment needs were identified by the departments very early, but delays were encountered due to unavailability of current catalogues from which to obtain specifications and current prices. Additional serious delays have been experienced in procurement of a few items for which no equipment of U.S. origin can be found. The combination of an extra step in the procurement process made necessary by the aforementioned lack of current catalogues and some slowness of action on the part of the purchasing agent further delayed delivery of the first major consignment of equipment to the PGIA. The PhD research of early returning participants was hampered by this delay.

The situation has improved greatly, and the equipment procurement system is now considered by the evaluation team to be satisfactory (a conclusion corroborated during a recent review by AID/AUDIT/KARACHI). Catalogues are available for ready reference by the FA departments, the Contractor and purchasing agent are performing efficiently and promptly, the local clearing agent is providing excellent service, and sources of information have been developed in the U.S. (including in the CAED universities) to provide specifications on specialized items of equipment not included in available catalogues or for which PGIA/FA cannot make a judgment. The utilization of professional purchasing and shipping agents helps significantly to expedite equipment procurement. Resolution of problems related to purchase of equipment of non-U.S. manufacture is still pending. It is expected that such problems will be resolved through the

Contract amendment currently being negotiated.

Extent to which priority equipment needs are being met. When added to equipment being acquired through other donors and from University appropriations, the evaluation team concludes that commodities procured under the project should meet most of the highest priority needs of the PGIA/FA.

Although most commodities received to date have been satisfactory and in good condition, some qualitative problems have been encountered. The vehicles are the most glaring example. Under the terms of the Contract it was necessary to purchase vehicles of U.S. manufacture. At the time of purchase, the only U.S.-made utility vehicles that met the specifications of the PGIA/FA were AMC jeeps. Although ostensibly designed for the purposes required, the eight Model CJ-6 jeeps received were of unacceptably low quality and had design features not appropriate to PGIA/FA needs. The other two vehicles, Model CJ-7 jeeps, were of significantly higher quality. In the interest of providing appropriate and high quality transportation, it would have been highly desirable to procure vehicles of non-U.S. origin.

A few items either did not meet requested specifications or were incomplete when received; a few items were either not in proper working condition when received or failed to function after a short time and were not covered by warranty; operating instructions, repair manuals and parts lists were not received with some items. Although manufacturers have been willing to replace defective parts or equipment, the procedure for doing so is slow and cumbersome due to the distances involved (many U.S. manufacturers do not have representatives or service facilities in Sri Lanka).

Phasing procurement. The PI projected that procurement would be phased in such a manner that equipment items would be received in Sri Lanka as and when laboratories, etc., were established and staff were available to utilize them. In practice, procurement has been accelerated as the result of rapidly escalating prices brought on by inflation. Even so, procurement is being phased over about a three year period so the above purpose has been achieved in part.

7.3. Current and estimated EOP PGIA/FA status

As stated above, AID/W transferred the vehicles of non-U.S. manufacture identified in the original PP to CSL funding when the Project was authorized. Those 13 vehicles plus one not included in the PP were subsequently included in the Project Grant Agreement for CSL financing with the stipulation that "Vehicles may instead be financed by another donor".

Due to the confusion resulting from the erroneous inclusion of the originally projected 13 non-U.S. vehicles in the Contract, no provision was made in the 1980 CSL budget for procurement of said vehicles. Financial constraints since that time have prevented the procurement of all projected vehicles by the CSL, a situation expected to continue for some time. This is recognized in the PP supplement in which the CSL commitment is

decreased to \$ 12,000 for procurement of two vehicles.

The GSL has purchased the two vehicles specified in the PP Supplement and Project Grant Agreement Amendment No.2 and those vehicles are in service in the PGIA/FA. Two other vehicles have been secured through other donor financing. It is anticipated that additional vehicles will be obtained from other donors, but the numbers and types cannot be estimated at this time.

Inputs to be financed by GSL contributions, as specified in the PP Supplement, also include construction of new laboratory/classroom buildings and off-campus buildings for research farms. No details concerning such construction are provided in the PP Supplement. However, the original PP projected construction of seven large buildings with total area of 78,000 sq. ft., renovation of one large and one small building, construction of 16 small buildings off-campus with total area of 71,465 sq. ft., and farm preparation. The total cost of all construction and renovation was estimated at Rs. 15,229,000, and it was projected in the original PP that all construction and renovation would be completed by October 1981.

The number of buildings completed, under construction, or currently planned equal or exceed PP projections in all categories. The GSL contribution through 1982 for these purposes is estimated at nearly Rs. 15,000,000, and eventual total cost at Rs. 37,000,000. The completion schedule projected in the original PP has proved to be totally unrealistic, however, and a phased facilities development plan developed in consultation with the consultant on facilities planning provided under the project has now been adopted by the PGIA/FA (see AED Project EOT Report 80-3, Facilities Planning Report No.2, by H. James Miller). A detailed presentation of present and estimated EOP status regarding facilities development is given in Section 17.3.4.

The evaluation team agrees that the estimated completion schedule projected in the PP was highly unrealistic and, in view of the general economic situation prevailing in the country, considers present progress to be satisfactory.

7.4. Conclusions regarding facilities development

- Progress to date in vehicle and equipment procurement is satisfactory.
- the present equipment procurement system, which utilizes an established purchasing and shipping agent, is effective and functioning well, as reviewed by AID/AUDIT/FARACHI.
- Commodities procured under the project, when added to those being acquired through other donors and from University appropriations, should meet most of the highest priority needs of the PGIA/FA, as the system of commodity selection allows the PGIA/FA to determine their priorities.

- Acceleration of procurement to minimize the impact of inflation was justified,
- The originally projected PGIA/FA construction schedule was highly unrealistic, and its substitution with the present plan was justified.
- Present progress of the GSL in vehicle procurement and facilities development is satisfactory, considering currently prevailing economic conditions in Sri Lanka.

7.5. Recommendations regarding facilities development

Major

- The present procurement system, including utilization of an approved purchasing agent, should be continued as is. (Action: CAED, PGIA/FA)
- The PGIA/FA and Contractor should have flexibility to procure commodities from non-U.S. sources if such is required in order to obtain items suitable for local conditions and needs, in accordance with AID procurement regulations. (Action: USAID, GSL)

Other

- It would be helpful to establish some efficient mechanism for repair of items received in damaged or inoperable condition. (Action: PGIA/FA, CAED)
- In future projects, a comprehensive set of current equipment catalogues and other sources of information regarding equipment manufacturers, prices and specifications should be provided on site from the outset of project implementation to expedite procurement.
- In future projects, procurement should be accelerated during periods of high inflation to minimize loss of purchasing power, but some funds should be reserved for phased procurement.

8.0. Library Development

Support under the project is concentrated on building the library collection, although a small increment was also provided for equipment.

8.1. Projected outputs (from PP Supplement)

"Adequately equipped facilities for teaching and research, including laboratories, library and classrooms."

8.2. Input status

The original PP net allocation of \$ 10,670 (\$ 9,700 plus 10 percent inflation factor) for library equipment is included in the total equipment allocation discussed in Section 7.2. The procurement has now been virtually completed. All types of equipment identified in the original PP have been purchased, although the quantity of three items was reduced in consultation with the PGIA librarian and the library consultant provided under the project to permit purchase of card catalogue cabinets and other high priority equipment. The details are given in Section 17.3.3.

The original PP provided \$ 375,000 for procurement of 18,000 books, 165 journals and 90 backfiles on micro film/fiche. The PP supplement added \$ 35,000 to the original allocation, but decreased the targeted procurement to 8,000-10,000 books and 60-65 journal subscriptions to compensate for the rapidly increasing costs of those items since early 1978. The reduction in total number of journal subscriptions was considered desirable to bring it to a level the PGIA/PA could reasonably expect to continue after the project ends.

Of the revised total allocation of \$ 415,000, books and journal subscriptions valued at about \$ 85,000 had been purchased by September 1982. Journal procurement is complete; subscriptions to 64 journals have been purchased, and the journals are being received by the PGIA library.

Book procurement has progressed more slowly, and is currently behind schedule. As of September 1982, 2,453 books (about 30 percent of the estimated total) had been purchased. About one half of these have been received in Sri Lanka, and the rest are expected before the end of 1982. An additional 600 books were on order in September, and several hundred more are expected to be in the procurement process by the end of the year. The anticipated acquisition rate of 2,000-3,000 titles annually, deemed acceptable by the evaluation team, will be reached for the first time in 1982.

Eighteen files on micro film/fiche are in the procurement process. It is estimated that at least 75 will have been procured by the end of the project.

The library acquisition procurement system. The procurement systems for books and journals differ somewhat from that for equipment described in Section 7.2. The bidding procedure is not relevant as virtually all library books and journals are sold at a fixed price. The Contractor has, to date, purchased all journal subscriptions directly, but a purchasing agent who specializes in book procurement is utilized for all other procurement of library acquisitions. As they are purchased, books are stored temporarily in the same warehouse as equipment procured under the project, and subsequently included in the next equipment shipment. Although this procedure has resulted in some delay in getting books to Sri Lanka, it is justified by the significant savings in shipping costs achieved.

The slow rate of book procurement early in the project was due in large part to problems encountered in identifying titles that should be added to the library collection. At the outset, few up-to-date book lists and related sources of information were available from which to prepare additional requests once those made initially by PGIA/FA staff had been ordered. Such reference materials are now received regularly by the PGIA library with the result that requests for library acquisitions are now being submitted regularly.

The rate of book procurement is now satisfactory in the judgment of the evaluation team and, if maintained, will result in reaching the estimated total of 8,000-10,000 titles purchased by the end of the project. The PGIA/FA should continue to monitor the PGIA library to assure that the rate continues as at present.

8.3. Current and estimated EOP PGIA/FA status

The PGIA and FA libraries were maintained as separate entities in different buildings at the time of project initiation. The merging of the two libraries into a single agricultural library located in the PGIA building was recommended by several expatriate staff in Sri Lanka on technical assistance assignments. That has now been done, and plans are underway for construction within the next five years of a library/classroom/administration complex.

The expected output in the original PP included a postgraduate library of 18,000 books, 165 journal subscriptions, 90 back files on film/fiche, and a functioning acquisition and cataloging system. As of December 1980, before significant procurement under the project, the merged library collection contained about 12,000 books and 134 periodicals. The acquisitions obtained through other donors and University appropriations plus the 8,000-10,000 books and 60-65 journals procured under the project are expected to result in an EOP status greater than originally projected in the PP.

The acquisition system is functioning reasonably well, and the card catalogue system has been introduced. The PGIA has requested that an assistant

librarian be provided short term training in the U.S. in lieu of bringing a library consultant to Sri Lanka on a short term T.A. assignment. If this is possible, further improvements in both the acquisitions and cataloging systems are expected upon her return from that training.

In summary, it is estimated that, the decrease in number of acquisitions made under the AID grant notwithstanding, all outputs projected in the original PP will be achieved or exceeded, with the possible exception of a few back files on film/fiche.

8.4. Conclusions regarding library development

- Procurement of library equipment has been virtually completed.
- The procurement of 64 journals to date meets the expected EOP level.
- Although book procurement is behind schedule, the present rate of acquisition is acceptable and, if maintained at the present level, will result in completion of the targeted number of acquisitions by the end of the project.
- Procurement of library materials on film/fiche is behind schedule and should be accelerated.
- The present library acquisition procurement system, utilizing an established book purchasing agent, is efficient and functioning well.
- There is reasonable expectation that all expected outputs identified in the original PP will be met or exceeded, with the possible exception of a few back files on film/fiche.

8.5. Recommendations regarding library development

Major

- The present library acquisition procurement system, including utilization of an established book procurement agent, should be continued as is (Action: CAED, PGIA/FA)
- The PGIA/FA should keep pressure on the PGIA library to maintain the present rate of requesting books for acquisition. (Action: PGIA/FA)

- The rate of film/fiche procurement should be accelerated. (Action: PGIA/FA, CAED)
- The PGIA proposal to utilize funds presently projected for a library development T.A. assignment to provide, instead, short term training in the U.S. for an assistant librarian from the PGIA library should be approved and the training arranged as early as possible. (Action: USAID, CAED, PGIA).

Other

- CAED faculty and staff and participants in training should be requested to continue to identify and send to the PGIA/FA lists of books in their areas of specialization that should be added to the library collection. (Action: PGIA/FA, CAED).
- In future projects, a comprehensive set of current publishing lists and other sources of information for identifying library acquisitions should be provided on site from the outset, and maintained throughout the procurement period.

9.0. Curriculum And Teaching

Development of curricula and improvement of teaching methodology are dynamic processes that must continue as long as an institution of higher learning is in existence. These processes are not readily amenable to quantitative evaluation, as qualitative improvement is most often the prime objective in making curriculum revisions and introducing new teaching techniques.

9.1. Projected outputs (from PP Supplement)

"Revised and improved curriculum being used in agricultural science."

9.2. Input status

The inputs to be financed by the AID Grant, as specified in the PP supplement, include about 19 person years in Sri Lanka consisting of long and short term visiting faculty to assist in teaching, curriculum development and graduate degree research supervision. The original PP calls for development of curricula in eleven fields (listed in Section 17.3.6).

It is virtually impossible to make a quantitative assessment of the impact of the project with regard to teaching and curriculum development since, as described above, these are on-going processes for which the PGIA/FA rightly maintain primary responsibility. Major changes that have occurred to date, and those anticipated during the remainder of the project are therefore discussed in Section 9.3. below.

