CONSORTIUM FOR INTERNATIONAL
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Agricultural Education Development Project

AGRICULTURAL EDUCATION WORKSHOP ON LINKAGES

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Peradeniya and Colombo, Sri Lanka

Special Report

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by

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AGRICULTURAL EDUCATION WORKSHOP ON LINKAGES

PARTICIPATING INSTITUTIONS AND REPRESENTATIVES

Member Institutions of the Consortium for International Agricultural Education Development (CAED):

Academy for Educational Development: Mr. Ricardo Villeta, Vice President for Administration, and Mrs. Margarita Driscoll, CAED Home Office Coordinator

The Pennsylvania State University: Dr. J. Dean Jansma, Director, International Agricultural Programs and CAED Campus Coordinator

Texas A&M University: Dr. H. O. Kunkel, Dean, College of Agriculture and Chairman of Agricultural Education Workshop on Linkages

Virginia Polytechnic Institute and State University: Dr. James Nichols, Dean, College of Agriculture and Animal Sciences; and Dr. P. Howard Massey, Director, International Development and CAED Campus Coordinator

University of Peradeniya:

Prof. R.G. Panabokke, Vice-Chancellor; Prof. Y.D.A. Senanayake, Director, Postgraduate Institute of Agriculture; Prof. H.P.M. Gunasena, Dean, Faculty of Agriculture; Faculty of Agriculture Department Heads

USAID/Sri Lanka:

Mr. Michael Korin, Chief, Agriculture and Rural Development Office; Mr. Charles Uphaus, Program Officer; Mrs. Sithy Thaha, Project Manager

ACKNOWLEDGEMENTS

This report traces the series of events that led to the signing of the Memorandum of Understanding (MOU) between the Consortium universities and the Postgraduate Institute of Agriculture/Faculty of Agriculture (PGIA/FA) of the University of Peradeniya. It is pertinent to mention that the MOU was neither provided for nor envisaged in the original contractual arrangements.

During the past seven years, several attempts were made to institutionalize a continuing arrangement among the universities. Prof. T. Jogaratnam, Prof. H.P.M. Gunasena, Dr. Howard E. Ray, Mr. Stephen T. Martin, Dr. James Nichols, Dr. H.O. Kunkel, Dr. P. Howard Massey, and Dr. J. Dean Jansma kept this idea alive and actively promoted it by proposing continuing research, training, and exchange activities. The Agricultural Education Workshop on Linkages that took place from June 2-6, 1986 in Sri Lanka, was the culmination of these efforts. The implementation of the provisos in the MOU will undoubtedly add greater relevance and provide continuity to the objectives of the Agricultural Education Development Project.

TABLE OF CONTENTS

Annexes:

I. PROJECT OVERVIEW

A. Background

The Agricultural Education Development Project was the outcome of a request for assistance initially submitted to the United States Agency for International Development (USAID) in early 1977 by the Director of the then recently established Postgraduate Institute of Agriculture (PGIA) of the University of Peradeniya in Sri Lanka. This request reflected the need for external assistance to enable the PGIA to develop its capacity to meet Sri Lanka's demand for high-quality, trained manpower in agriculture.

Results of a late 1977 study by the Academy for Educational Development, in conjunction with the PGIA/Faculty of Agriculture (PGIA/FA) showed that: (1) a continuing demand for baccalaureate and postgraduate degree holders in agriculture was likely and that such demand would probably increase in the near future; and (2) with appropriate assistance, the PGIA/FA had the potential to expand its capacity to provide high-level undergraduate and postgraduate training to meet the greater part of that demand. The study also detailed the quality and magnitude of external assistance needed for developing of that capacity.

On August 31, 1978, a Project Grant Agreement for Agricultural Education Development (A.I.D. Project No. 383 - 0049) was signed between the Governments of Sri Lanka and the United States. USAID/Sri Lanka later contracted with the Academy for Educational Development in consortium with The Pennsylvania State University (Penn State), Texas A&M University (