Twenty-seven technical assistance assignments to date have been primarily academic in nature. In total, these visiting staff have taught all or a portion of 36 PGIA courses, have presented 23 seminars/symposia, and have prepared more than 30 sets of course outlines, lecture notes, handouts, etc., in their areas of specialization. In addition, they have reviewed both undergraduate and postgraduate curricula in their areas of specialization, and have participated with staff of their assigned departments/boards of study in both short and long range planning for curriculum revision and further development (many of these plans can be implemented only when staff presently out for training return to fulltime duty in the PGIA/FA). Three of the visiting faculty have directed their primary attention toward assisting departments/boards of study in planning for development of departmental programs as a whole and their relationships with programs of other departments. The Chief of Party (COP) has contributed to the FA curriculum committee responsible for revision of the undergraduate curriculum described in the following section, and in the revision of programs of study in two PGIA Boards of Study.

Based on the activities just described and the developments discussed below, the evaluation team concludes that visiting faculty contributions to

date have met project expectations related to curriculum and teaching. Some identified areas of need will not receive the degree of assistance anticipated, however, due to financial constraints which have necessitated reduction in the level of T.A. below that anticipated in the original PP (see Sections 12.2, and 17.3.2.).

9.3. Current and estimated EOP PGIA/FA status

The entire undergraduate curriculum has undergone major revision under the leadership of the FA curriculum committee, implementation of which started in the 1982-83 academic year. More than 20 new subjects have been added to the undergraduate program since 1977, and others have been revised or expanded. Major features of the revised curriculum and a list of new subjects added are included in Section 17.3.6.

The PGIA Boards of Study have revised their postgraduate offerings within the last 2-3 years, a process in which T.A. staff have contributed significantly as discussed in the foregoing section. Some courses have been revised, some discontinued, and new ones introduced in the interest of developing balanced, high quality programs in the various fields that can be offered with the staff and facilities now being developed in the PGIA/FA. More than 15 new or revised courses are already being offered (an incomplete list is given in Section 17.3.6.); and the entire agricultural extension curriculum has been revised, although not yet implemented.

Some of the areas of curriculum development specified in the PP (e.g. soil microbiology, rural sociology and rural community development) can be developed only after staff currently in training in those fields return to fulltime duty, and some areas may be subsumed into other categories. Nevertheless, it is estimated that curricula will have been developed or strengthened in all fields identified in the PP by the end of the project.

Innovations in teaching, although not specifically cited in the PP or PP Supplement, represent another important area of PGIA/FA development well underway. Some are included as integral parts of the new undergraduate curriculum. Examples of other innovations introduced or planned include increasing use of audiovisuals, increasing use of such techniques as case studies and problem-solving approaches, increased emphasis on practicals (laboratory exercises), the use of closed circuit video linked to a microscope for teaching in Agricultural Biology laboratory sections, and the introduction of video teaching for first year students at Maha Illuppallama and in outreach programs.

9.4. Conclusions regarding curriculum and teaching

- EOP status with respect to curriculum development will meet and, in fact, far exceed the outputs anticipated in the original PP.

- For the areas of specialization in which planned T.A. can be provided, visiting faculty contributions to teaching and curriculum development have to date been satisfactory.
- Innovations in teaching under development or planned are commendable, and should help to improve the quality of instruction significantly.

9.5. Recommendations regarding curriculum and teaching

Major

- Curriculum development in the PGIA/FA should continue along the same lines as at present. (Action: PGIA/FA)
- Scopes of work for T.A. assignments should clearly identify assistance in curriculum development as one of the areas of responsibility to ensure that maximum possible benefit in this area will be derived from all visiting faculty. (Action: PGIA/FA, CAED)

Other

- Insofar as appropriate, visiting faculty should provide ideas and illustrative materials for innovations in teaching techniques and methodology to the PGIA/FA. (Action: CAED).

10.0. Research Programs

Although the primary responsibility for agricultural research rests with other ministries and departments of the GSL, a viable and relevant research program in the PGIA/FA is essential to providing adequate undergraduate and postgraduate training.

10.1. Projected outputs (from PP Supplement)

"Operating research. . . programs in all six departments/boards of study in FA/PGIA."

10.2 Input status

The inputs to be financed by the AID Grant, as identified in the PP Supplement, include assistance in graduate degree research supervision by short and long term visiting faculty, and provision of commodities as discussed in Section 7.2. The provision of additional facilities by the GSL, discussed in Section 7.3, is also called for in the PP Supplement.

As in the case of curriculum development, it is impossible to quantify the impact of the project on research programs. However, the evaluation team found that virtually all visiting faculty have assisted in both short and long range research planning in their areas of specialization. Long term visiting faculty on academic assignments have supervised MPhil and PhD research of PGIA students and final year projects of undergraduate students, and have developed and participated in PGIA/FA research projects in their areas of specialization. Many short term visiting staff have provided similar types of assistance, although necessarily to a much more limited degree.

The facilities planning consultant provided assistance in planning the location and types of physical facilities required on the experimental farms, and the experiment farm development specialist provided limited assistance in planning and development of experimental farm layouts, roads, etc. The COP has initiated discussions with the PGIA/FA concerning the need for an improved system to maintain records of research projects, to monitor their progress, and to facilitate coordination, and has suggested a possible model for such a system. No action has yet been taken in this regard, however.

Visiting faculty provided under the project have given direct guidance and research supervision to four of the seven participants who have conducted their PhD research in Sri Lanka, the U.S. advisor of another visited Sri Lanka for these purposes at no expense to the project, and a visiting professor scheduled to arrive in early 1983 will provide such supervision to still another training participant. Technical assistance assignments are projected to provide short term guidance and supervision

to participants still scheduled to return to Sri Lanka for their PhD research (see Section 12,2).

The evaluation team concludes from its review of End of Tour reports and responses received from the PGIA/FA that assistance provided by visiting staff in the area of research program development has been generally satisfactory. The only exception identified was in experiment farm development per se in which assistance provided was less than expected as the result of lack of adequate PGIA/FA resources at that time for major farm development and lack of prior experience of the technician in working under conditions similar to those existing on the FA farms.

The impact of equipment provided for laboratories and experimental farms (discussed in Section 7.2) is more readily identifiable. In the judgment of the evaluation team, the development of PGIA/FA research programs would have been seriously delayed and restricted without that input.

10.3. Current and estimated EOP PGIA/FA status

The original PP identified seven expected types of outputs related to experimental farm development, research training and research output. It should be noted that only two experimental/training farms were included in those projections, whereas four farms are now operative and have been included in the evaluation. Outputs projected in the original PP, and current and estimated EOP status with respect to same are detailed in Section 17.3.5.

Four of the expected outputs have already achieved EOP status. Two others are well advanced, and the seventh is now in the discussion stage. It is estimated that all targets will have been met or exceeded by the end of the project.

10.4. Conclusions regarding research programs

- Overall progress in development of research programs has been excellent to date, and it is estimated that all EOP targets will be met or exceeded.
- Assistance to research program development provided by visiting faculty has been generally satisfactory.
- The provision of equipment for laboratories and experiment farms, discussed in Section 7.2, has been a crucial element in the development of PGIA/FA research programs.

10.5 Recommendations regarding research programs

Major

- Greater attention should be directed toward development of an effective system for coordinating research both

within the PGIA and with other research organizations.
(Action: PGIA/FA)

- Scopes of work for T.A. assignments should clearly identify assistance in research planning and development as one of the areas of responsibility to ensure that maximum possible benefit in this area will be derived from all visiting faculty. (Action:PGIA/FA,CAED)

11.0. Outreach Programs

Agricultural extension services to rural Sri Lankan families, like agricultural research, are the responsibility of agencies other than the PGIA/FA. Yet, the PGIA and FA are the primary sources of the graduates and postgraduates required by such agencies.

11.1 Projected outputs (from PP Supplement)

"Operating. . .outreach programs in all six departments/boards of study in FA/PGIA."

11.2. Input status

No outreach related inputs are specifically identified in the PP Supplement. In the original PP, outreach was combined with economics in allocation of funds for equipment procurement; and two T.A. assignments were projected--one long term (24 mos.) to be followed later by a 3 month short term assignment. The long term assignment was ultimately combined with the COP position (one of two alternatives for such combination specified in the PP), and the short term assignment was deleted due to lack of sufficient funds to provide all projected T.A.

Most equipment procured to date and planned for the Department of Agricultural Economics and Extension is for establishment of a media unit to serve outreach programs in the entire PGIA/FA, as well as for use in extension training programs of the Agricultural Economics and Extension Department/Board of Study and for production of teaching materials. The print section of this unit is now operative, equipment for the audio, photographic and graphic arts sections are in the procurement process, and specifications for equipment required for the video production section are in an advanced stage of preparation. Waivers for purchase of non-U.S. equipment will be required for the video unit and some items in the photographic unit, as no U.S.-made equipment meets the required specifications.

The impact of the T.A. input into extension/outreach has to date been minimal. Although the COP has maintained close association with the Department/Board of Study and has participated actively in planning and development of the media unit, the pressure of administrative duties has foreclosed any possibility for sustained active participation in teaching and outreach program development. (This has been offset to a limited degree by contributions of short term visiting faculty in agricultural education.)

Even without the time constraint just cited, the opportunity for impact in the area of extension would still have been limited as the timing of the assignment was premature. Institutionalization of the type of outreach

program envisioned in the original PP requires both qualified local staff for planning, organization and coordination, and supporting facilities such as the media unit. Neither has been available thus far.

The first participant in this field will complete his training and return to fulltime duty before the end of 1982. The first section of the media unit is now operational, and other sections should reach that stage during the coming year. Thus, the PGIA/FA could now make effective use of technical assistance in the extension/outreach area.

In recognition of the above, and with the project now at a stage in which administrative responsibilities are less demanding, an individual with training and experience in the area of communications has been nominated by CAED and approved by the PGIA/FA as the replacement for the retiring COP. If that nomination is approved by USAID, the project should still be expected to make a significant T.A. input into outreach development, particularly in the development and use of instructional materials in both outreach and teaching programs.

11.3. Current and estimated EOP PGIA/FA status

As defined in the original PP, outreach refers to all activities of the PGIA/FA directed toward audiences outside the student body and faculty which directly or indirectly affect rural communities and people engaged in agriculture or associated enterprises. However, the University community consisting of staff and students was identified in that document as the first audience to be reached directly by the intended outreach program. Other projected audiences included rural dwellers, key staff in organizations who can in turn impart technical training to field staff, the agricultural research community, institutions in need of improving their training skills, and those in need of improving farm management skills. An illustrative time-phased calendar for development of outreach activities with all but the first-named audience was shown on pp.36-38 of that PP.

For reasons cited above, it has not yet been possible to institutionalize the PGIA/FA outreach program as envisioned in the PP. All six Departments/Boards of Study are now involved in significant outreach activities related to one or more of the above audiences, however, an involvement that has been steadily increasing. The extent of that involvement is shown in Section 17.3.5.

The evaluation team estimates that institutionalization of the outreach program will be well underway by late 1984, and that the PGIA/FA will have a viable outreach program by the end of the project which impacts upon the audiences identified in the original PP. This will be contingent in part, however, upon the provision of sufficient qualified staff in the Department of Agricultural Economics and Extension to fully man the media unit and carry out necessary support functions. The team further estimates that viable teaching and research programs related to extension and outreach will be functional by that time.

11.4 Conclusions regarding outreach programs

- The originally projected schedule of outreach program development and, consequently, timing of the T.A. assignment in extension were unrealistically early; but projected EOP status still appears achievable.
- The media unit being equipped with commodities procured under the project should be adequate to support the envisioned outreach program provided that: 1) waivers are granted for purchase of non-U.S. equipment where required, and 2) the University provides the additional qualified staff needed to man the unit.
- A long term specialist in communications would contribute significantly to development of the media unit and, consequently, the outreach program, thus overcoming in large degree the premature timing of the previously scheduled T.A. assignment in extension.

11.5. Recommendations regarding outreach programs

Major

- Emphasis should be given to early institutionalization of the PCIA/PA outreach program to impact upon all its identified audiences, when staff out for training return to full-time duty. (Action: PCIA/PA).
- Waivers should be granted for purchase of non-U.S. items to equip the media unit where there is no viable U.S. alternative. (Action: USAID, CSL).
- The Department of Agricultural Economics and Extension should soon determine the full staff complement required for the media unit and other outreach program support functions, and the University should take necessary action to provide those staff. (Action: Agric. Economics and Extension, University).
- It would be desirable to select a specialist in communications to replace the retiring COP, provided he/she also meets the other qualifications required for that position. (Action: CAED, PCIA/PA, USAID).

12.0. Technical Assistance

The contributions of visiting faculty to development of PGIA/FA facilities and programs have been discussed in the sections relating to those areas. This section will therefore focus on input status, including scheduling and overall performance.

12.1. Projected outputs

No specific T.A. outputs are identified in the PP Supplement or original PP.

12.2 Input status

The inputs identified in the PP Supplement for financing under the AID grant include approximately 19 person years (p.yrs.) of technical assistance in Sri Lanka, a reduction of three p.yrs. below the level of effort projected in the original PP (or of nine p.yrs. depending upon which PP figure is used for comparison). That reduction was made necessary by the financial constraints discussed in Sections 13.2 and 13.3.

Technical assistance provided in relation to that projected. Specific T.A. assignments are not identified in the PP Supplement, although they are listed in the modified Plan of Implementation (PI) included in the 1981 annual project report on which the PP Supplement projection was based. Technical assistance is also identified by assignment in the original PP.

Technical assistance projections in the modified PI were reached in two stages. First, an in-depth reassessment of PGIA/FA needs for technical assistance, made during the initial six months of project implementation, resulted in some adjustments that were included in the detailed PI prepared in compliance with Contract provisions. They were again re-adjusted in the modified PI to provide the most effective assistance possible to highest priority areas of need within the reduced total p.yrs. then expected to be available under the project. An additional small downward adjustment may still be required as the result of the USAID decision made subsequent to preparation of the modified PI that the retiring Chief of Party be replaced on a full rather than part time basis as projected in the modified PI. It is expected that such adjustment will be made by late 1983.

The evaluation team used the original PP and modified PI projections and inputs to date cited in project reports to compare T.A. projected with that provided to date and currently projected for the remainder of the project. The details are presented in Section 17.3.2.

Approximately 12 of the currently projected 19 p.yrs. of T.A. have been provided in Sri Lanka to date, and all remaining assignments are scheduled for completion prior to the PACD. The currently projected total p. mos. of long and short term T.A. are 137.5 and 95.9, respectively, a shift from original

PP projections of about six percent in favor of short term assignments. The estimated number of visiting faculty has been decreased from 7 to 5 for long term assignments while those currently estimated for short term assignments have increased from 43 to 56, indicating that many short term assignments will be of shorter duration than originally projected (see discussion below on timing and duration of assignments).

The original PP projected T.A. assignments in 26 disciplines (including the COP), one of which was to be combined with the COP position, plus four 3-month assignments for which the disciplines were undetermined. Technical assistance has been provided or is projected in 24 of those disciplines, although long term assignments have been reduced to short term in two disciplines. Elimination of assignments in the other two disciplines resulted from the aforementioned reassessments of need. Assignments in 17 other disciplines have been added, 13 of which are primarily for the purpose of PhD research supervision as discussed below.

The evaluation team concludes from its investigations that the above-described adjustments and modifications are consistent with project purposes and objectives, and have been in the best interest for achieving maximum benefit from T.A. provided.

Technical assistance provided in relation to priority needs. The purpose of T.A. provided under the project, as stated in the PP Supplement, is to assist in teaching, curriculum development and graduate degree research supervision. Assistance in planning and development of research and outreach programs is also specified in the contract as a T.A. responsibility. All of these functions except outreach development have received satisfactory attention from visiting faculty as discussed in Sections 9.0-11.0. It is anticipated that future visiting faculty will continue to assist in all the above-mentioned areas, although increased emphasis will be placed on graduate degree research supervision for reasons discussed in Section 6.2 and below.

Distribution of T.A. assignments among the various disciplines in the six FA departments and PGIA library has been good, and most high priority needs will have been met fully or in part by the end of the project.

In response to the high importance awarded the faculty development component of the project by the PGIA/FA (see Section 6.0), first priority will be given in future assignments to providing in-country guidance and supervision to participants undertaking research in Sri Lanka. Visiting faculty on such assignments will also be expected to contribute to curriculum, research and outreach development. Nevertheless, the research supervision emphasis, combined with the overall reductions in level of effort, will necessarily result in shortening assignments and, consequently, diminishing the contribution of T.A. in critical areas such as communications, agroclimatology, entomology, soil physics, agrostology, and agricultural waste management.

Had it been possible to provide T.A. at the level projected in the original PP, the evaluation team concludes from responses received from the PGIA that all of the above needs could have been met adequately. Considering total

technical assistance requirements, the team concurs with the PGIA/FA that presently projected T.A. will meet those requirements to the fullest extent possible under present funding constraints. Needs for assistance in additional areas such as nematology, meat and milk technology, water relations of crops, micropropagation, and training in equipment maintenance and audio-visual operations that have been identified more recently by the FA departments cannot be satisfied through the present project.

Duration and timing of assignments. The implementation schedule in the original PP projected that nearly half of the total p.mos. would be provided in the first two years of project implementation, and the majority of assignments were expected to be 3 months or longer in duration. The PI proposed a redistribution in timing of assignments with relatively uniform distribution through 1984 to enable the PGIA/FA to make most effective use of technical assistance provided, with most assignments still planned for three months or longer.

In practice, a number of T.A. assignments have been shorter than projected in the PI, a change reflected in the modified PI. Early in the project, it was difficult for the CAED universities to release so many staff on short notice for three months. Furthermore, the greatest need at that time in some departments was for preliminary assessments and planning rather than teaching *per se*, and less time was required to accomplish the objectives of such assignments. More recently, funding constraints have made it necessary to shorten other assignments, a factor that will be increasingly felt through the remainder of the project.

The length of assignment has been appropriate in about two thirds of the cases as assessed by FA department needs. A longer duration would have been preferred for the other assignments. There is general consensus in the PGIA/FA that assignments of 2-3 months are more meaningful and useful than those of shorter duration. (In one area of specialization, the value of assistance received was reported to have been seriously reduced by curtailing the length of two assignments). One of the principal concerns expressed by the PGIA/FA regarding very short assignments is that visiting staff do not have sufficient time to become familiar with the PGIA/FA, Sri Lankan agriculture, and the current local situation in their fields of specialization.

Taking into consideration the recruiting problems cited above and existing financial constraints, it is concluded by the evaluation team that the shortening of assignments as has occurred to date and projected for the future represents a reasonable compromise in terms of attempting to satisfy highest priority T.A. needs of the PGIA/FA.

In spite of difficulties experienced by CAED in releasing faculty for T.A. assignments at exactly the time requested (due in most cases to the fact that CAED and PGIA/FA academic terms do not mesh exactly or that a faculty member has long term commitments that do not permit him to accept a T.A. assignment during certain periods of the year), the evaluation team concludes from its survey of FA department heads that timing of assignments has, with a few exceptions, been appropriate. (It was reported that two assignments would have been more beneficial if scheduled later in the project, and that delay in

filling another assignment resulted in a serious setback for a participant returning to Sri Lanka for dissertation research).

The evaluation team concurs with the views of the PGIA/FA and CAED that it is critically important to schedule future T.A. assignments involving U.S. advisors of participants at times that best meet the needs of their advisees for PhD research supervision. Such assignments should be scheduled to fall within an academic term of the FA/PGIA in most cases, however, to enable the advisors to fulfill other responsibilities specified in their scopes of work.

Selection of T.A. personnel. Candidates for the majority of the T.A. assignments were identified by CAED prior to project implementation based on needs identified in the original PP. Although a number of modifications and substitutions have been made during the course of the project, many of those original candidates have been ultimately selected for their proposed assignments. The process of selection is straightforward. First, the PGIA/FA determine the desired timing and duration of an assignment (following closely the modified PI) and prepare a scope of work. The CAED university then identifies and nominates a candidate whose credentials are submitted to the PGIA/FA for review. If the nomination is approved by the PGIA/FA, it is submitted to USAID for approval. If not, CAED is so informed, and the CAED university identifies another candidate. When USAID approves the nomination, CAED submits it to the Contracting Office for final clearance.

Thirty expatriate personnel had been in Sri Lanka on T.A. assignments at the time the FA department heads et al were polled, and another arrived shortly thereafter. Of these 31 individuals, 27 had academic type assignments related to specific departments. Three had more general assignments involving the PGIA/FA as a whole, and one was a technician whose assignment was to install the offset press and train an operator.

Of the 27 in the first category, 24 were recruited from staff in the CAED universities, two were from other major U.S. universities, and one (formerly at a CAED university) was a non-U.S. citizen recruited from abroad. (Another third country national who has no CAED university association, has been nominated for an early 1983 assignment). Of those in the second category, two were CAED staff members, and the third a consultant well-known to the Contractor. The technician in the third category was recruited from outside the CAED.

Overall, about 84 percent of all T.A. personnel provided to date have come from long term staff of the CAED institutions. This percentage is expected to increase to approximately 90 by the end of the project.

As reported by the PGIA/FA, field leadership (COP) and assistance in facilities planning, library development and virtually all technical areas have been adequate. In one case, the assistance provided did not meet expectations (see Section 10.2). In only three other instances were reservations expressed in the sense that the individuals were reported to be "partially satisfactory".

Based on the above feedback from the PGIA/FA and their own observations, the

evaluation team concludes that overall quality of T.A. provided to date has been very good and that the training and experience of visiting faculty have been appropriate to the assignments undertaken. Key factors in maintaining this high level of quality have been: 1) careful selection of candidates by CAED based on their qualifications and suitability for the projected assignment; and 2) the opportunity provided the PGIA/FA to review and approve or reject nominations for T.A. assignments prior to their submission to USAID.

The CAED has experienced difficulty with recruitment for a few T.A. assignments, particularly for those of longer duration. It is for this reason that the previously-cited non-U.S. citizens have been nominated. Although the competence of such individuals is in no way questioned, the team considers the recruitment of non-U.S. citizens not directly associated with a U.S. university to be undesirable since one of the unstated objectives of the project is to develop ongoing linkages and relationships with U.S. scientists and institutions.

Performance in relation to scopes of work. In assessing T.A. performance in relation to scopes of work, there was consensus in the PGIA/FA that most scopes of work have been appropriate and realistic, and that staff provided by CAED for T.A. assignments have fulfilled or gone beyond the specified responsibilities.

With specific reference to scopes of work, feedback from CAED indicates that some could have been improved by including greater detail and specificity in the interest of identifying staff most appropriate for the assignment and permitting those selected to make adequate preparation prior to their arrival in Sri Lanka. In a few cases, the scope of work is considered in retrospect to have been too ambitious for the designated length of assignment. In other cases, performance in relation to the scope of work could have been better had there been counterpart staff in the PGIA/FA or more adequate facilities.

FA department heads were asked to rate eight aspects of performance of TA staff in relation to what was called for in their scopes of work. On the basis of weighted average for each aspect, using a scale on which 4 is outstanding and 1 is less than expected, aggregate performance in the different categories ranged from 2.96 to 3.45. Assistance in postgraduate research supervision, curriculum development and teaching received the highest ratings, followed by assistance in research and departmental planning. Assistance beyond that specified in the scope of work, relevance of recommendations, and usefulness of end of tour reports, although lowest, were still considered to be good. On the basis of this direct feedback from the PGIA/FA, it is concluded that, overall, T.A. performance has been satisfactory.

A review of follow-up action on recommendations made to the PGIA/FA by T.A. staff revealed that a significant number of the recommendations have already been implemented and others will be in the relatively near future. Revision of the undergraduate curriculum (see Sections 9.3 and 17.3.6), an increase to 45 units as the minimum requirement for the MSc degree, and revision of the postgraduate curriculum by PGIA Boards of Study are among

the important recommendations already implemented. The reasons most frequently cited for failure to implement a given recommendation thus far were lack of sufficient resources or lack of authority within the PGIA/FA to effect the desired changes. Only a few recommendations were not considered to be relevant.

The evaluation team concludes from this review that the majority of recommendations made by T.A. staff have been on target, and that the PGIA/FA have taken positive action to implement them to the extent possible, recognizing constraints imposed by present resource availability and limitations of authority.

12.3. Conclusions regarding technical assistance

- Modifications and adjustments in original PP T.A. projections made during the course of the project are consistent with project purposes and objectives, and have been in the best interest for achieving maximum benefit from T.A. provided.
- Distribution of T.A. assignments among the various disciplines in the six departments and the PGIA library has been good, and most high priority needs will have been met at least in part by the end of the project. However, the T.A. contribution will be less than planned and needed in communications, agroclimatology, entomology, soil physics, agronomy, and agricultural waste management due to the reduction in level of effort.
- Planned emphasis on assignments to provide in-country PhD research supervision and associated curriculum, research and outreach assistance is justified, taking into consideration the high importance placed on staff development by the PGIA/FA.
- Although longer assignments would have been desirable in some cases, the shortening of assignments as done to date and projected for the future represents a reasonable compromise in terms of satisfying highest priority T.A. needs of the PGIA/FA within the constraints of available resources and availability of outstanding T.A.
- The overall quality and performance of T.A. provided to the PGIA/FA has been good; the training and experience of visiting staff have, with few exceptions, been appropriate to the assignments undertaken; and End of Tour reports have been consistently well prepared and well received by the PGIA/FA.
- The high percentage of T.A. personnel who have come from long term staff of the CAED institutions is commendable. However, recruitment of non-U.S. citizens not associated with a U.S. university should be avoided.
- Although most scopes of work provided to CAED have been satisfactory, some could have been improved by including greater

detail and specificity; and a few have proved to be too ambitious.

- The majority of recommendations made by T.A. staff have been on target, and positive action has been taken by the PGIA/FA to implement them to the extent possible.

12.4. Recommendations regarding technical assistance

Major

- Assignments involving U.S. advisors of participants should be scheduled at times that will permit most effective supervision and guidance of PhD research, with the proviso that they should normally fall within an academic term of the PGIA/FA.
(Action: CAED, PGIA/FA)
- To the extent permitted by resource constraints, assignment lengths should be sufficient to provide time at the outset for orientation and familiarization, and at the end to prepare required documentation (reports, course syllabi, etc.).
(Action: CAED, PGIA/FA)
- Recruitment for T.A. assignments should be limited to staff of U.S. institutions.
(Action: CAED)

Other

- Major consideration should be given to selecting T.A. personal, particularly for long term assignments, with experience relevant to the conditions encountered in Sri Lanka.
(Action: CAED)
- Greater attention should be given to development of well-defined realistic scopes of work and to communicating them to CAED well in advance of projected assignments.
(Action: PGIA/FA)

13.0. Project Design And Implementation

As part of the overall assessment of the project, the evaluation team examined various aspects related to project design and implementation. Their findings are discussed and summarized below.

13.1. Basic design

The basic design of the present project follows closely the original request for assistance submitted by the PGIA in 1977 with one major modification. The original request was for assistance to the PGIA only. The present design also incorporates assistance to the FA as recommended in the 1977 Preliminary Assessment of the PGIA.

The AID contribution (input) to the project is comprised of four major components: participant training, technical assistance, vehicle and equipment procurement, and library development (acquisitions). It also includes provision for PGIA Director/Dean of Agriculture administrative visits to the U.S. and a few travel extensions for senior faculty members. The GSL contribution is comprised of two major components: local salaries and operating expenses, and construction of new laboratory/classroom buildings and off-campus buildings for experiment farms. This basic design is still appropriate in the judgment of the evaluation team.

In general, the design contains sufficient detail for effective implementation. Implementation experience to date, however, has revealed three significant flaws in design detail as set forth in the original PP:

- the implementation schedule was unrealistic, taking into account that this was the first major comprehensive foreign assistance project to be implemented by the PGIA/FA, that the project contained some innovations in training and procurement practices with which neither the PGIA/FA nor ultimate Contractor had had extensive previous experience, and that time required for planning, approvals and construction of buildings and other capital improvements is usually much longer than might be the case in the U.S;
- little or no provision was made for flexibility to adjust projected inputs within a given project component to take into account changing needs due to conditions beyond the control of the project or as revealed by the continuing reassessment of PGIA/FA programs and requirements which has taken place throughout project implementation;
- related to the above, no provision was made for alternate courses of action to be taken in the event that assumptions made at the design stage proved to be invalid.

Most, although not all, of the above design flaws have been overcome during the course of project implementation as discussed below and in the sections dealing with specific project components. Nevertheless, a number of early implementation problems could have been avoided had these factors been taken into account at the design stage.

13.2. Inconsistencies among project documents

Inconsistencies among the various project documents have resulted in some confusion during project implementation and have caused problems to the evaluation team in attempting to assess project performance to date in relation to expected inputs and outputs. A few examples are cited below to illustrate the problem.

The original PP, in the Logical Framework, specifies a total T.A. input of 334 p.mos. or approximately 28 p.yrs., the level of effort specified in the original Project Grant Agreement. In the Implementation Schedule, 250 p.mos. of specific assignments are included and an additional 12 p.mos. of undetermined T.A. are budgeted for a total level of effort of 262 p.mos. or approximately 22 p.yrs., the level specified in the Contract.

As alluded to above, the PP specifies disciplines, duration and timing for all but 12 p.mos. of T.A. assignments. The Contract aggregates the disciplines into nine technical fields (including the Chief of Party), and provides flexibility to adjust p.mos. among those fields as may be reasonably necessary in the performance of work required.

The contract, in contrast to the original PP, called for preparation of a revised and detailed time-phased project plan by the PGIA/PA and Contractor, and obligated the Contractor to maintain flexibility in planning and operational implementation to meet changes in the program needs based on continual review of the program and to meet variable conditions in Sri Lanka. Thus, the last two design flaws cited in the foregoing were largely rectified at the Contract stage insofar as AID inputs were concerned.

The detailed project plan (plan of implementation or PI) was prepared in compliance with the Contract and submitted to USAID in early May 1980. The PI proposed that junior staff enter training over a three rather than a two year period due to the limited number of high quality candidates available in any given year, and that the total number to be trained be increased by two to partially compensate for the shortfall in anticipated other donor-financed postgraduate scholarships. The PI also called for a major redistribution in timing of T.A. assignments, some shifts in discipline, and a few additional person months of effort to meet needs not recognized in 1978. The need for additional funding to complete the project as planned (due principally to the higher than earlier projected inflation rates) was clearly identified in the PI.

In the absence of any response to the PI from USAID, either positive or negative, the project proceeded in accordance with the PI insofar as was possible within the then existing financial constraints.

Discussions of the PGIA Director and Contractor with USAID in late 1981 indicated the likelihood that additional funds would be added to the AID Grant for the project, although the magnitude was not known. Based on those discussions, a modified PI was included in the third annual project report and amplified in project report no. SR82-1, Special Report to USAID/SL Project Committee, based on the assumption that approximately half of the additional funds for which need was projected in the original PI would be forthcoming in a supplemental grant. In accordance with PGIA/FA priorities, highest priority was awarded to training in the modified PI and other planned inputs, principally T.A., were reduced accordingly. In the absence of early feedback from USAID, the project then proceeded in accordance with the modified PI.

Most of the above-cited inconsistencies have been removed in the PP Supplement which is highly consistent with the modified PI. Therefore, the evaluation team used the PP Supplement as its primary reference document in assessing project performance in relation to expected inputs and outputs. Since the PP Supplement contains a minimum of detail, however, present and estimated EOP status were also assessed in relation to specific inputs and outputs projected in the original PP.

13.3. Implementation

The implementation schedule of the original PP projected that a T.A. contract would be signed in October 1978 and that the Contractor's COP would arrive in December of the same year. In fact, the Contract was signed in April 1979 and the COP arrived in early July.

That delay, coupled with the unrealistic time frame for implementation cited in Section 13.1 above, resulted in early implementation problems which were related principally to training (see Section 6.2) and procurement (see Sections 7.2 and 8.2). The procurement problem has now been overcome, but an extension of the PACD for training will be required to resolve the training problem (see discussion in Section 6.2 and recommendation in Section 6.5).

Changes in host country policies and conditions (discussed in Sections 4.1 and 13.6) affected the project, particularly with respect to rate of increase in undergraduate enrollments in the FA (Section 4.1) and the procurement of vehicles by the GSL (Section 7.3). Intermediate project targets for increased output of BSc graduates have had to be reduced, but the overall target remains unchanged. The total number of vehicles now to be purchased by the GSL has been decreased, however, as discussed in the above-referenced section.

The financial constraints mentioned in the foregoing section have obviously affected project implementation. In accord with PGIA/FA priorities, the PP Supplement allocates sufficient funds to permit completion of all training presently projected. In order to do so, it was necessary to reduce the level of T.A. The allocation for vehicles was decreased to that required for procurement of the ten jeeps. Although allocations for other

inputs were increased, the net effect was to maintain those inputs at about the same level as projected in the original PP,

The evaluation team concludes from its study of project documents and reports that project implementation to date has been satisfactory and appropriate. The team considers the PP Supplement and modified PI to be appropriate and feasible. Although implementation of the modified PI will not permit the project to fully satisfy all earlier identified PGIA/FA needs (most notably in technical assistance), this negative impact can be minimized through maintaining flexibility in allocation of resources through the remainder of the project.

13.4. USAID support and involvement

USAID has strongly supported the project in principle and with the GSL from its inception. Specific support and the level and effectiveness of involvement have been uneven, however. Frequent turnovers in USAID staff assigned to the project (four different Project Officers within the first fifteen months of project implementation), lack of clarity of certain USAID policies, a change in policy with respect to duty-free clearance of commodities and COP and long term T.A.'s personal effects, delays in action on the PI and associated matters, and sometimes inadequate coordination and communication between USAID and AID/W on matters related to the Contract have all resulted in difficulties to the Contractor and PGIA/FA in project implementation.

The above-described situation has now improved greatly. The present USAID Project Officer has been in place since August 1980. Procedures have been developed for obtaining USAID approvals on routine matters with despatch. Monthly meetings of the Project Officer with the PGIA Director, FA Dean, and Contractor COP have improved communications immeasurably, and have expedited action on project affairs.

The team has noted that a number of foreign donors, USAID included, are continuing to provide scholarships for postgraduate training abroad. Although some training abroad is still no doubt justified, large scale continuation of this practice would both increase training costs of such projects, and defeat the purpose of expanding the capacity of the PGIA to meet most of the country's requirements for postgraduate education in agriculture.

13.5 Contractor support and involvement

Contractor performance in providing the technical services specified in the Contract has been satisfactory, although a few areas for improvement are included in recommendations in other sections of the evaluation report. Strong field leadership and continuity in the Chief of Party position have been maintained to date. The present COP will leave the project at the end of this year, however, and there is concern about maintaining field leadership during the remainder of the project.

Changes in home office staff (including the Consortium Coordinator) during early stages of project implementation resulted in some problems related to expeditious initiation of procurement and communication between home and field offices. Various problems not anticipated at the project design stage, including the financial situation referred to earlier, have resulted in a home office level of effort somewhat higher than originally projected.

The CAED Consortium Council has been an effective vehicle for formulating and reviewing policies relating to the project. The participation of representatives of all CAED members and the PGIA/FA in all Consortium Council meetings has been most helpful in this regard. Lack of USAID participation in the February 1980 Council meeting at which the draft PI was examined in depth had adverse repercussions, however. Communications and working relationships among the prime contractor and the three Consortium universities have been commendable.

13.6, GSL support and involvement

The GSL has supported the project effectively from its inception. The GSL-designated project director (the PGIA Director) and the Dean of Agriculture have been fully involved in every phase of the project throughout its existence and have provided effective leadership in its implementation. Department heads and senior staff have likewise been fully involved, and the PGIA coordinating committee has developed into an effective decision-making body in support of the Director. The project has also received support from the University Vice Chancellor and Government.

The GSL has thus far met or exceeded all commitments under the original Project Grant Agreement, except some vehicles (see Section 7.3). As the result of inflation, expanding enrollments, and excellent project performance, the GSL has increased its projected counterpart funding (support) over the life of the project from about \$3.2 million to \$5.4 million. Estimated GSL contributions for facilities improvement and local operating expenses are given in Sections 17.3.4 and 17.3.7, respectively.

With the worsening general economic situation in the country, however, there is concern about GSL capability to continue to increase appropriations rapidly enough to meet the expanding requirements projected in PGIA/FA development plans.

Closely related to the above, building construction and PGIA/FA recurrent costs have escalated due to inflation. The level of funding required to construct the new buildings and develop the improved facilities identified in the project will therefore be significantly higher than anticipated. For example, funds earlier appropriated to expand the Maha Illuppallama Unit had become seriously inadequate by 1979; additional appropriations will now be required to expand the unit to accommodate the 200 students called for in the project purpose.

13.7. Conclusions regarding design and implementation

- The basic project design is still appropriate, although three significant flaws in design detail were identified: the implementation schedule was unrealistic, flexibility to adjust to changing needs was not built into the design, and no alternative courses of actions were anticipated for coping with situations in which original assumptions proved invalid.
- Inconsistencies among the various project documents, which caused problems in early implementation, have been largely resolved through the PP Supplement and modified PI.
- Project implementation has been satisfactory thus far. The modified PI, which adheres closely to the PP Supplement, is appropriate and feasible in the present situation.
- USAID support and involvement, although uneven in the early stages of project implementation, is now generally satisfactory.
- Overall Contractor performance has been satisfactory, although a few possibilities for improvement were identified.
- The CAED Consortium Council has been an effective vehicle for formulating and reviewing policies relating to the project.
- The GSL has met or exceeded its commitments to date in everything except vehicle procurement, and has increased its projected LOP contribution. Even so, there is concern about its capability to continue to increase appropriations rapidly enough to meet expanding requirements of the PGIA/FA.

13.8. Recommendations regarding design and implementation

Major

- Implementation through the remainder of the project should adhere closely to the modified PI, although flexibility should be maintained to adjust as required to achieve maximum project performance.
(Action: CAED, PGIA/FA)
- The GSL should continue to give high priority to meeting the capital and recurrent expenditure needs of the PGIA/FA to enable them to reach enrollment targets and maintain world standards in quality of education provided.
(Action: GSL)
- The PGIA/FA should continually reassess their priorities and

needs to make most effective use of resources received,
(Action: PGIA/FA)

Other

- Insofar as possible, USAID should maintain continuity in staff assigned responsibility for the project. When change is necessary, overlap with outgoing staff and indepth orientation concerning the project should be arranged.
(Action: USAID)
- USAID should respond promptly, in writing, to reports and requests submitted by the project that have policy implications or that require USAID sanction.
(Action: USAID)
- USAID should take steps to improve its internal coordination on these types of contracts.
(Action: USAID)
- The COP scope of work should be modified to include about half time effort in a priority T.A. area, and the replacement for the present COP should arrive in Sri Lanka no later than early December 1982.
(Action: CAED)
- The Contractor should maintain continuity in both home and field office leadership through the remainder of the project.
(Action: CAED)
- Wherever feasible, donor agencies should include postgraduate training in agriculture at the PGIA rather than abroad in projects of assistance to Sri Lanka.
(Action: USAID, GSL, other donor agencies)
- In designing future projects, experience of implementing agencies should be assessed more fully and adjustments made in the implementation schedule as necessary to assure that the time frame is realistic, especially with regard to start-up and targeting.

14.0. Other Donor Contributions

Project Paper Supplement estimates of anticipated other donor contributions included 180 p.mon. of technical assistance and postgraduate training of 12 junior staff--2 to the MS level and 10 to the PhD. Although it was not possible for the evaluation team to verify estimates with the several donor agencies involved, it appears from reports received from the PCIA/FA that both of these estimates will be exceeded.

Other donors have also made important contributions to library development through contribution of books and photocopying services. The dollar value of such contributions could not be determined.

A critical area of need in the PCIA/FA for which no funds are provided under the AID grant is support for research projects. Other donors, who have provided substantive support for a number of years, have increased their contributions dramatically in 1982.

Details concerning present and projected other donor contributions are enumerated in Section 17.3.9.

15.0. Need For Follow-on Assistance

Although the present project extends for several more years, it is not too early to consider the possible need for follow-on assistance that would complement the institution-building process currently underway.

15.1. Estimated status

It is anticipated that the present project will achieve its objective in terms of assisting the FA/PGIA to expand their capacity to provide high quality training in agriculture at both the undergraduate and postgraduate levels. However, additional assistance may be required to support development of research and outreach programs and some additional facilities that will make it possible for the investment presently being made in training and upgrading facilities to be fully and most beneficially utilized.

Examples of types of assistance that might be considered include: support for development of a Continuing Education Center at Peradeniya; continued input into development of the agricultural library; training of technicians and other support staff; support for joint research projects between FA staff and the CAED universities; replacement of worn out or obsolete equipment; assistance to facilitate the integration of programs among the three agricultural faculties now functioning in the country; and support that may be needed to help make the PGIA a center of excellence in postgraduate training in agriculture in the Asian region.

15.2. Recommendation regarding follow-on assistance

Major

- Consideration should be given by donor agencies to providing early support for a study of Sri Lanka's future needs for development of higher education in agriculture, including a re-assessment of present and future demand for agricultural graduates and postgraduates.

16.0. Evaluation Methodology

The present evaluation is the first made in compliance with requirements specified in the original PP. Although the PP specified that the first evaluation would occur two years after the signing of the Project Grant Agreement, USAID, PGIA/FA and the Contractor agreed at that time that such an evaluation would be premature due to the time lag between signing the agreement and initiation of implementation. This evaluation was further postponed until the present at the request of USAID.

16.1. Methodology utilized

Methodology utilized in the present evaluation is described in Section 17.2. Solicitation of information from the FA departments, participants, members of the CAED Consortium, and USAID was particularly useful. Questionnaires were prepared for distribution to FA departments and participants (Attachments A and B, respectively, to Section 17.2); CAED members and USAID were asked to respond directly to the questions included in the scope of work. It would have been desirable to solicit information, also, from U.S. faculty who have been in Sri Lanka on short term assignments.

The evaluation team considers the methodology utilized in the present project evaluation to have been satisfactory, taking into consideration resource and time constraints.

16.2. Problems encountered

It was originally anticipated that the evaluation team would include a member with international experience in agricultural education projects who had had no previous association with the project. Ultimately, this could not be arranged due to limitations on available funds. Therefore, the five-member team was comprised entirely of individuals closely associated with the project.

Inconsistencies in and among various project documents made it difficult to establish reference points against which to measure project performance, as discussed in Section 13.2. The ultimate solution was to use the PP Supplement as the principal reference document, and the detailed description of expected inputs and outputs from the original PP as the reference base for present and estimated EOP status of specific inputs and outputs.

A scope of work for the evaluation was drafted by USAID and discussed by the USAID Project Officer with the PGIA Director, Dean of Agriculture and COP who were invited to offer their comments and suggested revisions. Those suggestions were submitted to USAID who incorporated them into the draft. The draft was then submitted to Ms. Josette Murphey, PPC/E, AID/W, for comments, and her suggestions were incorporated into the evaluation investigation and report.

In the absence of any feedback from USAID to the contrary, the evaluation team assumed that the scope of work had Mission approval, and structured its investigation and report accordingly. When an oral presentation of team findings was made to relevant officials (including USAID representatives) and the draft report was made available for review, however, USAID requested a major additional input into the evaluation that was outside the aforementioned scope of work.

Had these added evaluation inputs been included in the scope of work, they could have been incorporated into the original investigation and report with little difficulty. As it happened, however, another major investment of time and effort was required for investigation and a virtually complete re-write of the report. This task was further exacerbated by the fact that two members were out of the country at the time the additional request was received, another (the report editor) was out of country for two weeks shortly thereafter, and the pressure of other duties made it impossible for the USAID member of the team to contribute significantly to the additional work required.

16.3. Conclusions regarding evaluation methodology

- The methodology utilized in the present evaluation is considered to have been satisfactory, taking into consideration resource and time limitations.
- It would have been highly desirable to have an outside evaluator as a member of the evaluation team, and financial support outside the Contract for his/her participation.
- Time and effort required for the evaluation were unnecessarily increased by compliance with the request from USAID for additional information outside the initial evaluation scope of work.

16.4. Recommendations regarding evaluation methodology

Major

- An evaluator with international experience in agricultural education projects who has had no previous experience with the AED project should be included on future evaluation teams.
- The general methodology used for the present evaluation should serve as the basis for future evaluations.
- USAID/AID should take a more active role in mid-term evaluations by supporting (funding) an outside evaluator

or, at the minimum, more actively involving the Mission Evaluation Officer to provide active guidance throughout the evaluation.

- Scopes of work for future evaluations should be approved in writing by USAID, with copies going to all team members and their organizations.
- The next major AED project evaluation should be scheduled in late 1984 or early 1985, with emphasis on project and Contractor performance.
- An impact evaluation should be made approximately five years after the PAED.

Other

- Members of future project evaluation teams should be formally nominated by USAID or the organizations to which they pertain, and said organizations should confirm to USAID that the members will be released from normal duties for the period required to complete the evaluation.

17.0 A P P E N D I C E S

APPENDIX 17.1

Project Background and Scope of Work for Evaluation

In response to a 1977 request from the PGIA for assistance, USAID supported a study of Sri Lanka's need and demand for high level agriculturally trained manpower and an assessment of the potential capacity of the FA and PGIA to meet a major portion of that demand. The study revealed a significant continuing demand that far exceeded the then existing capacity of these two institutions. It was also concluded from the study that, with appropriate external assistance, the FA and PGIA could develop the capacity to meet about 80 percent of the country's demand for personnel trained to the BSc and advanced degree levels.

As a result of the above, the Agricultural Education Development Project (383-0049) was initiated in 1978 with USAID support to provide much of the needed assistance. (Other donor agencies have also contributed on a smaller scale through providing some technical assistance, training, support to the library, and commodities). Project implementation started in mid-1979, and is currently projected to continue through late 1985.

The USAID contribution consisted of a \$6.0 million grant (increased in 1981 with an additional \$1.5 million grant) for institution building and technology transfer, to expand and upgrade the capacity of the Sri Lanka Faculty of Agriculture (FA) and the Postgraduate Institute of Agriculture (PGIA) at the University of Peradeniya. The \$7.5 million grant provides for 38 FA lecturers to receive PhD degrees from U.S. universities, approximately 19 person years of technical assistance in Sri Lanka to assist in teaching and curriculum development, and commodities such as laboratory equipment, vehicles and books for FA Experimental Farms and the PGIA/FA library. A \$5.4 million (Rupee equivalent) contribution by the host country is for local operating expenses, building construction and facility improvements. Also during the project more than one million dollars from other donors is anticipated in the form of technical assistance and training. A total project cost of about \$14 million (all sources) is anticipated.

The projected outputs include: (1) trained faculty of an additional 38 PhDs in six departments; (2) adequately equipped teaching and research facilities and laboratories; (3) library for teaching and research/out-reach programs in the FA and PGIA; and, (4) a revised and improved curriculum used at the College of Agriculture and PGIA.

By 1987, the FA is expected to be granting 200 BSc degrees annually (100% increase over 1978 level) and by 1985 PGIA is expected to be granting 75 graduate degrees (MPhil, MSc & PhD) annually (200% increase over 1978 level).

The major contractor, the Academy for Educational Development, is the primary institution which has subcontracted with three U.S. Land Grant Universities (Pennsylvania State University, Texas A&M University, and

Virginia Polytechnic Institute and State University) for training and technical assistance. CAED has also sub-contracted with Franklin Export Trading Company to procure project commodities and with The Book House for book procurement.

Although implementation started slowly due to delay in selecting a contractor and negotiating a contract for the project, substantial progress has been made and todate the project is on essentially schedule. All 38 PhD candidates were enrolled in the universities; the first PhD graduate returned in January 1982. Due to a limited pool of qualified candidates available for postgraduate training at the outset, it is anticipated that most probably 4 and possibly up to 9 students will not complete their program by the PACD. Presently about 60% of the technical assistance, long and short term, have been provided in Sri Lanka and 70% of the commodities (dollar basis) have been procured, or are in the procurement process.

Purpose and Timing of the Evaluation

The purpose of this evaluation is to review what has happened to date in order to determine if any mid-course corrections are necessary to improve project effectiveness and efficiency.

The timing of this evaluation, October 1982, was chosen so that it could take place prior to the departure (est: December 1982) of Dr. Howard E. Ray (Chief of Party).

Questions the Evaluation Team will Answer

The report of the evaluation should answer the following major questions:

1. General Project Status:
 - (a) What has the project accomplished to date?
 - (b) What has the project failed to accomplish that had been expected, and why?
2. Participant Training:
 - (a) While it is early to evaluate the results of the faculty training program, what is the team's view regarding the appropriateness of the trainees' graduate academic and research programs?
 - (b) To what extent has the pattern of having the trainees return to Sri Lanka for PhD dissertation research been successful? Are there circumstances under which it should be modified?
3. Technical Assistance:
 - (a) Do the specific technical assistance categories meet the priority needs of the PGIA and Faculty of Agriculture?

- (b) To what extent is selection for technical assistance made principally on the basis of availability from CAED?
- (c) Have staff provided by CAED for technical assistance assignments fulfilled the responsibilities indicated in their scopes of work?
- (d) To what extent has it been possible for the PGIA and FA to implement the recommendations of visiting staff?

4. Commodity Procurement:

- (a) Will equipment, supplies, library acquisitions and vehicles provided to date and on order meet priority needs for equipping the Departments of the Faculty, PGIA, Library?
- (b) Has equipment received to date met the specifications given in the departmental requests?

5. Overall Assessment and Recommendations:

- (a) Is the current work plan (Plan of Implementation) appropriate and realistic?
- (b) Realistically, can the project be improved?
- (c) Have there been changes in the host country policies/conditions since the project was designed in 1977 which may positively or negatively affect the project? If so, what are they and what is the likely impact?
- (d) How appropriate is the project design to the present context?
- (e) What specific actions can be taken to improve project performance?
- (f) What recommendations does the team have regarding possible follow-on assistance after the present project that should be considered?

APPENDIX 17.2

Methodology Used in Evaluation of Project

The evaluation team was comprised of five members representing the following organizations:

PGIA	-	Acting Director
Faculty of Agriculture	-	Dean of the Faculty
	-	Head, Agricultural Economics & Extension
Prime Contractor	-	COP, Academy for Educational Development
USAID	-	Project Officer

Primary sources of information included:

- (a) Background materials: Agric. Education Development Project Paper
Project Paper Supplement No. 1
Project Grant Agreement and Amendments
Plan of Implementation
Monthly, quarterly, annual Project Reports
End of Tour Reports
- (b) Information provided
by: Heads of FA Departments (6) and PGIA library
37 present and former training participants
CAED Consortium member institutions
Former Dean of Faculty of Agriculture
- (c) Team observations from inspection trips to the three experimental farms of the Faculty of Agriculture and its unit at Maha Illuppallama for first year students.

Questionnaires (see attachments A and B) were developed to solicit information relative to the major questions in the scope of work from Heads of Departments and training participants. Copies of the scope of work were distributed to USAID and Consortium members for the same purpose. These materials were distributed approximately six weeks ahead of the scheduled evaluation; responses were tabulated and summarized for distribution to team members at their organizational meeting. The team also interacted extensively with staff of the FA, including at a Faculty meeting during which the above-cited tabulated responses were reviewed and discussed.

After three days of visiting on and off campus facilities of the FA/PGIA utilized in ongoing teaching, research and outreach programs of all departments, members of the team worked individually to develop drafts of the sections of the evaluation report assigned to each. They met about midway through the writing period to review and reach a consensus on all proposed conclusions and recommendations after which individual inputs were turned over to the member assigned as editor for preparation of the complete report. The team met again to review and modify the draft report

as needed before making an oral presentation of their findings at a meeting held in the PCIA to which were invited the Vice Chancellor of the University and representatives of USAID, PCIA, PA, and the Ministries of Higher Education, Plan Implementation and Finance. Final editing of the report was done following this meeting.

The evaluation report was reproduced for submission to CAED, PCIA (CSL) and USAID/Colombo. Findings were discussed in detail at the annual CAED Consortium Council meeting in early November 1982.

ATTACHMENT A

Questionnaire distributed to FA Department Heads and PGIA Assistant Librarian in August 1982 to solicit information for use in the project evaluation.

The questionnaire was organized into three parts: general questionnaire; addendum 1 to obtain detailed information concerning each participant (expansion of question 1.3); addendum 2 to obtain detailed information on technical assistance received to date (expansion of questions 2.3, 2.4, 2.5). Each respondent was provided a copy of addendum 1 for each training participant from his department with the face data and estimated training completion schedule filled in and a copy of addendum 2 for each technical assistance assignment received by that department to date with assignment and technician information filled in. The scope of work and end of tour report for each technician and a chart of all technical assistance provided and projected for the department were also attached.

All departments and the assistant librarian responded.

The questionnaire and two addenda are reproduced below in their entirety. In the interest of reducing length, however, the space provided for answers in the original questionnaire has been largely eliminated.

General questionnaire

1.0 Training

- 1.1 What is your view concerning the appropriateness of the postgraduate training being received under the AED Project by staff from your department, particularly with respect to coursework and master's and PhD research?
- 1.2 To what extent do you consider that the practice of having your staff members in training return to Sri Lanka for dissertation research has been successful? What problems have been encountered in this regard, if any? Are there circumstances under which this pattern should be modified? If so, when and how?
- 1.3 Please comment on the appropriateness of training being received by each member of your staff in training under the Project.
- 1.4 What suggestions do you have for improving the quality and/or relevance of postgraduate training provided under the AED Project?
- 1.5 What other comments do you have regarding the training component of the AED Project?

2.0 Technical Assistance

- 2.1 Do the technical assistance assignments currently projected for your Department meet your priority needs? Could those needs be better met by shifting person-months among the projected assignments or altering some of those assignments? If so, what changes would you suggest?
- 2.2 Are there areas of critical need for technical assistance in your Department not included in currently projected assignments? If so, please identify those areas.
- 2.3 To what extent have the people provided by CAED for technical assistance been appropriate for their assignments and made available at the times needed?
- 2.4 Have staff provided by CAED for technical assistance assignments fulfilled the responsibilities indicated in their scope of work? Please be specific for each assignment.
- 2.5 To what extent has it been possible for your Department to implement the recommendations of visiting staff? Be as specific as possible, and, for recommendations not implemented, please indicate why.
- 2.6 What other comments do you have regarding the technical assistance component of the AED Project?

3.0 Commodity Procurement

- 3.1 Will equipment, supplies, library acquisitions and vehicles provided to date and on order meet priority needs for equipping your Department?
- 3.2 Has equipment received to date met the specifications given in the departmental requests?
- 3.3 Do you have any suggestions about how to improve the system for identifying equipment and library needs, preparing and obtaining approvals for equipment and book requests, evaluating quotations received, and transferring equipment and books to the Departments when received in Peradeniya?
- 3.4 Are you aware of what books and journals have been received by the library through the Project? Are you able to utilize these library acquisitions effectively? Are you assigning readings from these acquisitions to your students? Do you have suggestions for improving this phase of the Project?

3.5 What other comments do you have regarding the procurement component of the AED Project?

4.0 General

- 4.1 Have there been changes in your Department or otherwise in Sri Lanka since 1977 which may positively or negatively affect the value of assistance received through the Project? If so, what are they and what is their likely impact?
- 4.2 How appropriate is the present AED Project in your Department's present situation?
- 4.3 What is your assessment of the AED Project to date in relation to what you expected when it was started?
- 4.4 What suggestions do you have for improving the performance of the AED Project?
- 4.5 What other general comments do you have regarding the AED Project (including suggestions for assistance that should be considered to follow that received under the AED Project)?

Addendum 1

Please record your responses to question 1.3 directly in the space provided below.

Name:
Dept.:

Major Field:
U.S. University:

Estimated training completion schedule (from May 82 status report)

Entered training:
Complete MS:
Complete PhD coursework:
Complete PhD research:
Complete PhD:

Appropriateness of training being provided

a. Is training sharply focussed in designated area of specialization?

Yes _____ No _____ If not, how is it deviating?

- b. Is the academic program (coursework) satisfactory? Yes ___ No ___
If not, what should have been added or deleted?
- c. Is the MS research topic relevant and adequate? Yes ___ No ___ If
not, how could it have been improved?
- d. Is the planned PhD research topic relevant and adequate? Yes ___
No ___ If not, what changes should be made?
- e. Have communications from and about the participant been adequate?
Yes ___ No ___ If not, what have you not received, and what sug-
gestions do you have for improving communications?
- f. Have the guidance and counsel provided to the candidate at the
U.S. University been satisfactory? Yes ___ No ___ If not, what
has been lacking, and how can it be improved?
- g. Are you satisfied with the participant's academic performance?
Yes ___ No ___ Research performance? Yes ___ No ___ Estimated train-
ing completion schedule? Yes ___ No ___ If the answer to any of
the above is no, please explain.
- h. What other comments do you have about the appropriateness of
training received or being received by this candidate?

Addendum 2

Please record your responses to questions 2.3 - 2.5 directly in the
space provided below

Assignment: Area of specialization:
Duration: months, from to

Technician: Name:
University:

Appropriateness of technical assistance provided to Department.

- a. Were this technician's training and experience appropriate for
the assignment as specified in the attached scope of work?
Yes ___ No ___ If not, what qualifications would you have preferred?
- b. Was the duration of this assignment appropriate? Yes ___ No ___
If not, what should it have been? Why? Why was it not scheduled
for that duration?

- c. Was the timing of this assignment appropriate? Yes ___ No ___ If not, when should it have been scheduled? Why was it not scheduled at that time?
- d. Did the technician comply in full with all responsibilities specified in the attached scope of work for his assignment? Yes ___ No ___ If not, which were not fulfilled completely and why?
- e. Did the technician become involved in other activities not specified in his scope of work? Yes ___ No ___ If so, describe the additional activities, and indicate whether or not they contributed positively to the work and development of your Department. Please be as specific as possible.
- f. Which of the recommendations in the attached End of Tour Report have been implemented by your Department, and with what success?
- g. Which of the recommendations in the attached End of Tour Report have not been implemented and why? Please include all recommendations not implemented.
- h. How would you rate what this technician accomplished in relation to what was specified in his Scope of Work regarding:

Outstanding
 Good
 Adequate
 Less Than
 expected
 Not
 applicable

Assistance in teaching

Assistance in curriculum Development

Assistance in research planning

Assistance in postgrad. research supervision

Assistance in planning the future
development of the Department

Assistance beyond that in Scope of Work

Relevance of recommendations

Usefulness of end of Tour Report

Other (Specify)

If any of the above are rated less than good, how could performance have been improved?

- i. What other comments do you have concerning this technical assistance assignment?

ATTACHMENT B

Questionnaire distributed to all present and former training participants in August 1982 to solicit information for use in the project evaluation.

A questionnaire developed by a committee comprised of one former participant and two members of the evaluation team was distributed to each of the 38 junior FA staff who have entered training under the project. Responses were received from 37.

The questionnaire is reproduced below in its entirety, except that space provided for answers has been largely eliminated.

Training participant questionnaire

The Agricultural Education Development Project is to be evaluated in October by a team consisting of the USAID/Sri Lanka Project officer, Dean of the Faculty of Agriculture, Acting PGIA Director, Head of Agricultural Economics and Extension, and the CAED Chief of Party. In the interest of making the evaluation as complete and objective as possible, the evaluation team is soliciting information from the Departments of the Faculty, the CAED universities and those who have been sent out for training under the Project.

Please help us by answering the questions listed below, and giving any additional comments that you feel would be helpful to the evaluation team (use as many additional sheets as necessary for recording your response). Your response must be posted back to Sri Lanka no later than 15 September so please hand them over to your campus coordinator prior to that date.

1. In your opinion, have the courses in your MS and/or PhD academic program and associated facilities been adequate for the field for which you were selected for training? Please explain why you feel this way.
2. In your opinion, is your MS research relevant to your specific field? Have the facilities and guidance provided to you in this regard been satisfactory?
3. Is your planned PhD research closely related to your MS research? If not, why not, and should it be?
4. You are well aware of the reasons for the decision that training participants under the AED Project should return to Sri Lanka for PhD research. In your opinion, is this doable? Desirable? Are there circumstances in which it should be modified? If so, under what circumstances and how should it be modified?

5. In your opinion, have communications between you and your U.S. university on the one hand and the IGIA/Faculty of Agriculture on the other been adequate? If not, how can this be improved? Please be as specific as possible.
6. How do you feel about the relevance of the training you are receiving in relation to the responsibilities you will be expected to assume in your Department when your training is completed?
7. What suggestions do you have for improving the training program of the AED Project.
8. What other comments do you have that would be helpful to the evaluation team?
9. Please complete the schedule below giving your best estimate of dates for completing your training.
(We realize that you have just done this on the participant status report sent to you recently for correction. As the corrected reports have not yet been received, we are asking again to be sure that the information is received in time for the evaluation.)

Date

Entered training
 Complete MS
 Complete PhD coursework
 Return to Sri Lanka for PhD research
 Complete in-country PhD research and return to U.S.
 Complete PhD

Name

Signature

Date

APPENDIX 17.3

Summary of Projected Inputs and Outputs in Relation to Initial, Present and Currently Projected End of Project (EOP) Status*

17.3.1 Trained Faculty

A. Project Paper (PP) Supplement No. 1

Inputs: 38 faculty members from PGIA and FA receiving PhD degrees from U.S. universities.

Outputs: trained faculty of 38 additional PhDs in six departments.

B. Training status

	1977	9/82	Estimated	
			1985	1986 ^a
No. in training	0	35	4-9	0
No. with PhD completed	0	1 ^b	27-32 ^d	36
No. with MS completed	0	1 ^b	3 ^c	3
No. terminated without degree	0	1 ^e	1	1
TOTAL	0	38	40	40

- a Extension through December 1986 of PACD for training recommended to permit all PhD candidates to complete their degrees.
- b Terminated upon completion of MS as not admitted to a PhD program at CAWU university.
- c Terminated for unsatisfactory academic performance.
- d Admission of 2 additional junior faculty members to MS training recommended to utilize savings from b and c above.

* These data must be considered as preliminary; the evaluation team was unable to verify all information provided by PGIA/FA staff.

(17.3.1 Trained Faculty, contd)

C. Magnitude of outputs - current and estimated EOP status compared to original PP.

Department/Level of training	Number of staff			
	1977-78	9/82	est. 1985	P.P.
Crop Science				
PhD	3	5	11	14
MSc	1	3	4	3
BSc	3	7	2	0
TOTAL	7	15	17	17
Agricultural Biology				
PhD	3	4	6	13
MSc	0	3	5	4
BSc	5	8	4	1
TOTAL	8	15	15	18
Agricultural Chemistry				
PhD	3	4	7	12
MSc	0	3	2	2
BSc	5	3	5	0
TOTAL	8	10	14	14
Agric. Econ & Ext.				
PhD	1	3	8	12
MSc	1	6	4	2
BSc	2	2	2	0
TOTAL	4	11	14	14
Animal Science				
PhD	1	3	9	13
MSc	4	4	3	1
BSc	2	5	3	0
TOTAL	7	12	15	14
Agric. Engineering				
PhD	1	1	6	13
MSc	0	3	4	1
BSc	4	7	2	0
TOTAL	5	11	12	14
Total, all Dept.				
PhD	12	20	47	77
MSc	6	22	22	13
BSc	21	32	18	1
TOTAL	39	74	87	91

(17.3.1 Trained Faculty, cont'd)

D. Training, by discipline - Estimated EOP status compared to original PP.

Department	Discipline	PP projection (all PhD)	Est. EOP	
			PhD	MS
Crop Science	Seed physiology	1	1	-
	Agroclimatology	1	1	-
	Stress physiology	1	1	-
	Cropping system	1	1	-
	Crop ecology	1	-	-
	Weed science	1	1	-
	Growth physiology	1	-	-
	Postharvest physiology	1	1	-
	Agro-forestry	-	1	-
	Horticulture	-	1	-
	Statistics	-	1	-
Agric. Biology	Crop botany	2	1	-
	Virology	1	1	-
	Crop physiology	1	1	-
	Genetics	1	-	1 ^a
	Biological control	1	2	-
	Insect ecology	1	-	-
	Plant breeding	-	1	-
Agric. Chemistry	Soil physics	1	1	-
	Soil morphology	1	-	-
	Soil/plant nutrition	1	-	-
	Soil microbiology	-	1	-
	Food preservation	1	1	-
	Food analysis	1	1	-
	Food technology	-	-	1 ^b
Agric. Econ & Ext.	Marketing	1	1	-
	Ag. business mgmt.	2	1	-
	Ag. extension	1	1	-
	Communications	1	1	-
	Rural sociology	1	1	-
	Ag. economics	-	2	-
	Ag. education	-	1	-
Animal Science	Genetics	1	1	-
	Agrostology	1	1	-
	Monogastric nutrition	1	1	-
	Animal physiology	1	1	-
	Animal prod. tech.	1	-	-

(17.3.1 Trained Faculty, contd)

(Training, by discipline contd.)

Department	Discipline	PP projection (all PhD)	Est. EOP	
			PhD	MS
Agric. Engineering	Waste management	1	1	-
	Ag. structures	1	-	-
	Dairy engineering	1	-	-
	Irrigation/conserv.	1	1	-
	Water management	1	1	-
	Processing	1	-	-
	Farm machinery	-	1	- ^b
	Farm power	-	-	1 ^b
	Hydrology	-	-	1
TOTAL, ALL DEPARTMENTS		37 ^c	36	3

^a Terminated by CAED university upon completion of MS; expects to continue work toward PhD at PGIA.

^b Admission for MS training recommended, contingent upon funding available in present training budget.

^c Although projected input was 38, only 37 identified by discipline in PP.

Note: Adjustments in disciplines shown above have been based on reassessment of departmental priorities (in most cases with participation of T.A. personnel), availability of other donor support, or lack of qualified candidates for a particular discipline.

(17.3.1 Trained Faculty contd.)

E. Training, by year of entry and estimated completion - actual compared to original PP.

	<u>No. entering</u>		<u>Estimated No. completing</u>	
	<u>PP</u>	<u>Actual</u>	<u>PP</u>	<u>Actual</u>
1979	21	10	-	-
1980	17	18 ^a	-	-
1981	-	10	-	1 ^c
1982	-	-	-	3
1983	-	2 ^b	21	4
1984	-	-	17	8
1985	-	-	-	14 ^d
1986	-	-	-	9 ^e

^a One of these terminated in 1982 for unsatisfactory academic performance.

^b Admission of 2 for MS level training recommended to utilize savings from 2 who did not complete to PhD level.

^c Terminated upon completion of MS.

^d Includes the 2 recommended for admission in 1982 for MS level training.

17.3.2 Technical Assistance

A. PP Supplement No. 1

Input: Approximately 19 person years of technical assistance in Sri Lanka, consisting of long and short-term visiting faculty to assist in teaching, curriculum development and graduate degree research supervision.

B. Present status

Provided to date: approx. 12 p. yrs.
 Projected to EOP: approx. 7 p. yrs.

C. Distribution, by long and short term - compared with original PP.

Long term	<u>No. persons</u>	<u>P.mon.</u>
PP	7	204
Provided through 10/82	4	94.5
Estimated 11/82 - EOP	1	43
	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
Total Estimated	5	137.5

Short term

PP	43	130
Provided through 10/82	27	48.9
Estimated 11/82 - EOP	29	47.0
	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
Total Estimated	56	95.9

Note: Total actual plus estimated exceeds the 229 p.mon. currently authorized for reasons cited following "Technical assistance, by assignment" table, and will be adjusted downward by FA/IGIA and CAED by end of 1982.

Technical assistance, by assignment - provided to date and currently projected compared to original PP.

Assignment		Months									Total p.mos
		1979	1980	1981	1982	1983	1984	1985	1986		
Chief of Party Administration	PP		30		1	1	1	1			34
	To date		39								39
	Proj.						39				35 ^d
Space utilization	PP	4									4
	To date	1.5	1	.7							3.2
	Proj.										0
Farm Management (Exp. farm development)	PP		24								(24) ^a
	To date		12.5								12.5
	Proj.										0
Library development	PP										0
	To date		1								1
	Proj.					1					1 ^e
Extension	PP		24		3						27
	To date		24								(24) ^f
	Proj.										0
Rural sociology	PP		24			3					27
	To date		24								24
	Proj.						1				1
Communications	PP		3		3	6					12
	To date		1	1	3						5 ^g
	Proj.					1					1
Marketing	PP										? ^b
	To date		2.5								2.5
	Proj.										0
Business management	PP										? ^b
	To date										0
	Proj.							1			1
Agric. education/ extension	PP										0
	To date			3							3
	Proj.						1				1
Agric. Economics	PP										0
	To date										0
	Proj.					1					1

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Technical assistance, by assignment (contd)

Assignment		Months								Total p.mos	
		1979	1980	1981	1982	1983	1984	1985	1986		
Agroclimatology	PP			12							12
	To date										0
	Prof.						3				3
Cropping systems	PP	4			2						6
	To date		2.8								2.8
	Prof.					1					1
Seed science	PP		4			2					6
	To date			2							2
	Prof.										0
Crop science admin.	PP										0
	To date		.8								0.8
	Prof.										0
Horticulture	PP										0
	To date										0
	Prof.						3				3
Seed physiology	PP										0
	To date										0
	Prof.						1				1
Postharvest Physiology	PP										0
	To date										0
	Prof.						1				1
Stress physiology	PP										0
	To date										0
	Prof.						1				1
Agro-forestry	PP										0
	To date										0
	Proj.						1				1
Statistics	PP										0
	To date										0
	Prof.							1			1
Plant breeding	PP		24		3						27
	To date			19							19
	Prof.				8						8

Technical assistance, by assignment (contd)

Assignment		Months								Total p.mos	
		1979	1980	1981	1982	1983	1984	1985	1986		
Entomology	PP		3			3					6
	Todate		3								3
	Proj.							1			1
Plant Pathology	PP		3	3							6
	Todate		2.8								2.8
	Proj.					1					1
Systematic botany	PP										0
	Todate										0
	Proj.						1				1
Crop physiology	PP										0
	Todate										0
	Proj.						1				1
Soil physics	PP		3		18						21
	Todate		2.5								2.5
	Proj.					3					3
Soil chemistry	PP		3			3					6
	Todate										0
	Proj.										0
Soil Microbiology	PP		3			3					6
	Todate										0
	Proj.							4			4
Food technology	PP			3		3					6
	Todate		1	3	2						6
	Proj.										0
Animal physiology	PP	3									3
	Todate	2									2
	Proj.						2				2
Animal breeding	PP	3	3								6
	Todate	1.5									1.5
	Proj.						2				2
Agrostology	PP	3		3	3						9
	Todate	1.5									1.5
	Proj.					4					4

Technical assistance, by assignment (contd)

Assignment		Months										Total p.mos		
		1979	1980	1981	1982	1983	1984	1985	1986					
Nutrition (Monogastric)	PP		3											3
	Todate		.8											0.8
	Proj.					2								2
Nutrition (Ruminant)	PP		2	2										4
	Todate		1											1
	Proj.													0
Water management	PP				6									6
	Todate			3										3
	Proj.							1						1
Waste management	PP		5		3									8
	Todate		1.5											1.5
	Proj.						3							3
Dairy engineering	PP				5									5
	Todate													0
	Proj.													0
Traction/tillage/power	PP													0
	Todate			1										1
	Proj.					2								2
Agric. engineering administration	PP													0
	Todate			1										1
	Proj.													0
Hydrology	PP													0
	Todate					1								1
	Proj.													0
Conservation engg.	PP													0
	Todate													0
	Proj.							1						1
Farm machinery	PP													0
	Todate													0
	Proj.								1					1
TOTAL	PP													250 c
	Todate													143.4
	Proj.													94 i

(17.3.2 Technical Assistance, contd)

Notes on technical assistance, by assignment

- PP - a "Assumes COP will also serve Farm Management function. Therefore, farm management is shown as an identified skill and T.A. requirement but is non-additive as person-months and for budget purposes; if appropriate COP with Farm Management skills cannot be obtained then COP filling extension T.A. role could be substituted in which case Farm Management position would be required."
(Team note: the latter alternative was used).
- b No timing or p.mos. specified.
- c "Excludes four budgeted undetermined three month assignments in areas such as library services, audiovisuals, English lab, management, other academic specialities."
- To date/
Projected - d increases over modified plan due to USAID decision that must be full time to the end of the project rather than parttime after 1982 as projected in modified PI; includes 2 mos. of overlap between present and new COP.
- e it is anticipated that short term training of Sri Lankan librarian will be substituted for this assignment, with the length of such training to be determined on the basis of the estimated cost of the T.A. assignment presently scheduled.
- f It was anticipated that the COP would also provide the T.A. in extension. In practice, his contribution in extension has been minimal due to demands on his time related to the COP administrative role.
- g Three month assignment in 1982 was for a specialist in offset printing.
- h This assignment will not be necessary if the participant in this field remains in the U.S. for PhD research as expected.
- i The projected total exceeds the total of 228 p.mos. projected in the PP supplement due to the increased COP level of effort. Necessary adjustments will be made in collaboration with the FA and PGIA to reconcile this difference.

(17.3.2 Technical Assistance, contd.)

- General
- With the exception of the COP position, all projections for future T.A. were made before the FA/PGIA and CAED received confirmation as to the quantum of T.A. to be specified in the Contract amendment. Minor adjustments are to be made before the end of 1983 to bring the total number of p.mos. to that now authorized.
 - It is anticipated by the PGIA/FA and CAED that the timing of future T.A. will in a number of cases require shifting somewhat to assure that the U.S. advisor will be in Sri Lanka at the time most appropriate for effective PhD research supervision.

17.3.3 Commodity Procurement

A. PP Supplement No. 1

Inputs: commodities such as laboratory equipment, library books and vehicles for faculty, laboratories, experimental farms and PGIA library.

Outputs: adequately equipped facilities for teaching and research, including laboratories, library and classrooms.

B. Procurement Status

1. Vehicles

Type	No.	Procured	Est. EOP
		through 9/82	
Jeep, diesel 4whldriv.	10	10	10
Trailbikes 100cc	7	0	0
Minibus, 12 pass.	2	0	0
Bus, diesel 34 pass.	2	0	0
Pickup truck, dbl cab	1	0	0
2-3 ton stake truck	1	0	0

Note: All vehicles except 10 jeeps were subsequently transferred from the U.S. to the GSL contribution with the stipulation that they might come from other donors. The following have been provided to date: 1 12 pass. minibus,
1 double cab pickup,
2 trail bikes

2. Equipment for six departments and farm development (net equip. value)

Department	PP	Purchased to 14 Sept. 82	Estimated EOP status
Crop Science	109,070	90,145	100% procured
Agric. Biology	104,947	90,237	" "
Agric. Chemistry	88,642	85,946	" "
Economics/Outreach	70,700	41,542	" "
Animal Husbandry	110,477	75,064	" "
Agric. Engineering	80,754	70,621	" "
Farm Development	55,100	7,689	" "
Subtotal	619,670		
Inflation (10%)	51,967		
Subtotal	671,637		
Added in PP Capl.	100,000 ^a		
Total excluding shipping	771,637	461,044	" "

^a Approximate. Total for equipment plus shipping is \$ 131,000.

(17.3.3 Commodity Procurement, contd)

3. Equipment for library.

<u>PP</u> <u>(Net equipment value \$)</u>		<u>Purchased to</u> <u>14 Sept. 82</u>	<u>Estimated</u> <u>EOP status</u>
Allocation	9,700		
Inflation	970		
	<u>10,670</u>	<u>9,700</u>	<u>10,670</u>

Equipment types

2 microfilm readers	1	1
8 microfiche readers	1	1
2 air conditioners	1	1
Micro film/fiche cabinet	purchased	purchased
Minor equipment needs	purchased	purchased
Maintenance supplies	purchased	purchased

Note: No. of microfilm and fiche readers and air conditioners reduced in consultation with librarian and library consultant to permit purchase of card catalogue cabinets and other essential equipment.

4. Books, journals, backfiles on film/fiche

	<u>PP</u>	<u>Purchased</u> <u>to 14 Sept. 82</u>	<u>Estimated</u> <u>EOP status</u>
Books	18,000	2,453	8,000 - 10,000
Journals	165	64	64
Film/fiche	90	0	75

Note: The number of books that can be purchased will be significantly less than originally projected due to rapidly escalating prices.

The number of journal subscriptions has been reduced to a level that the FA/IGIA can be reasonably expected to continue after the project terminator.

Although no backfiles on microfilm/fiche have yet been purchased, 18 have been approved for purchase and are in the procurement process.

17.3.4 Facilities

A. PP Supplement No. 1

Inputs: Construction of new laboratory/classroom buildings and off-campus buildings for research farm.
(note: to be provided by GSL)

B. Construction costs (Rs.) - comparison with original PP

<u>PP</u>		<u>GSL contribution</u>		<u>Est.EOP</u>
		<u>To 12/82</u>		
Construction - 7 large buildings, Renovation-1 large, 1 small bldg.	10,151,000			
Construction-16 small bldgs off campus plus farm preparation	5,078,000			
Total	15,229,000	14,896,000		37,000,000

C. Size of buildings - comparison with original PP

<u>PP</u>	<u>1982 and/or estimated EOP status</u>	
78,000 sq.ft. in large buildings	PGIA	18,000 sq.ft. completed
	Agric. Econ.	6,500 sq.ft. completed
	Agric. Engin.	12,700 sq.ft. completed
	Biology/Chem.	49,000 sq.ft. under const.
	Animal Science	7,200 sq.ft. projected
	Others projected	not determined
71,465 sq.ft. in off-campus build- ings.	Total floor space for completed and projected construction	not determined

D. Facilities completion schedule - comparison with original PP

<u>PP</u>	<u>1982 and/or estimated EOP status</u>
Completion of all construction and renovation by October 1981.	As indicated below.

E. Types of construction, renovation, improvement - comparison with original PP

<u>PP</u>	<u>10/82 status</u>
<u>(Team's interpretation of pp.11,93-96)^a</u>	
<u>Large building construction on campus</u>	
PGIA (classroom, library, admin.)	Completed
Agric. Engineering	Completed

(17.3.4 Facilities, contd.)

<u>PP</u>	<u>10/82 status</u>
<u>(Team's interpretation of pp.11,93-96)^a</u>	
Agric. Economics/farm mgmt (& Ext) ^b	Completed
Agric. Chemistry ^c }	under construction (1 bldg)
Agric. Biology ^d }	
Animal husbandry nutrition lab	Planned for 1983 funding
Animal husbandry animal unit	do
Animal husbandry product processing	Planned
Agric. Engineering central workshop	Planned
<u>Renovation on campus</u>	
Crop Science	Completed
Agric. Biology	To follow new bldg completion
Library	Completed (in FGIA)
	Also renovated:
	Microcomputer room in FGIA
	septic tank, kitchen,
	toilets in Registrar's
	house.
<u>Small building construction on campus</u>	
Agric. Biology, greenhouse	In Biology/Chemistry complex
Agric. Biology insectary	do
Animal Husbandry hatchery	Planned
Admin-vehicle storage	Planned
	Also under construction:
	Animal metabolism unit
	Experimental fish
	rearing facility
<u>Off-campus construction</u>	
<u>Dodangulla Farm^e</u>	
Farm Machinery unit	Funded, construction to start
	soon
Dairy barn	see "Mavala farm" below
silo	do
Training center	under construction (hostel)
Nursery propagation	under construction
Tech. staff quarters	Plans prepared
Officer staff quarters	do
Minor staff quarters	do
	Also, Admin. building under
	construction.

(17.3.4 Facilities, contd.)

PP

Meewatura Farm^g

Machinery shed
Field assistant quarters
Field lab
Minor staff quarters
Plant house

10/82 status

Plans still to be prepared
do
do
do
do

Mawela Farm (Animal Science)^h

Construction completed:

Dairy barn
milkroom/feed storage/office bldg.
sheep unit
rabbit unit
duck unit with ponds
slaughter house/meat technology unit.
Broiler unit/battery cages
cattle shed
fish ponds
Biogas production units
Temporary silo

Renovation completed:

Senior staff quarters
Milkers' quarters

Construction in progress:

Additional fish ponds
2nd dairy barn

Maha Illuppallama unitⁱ

Construction/renovation completed:

Shed for tractor, implement, van
storage
Library room
Biology laboratory
Chemistry laboratory
Workshop
Staff cubicles

Construction/renovation underway or
expected to start soon:

Staff house
Visiting staff room
Wall around hostel
Drying floor cum basketball court
incinerator
Plant house and potting shed
Poultry and piggery units

(17.3.4 Facilities, contd.)

PP

10/82 status

Projected by 1985:
Additional dormitories
Additional classrooms
Recreational facilities

Farm preparation

Not specified

Meewatura

Funds allocated and plans approved for construction of water storage/irrigation system; construction of water storage tank started.

Mawela

Improved pastures established, access roads constructed;
Electrification approved, with installation expected by end of 1982.

Maha Illuppallama

Main irrigation flow channel to instructional field plots constructed.

Footnotes re facilities

- a Some apparent inconsistencies were noted among the summary of objectively verifiable indicators in the logical framework (p.11), building plan (p.93), and building program (pp. 94-95), for which details included were insufficient to resolve completely.
- b The name of the Agricultural Economics and Farm Management Department has since been changed to Agricultural Economics and Extension.
- c The proposed Agric. Biology and Agric. Chemistry buildings have been integrated into one larger building with ancillary facilities for more efficient use of available land and economies in construction.
- d The name of the Animal Husbandry Department has since been changed to Animal Science.
- e A 205 acre experimental farm located about 12 miles from the campus utilized largely by Crop Science, except for about 30 acres (principally in pasture) assigned to Animal Science.

(17.3.4. Facilities, contd.)

- f The dairy unit has been shifted to the new Mawela farm.
- g A 24 acre tract adjacent to the campus managed by Agricultural Engineering.
- h A recently established Animal Science Field Laboratory near the campus of more than 100 acres, which is now the principal experiment farm for Animal Science.
- i The university unit located about 70 miles from Peradeniya for training first year students in Agriculture.

F. Estimated EOP status

All construction and renovation indicated above to be completed with possible exceptions of field assistant and minor staff quarters and plant house at Meewatura, central workshop for Agricultural Engineering, and main and product processing buildings for Animal Science (the meat technology unit at Mawela will partially substitute for the latter).

Completion of upgraded and expanded facilities at Maha Iluppallama to accommodate 200 students.

Additional new construction and development at Mawela, Dodangolla and Meewatura farms.

Construction underway of:

- Animal Science building and ancillary facilities
- Agricultural Engineering workshop
- Addition to Agricultural Economics building

New library/classroom/administration complex in advanced planning stage.

17.3.5 Operating Research/Outreach Programs

A. PP Supplement No. 1

Outputs: Operating research/outreach programs in all six departments/boards of study in FA/PGIA.

B. 1982 status compared to original PP

<u>PP</u>	<u>1982 status</u>
Staffed and equipped farms at Dodangolla and Meewatura	Dodangolla farm is staffed; some equipment for both farms has been received, and more is on order. Also, Mawela farm and Maha Illuppallama unit are staffed and partially equipped; other major equipment is on order.
All students have partial training at farms.	All first year students receive six months of training at Maha Illuppallama and three months of training on tea production at Oduwela Estate, Kandy; students are taken to other farms on occasion for practical classes and for their final year projects.
Operating research/extension relationship with farm villages	One village near Anuradhapura is being utilized as a "social laboratory"; research studies are being conducted with a number of villages, some on a continuing basis.
56 students in graduate research program	103 students are presently enrolled in postgraduate research degree programs of the PGIA.
All students involved in minor research programs	All final year undergraduates are required to conduct and report on a research project; minor research projects are also required of all MSc students; substantive research is required of all MPhil and PhD candidates.
Research results published and disseminated	130 research papers by FA/PGIA staff published in 1980-81. Results also disseminated through training programs, participation in field events and trials, etc.

(17.3.5 Operating Research/Outreach Programs, contd)

Research internally and externally coordinated

Still in preliminary stages. FA has functioning research committee, but research coordinator position recommended in preliminary assessment (1977) and approved by the FA has not yet been established (now anticipated by about 1983). Consideration is being given to computerizing research project records and progress reports to facilitate access to information and overall coordination.

Outreach (PP pages 31-38)

Institutionalization of outreach program as projected in PP will become possible only when staff in training in this area return to duty. In the meantime:

- a social laboratory has been established;
- a media unit has been established and the printing section is operational;
- FA/IGIA staff were involved in at least 8 research studies related to outreach programs in 1981;
- FA/IGIA staff served on more than 25 non-university committees, panels, advisory bodies, etc., during 1981 (the latest year for which statistics are available);
- The FA recently conducted a 2-month training program in basic agriculture for Elhawal Project unit managers;
- FA/IGIA departments and staff have organized or otherwise participated in numerous short courses, workshops and conferences to provide training to personnel of other agencies that have direct contact with farmers.

C. Estimated EOF status

All targets will have been met or exceeded.

17.3.6 Curriculum Development

A. PP Supplement No. 1

Outputs: Revised and improved curriculum being used in agricultural science.

Inputs: Technical assistance (see 17.3.2).

B. Curricula developed and utilized - projected in original PP

Crop physiology	Communications
Genetics and plant breeding	Rural community development
Undergraduate and postgraduate phytopathology	Waste management research/ environmental control
Soil physics	Advanced water management
Soil microbiology laboratory procedures	Advanced quantitative genetics and animal breeding
Rural sociology	

C. Current status - undergraduate curriculum

The entire undergraduate curriculum has undergone major revision (implementation of the revised curriculum started in the 1982-83 academic year). Major new features include:

- the first year is now an examination year, and grades earned will, for the first time, be entered on the students' transcripts;
- intensive English training has been added to the first year curriculum;
- duplication of courses and redundancy of content have been largely eliminated;
- mathematics and basic science (chemistry and biology) have been introduced into the first year curriculum;
- additional subjects have been added to the undergraduate curriculum;
- the fourth year curriculum has been restructured into a modified unit course system, and more time is allocated for fourth year student projects (these changes permit a degree of specialization in the students' areas of interest);
- the total number of classroom hours per term has been reduced to provide more time for doing homework and library assignments and for recreation;
- all fourth year classes are conducted in English.

(17.3.6 Curriculum Development, contd.)

Subjects added to the undergraduate curriculum since 1977 include (list is incomplete):

Floriculture	Agricultural extension
Forestry	Extension methodology & evaluation
Crop physiology	Agric. projects & project analysis
Crop improvement	Animal genetics & breeding
Crop experimentation	Reproductive physiology and artificial insemination
Integrated agriculture	Lactation physiology
Insect physiology	Monogastric nutrition
Rural development	Ruminant nutrition
farm management and production economics	Energy
Social survey methodology and quantitative techniques	Waste management
	Structural mechanics and farm structures

In addition to the above, 2nd and 3rd year food science courses have been revised, food science has been introduced into the 4th year, and the 500 series food science course has been expanded. The Animal Science Department plans to introduce a course on fresh water fish production in the near future.

D. Current status - postgraduate curriculum

Most, if not all, FGIA Boards of Study have revised their postgraduate offerings within the last 2-3 years, with many such changes resulting from recommendations received from T.A. staff. T.A. staff have also developed new or revised course outlines for courses they have taught. In the process of these revisions, some courses have been revised, some dropped, some new ones added, and some re-sequenced, all in the interest of developing balanced programs in the various fields that can be offered within the limitations of staff and facilities available.

Among the new or revised postgraduate course now being offered are:

Seed physiology and technology	Cereal chemistry & technology
Horticulture I	Alcoholic fermentation technology
Horticulture II	Ric- soils
Food protein & enzymology	Agric. marketing operation
Meat & fish science	Animal biochemistry
Food preservation & technology	Principles of nutrition
Sanitation and quality control	Animal Production I (dairy cattle)
Poultry & egg products	Animal Production II (other livestock)
Food toxins	
Baker product technology	

(17.3.6 Curriculum Development, contd.)

The entire agricultural extension curriculum has been revised, although not yet implemented.

E. Estimated EOP status

Although not yet specifically planned, it is anticipated that the undergraduate curriculum will undergo another major revision by 1985 or shortly thereafter.

Postgraduate curricula will be in a continuing stage of revision and development as staff presently out for training return to duty.

Curricula identified in the PP will have all been developed or revised, although not necessarily into the same categories.

17.3.7 Local Staff Salaries and Support

	<u>PP</u>	<u>Present and estimated EOP status</u>	
	<u>GSL 1978-1985</u>	<u>1978-81</u>	<u>Est. 1978-85</u>
PGIA	Rs. 7,581,000	Rs. 2,590,000 ^{a,b}	Rs. 7,875,000 ^{a,c}
FA	Rs. 27,006,000	Rs. 15,804,000 ^b	Rs. 41,593,000 ^c

^a From 1981 onward, includes an estimated Rs. 500,000 per year from sources other than UGC allocation.

^b 1981 figures subject to final confirmation.

^c Estimates for 1982 onward are under annual review. Extent to which they are valid will be determined by resources available for higher education in Sri Lanka.

Note: Above status estimates do not include expenditures on security services, repairs/maintenance of buildings and roadways, landscape services, and sanitary services for the FA/PGIA which are met from other University funds.

17.3.8 Beginning and End of Project Status

<u>Measure</u>	<u>PP</u>		<u>1981-82</u>	<u>Est. 1985-86</u>
	<u>1977-78</u>	<u>1985-</u>		
BSc candidates enrolled	414	808	472 ^b	590 ^b
BSc degrees granted	99	200	109 ^{a, b}	115 ^b
MSc candidates enrolled	26	75	53	60
MSc degrees granted	23	67	13	30
MPhil candidates enrolled	10	22	65	100
MPhil degrees granted	1	10	9	40
PhD candidates enrolled	2	39	14	20
PhD degrees granted	0	10	3	5
% courses taught by Faculty	20	80	50	80

^a Final examination results were still pending for 25 of this group at the time the 1981 annual project report was proposed.

^b Peradeniya only; total 1985-86 estimates for the three faculties (Peradeniya, Ruhuna, Batticaloa) are 890 and 184, respectively. (Ruhuna increased the number of students admitted annually to 50 as of 1982-83, and Batticaloa admits 25 students annually). It is estimated that Peradeniya will increase its annual BSc output to 200 by 1987-88.

17.3.9 Other Donor Contributions

A. Projected other donor contributions

	<u>T.A. (p.mos.)</u>	<u>Training</u>	
		<u>MS</u>	<u>PhD</u>
PP	84	-	12
PP Supplement No. 1	180	2	10

B. Technical Assistance (Other Donor)

<u>PP</u>		<u>Present and/or estimated EOP Status</u>		
<u>Specialization</u>	<u>P.mos.</u>	<u>Specialization</u>	<u>P.mos</u>	<u>Status</u>
Dairy science prod.	36	Dairy science	24	Projected
Meat products	24	Animal prod. tech.	24	Projected
Tillage	24	Tillage	24	Projected
		Biometry	24	Completed
		Extension	12	Completed
		Agric. education	3	Completed
		Water management	27	Completed
		(on parttime basis)		
		Agronomy	48	In progress
		Nitrogen fixation	12	Projected
		Agric. economics	14-36	Proposed

C. Staff Training (Other Donor)

<u>PP</u>	<u>Present and/or estimated EOP status</u>
Agronomy	Agronomy (2) (PhD) - completed
Cropping systems	
Growth physiology	
Insect ecology	Entomology (PhD) - completed, did not return
Biological control	
Genetics	Plant breeding/genetics (PhD) - in training
Soil chemistry	
Food and nutrition	Food technology (PhD) - in training
Rural sociology	
Ag. extension	Ag. extension (MS) - completed
Agrostology	
Dairy science	
Animal product tech.	Meat prod. tech. (PhD) - in training
Ag. structures	
Dairy engineering	Food process engg. (MEng) - to start in 1963
Farm mechanization	Energy (PhD) - in training
	Microbiology (2) (PhD) - to start in 1963
	Agric. marketing (MS) - in training
	Energy technology (PhD) - in training
	Soil and water engg. (PhD) - in training

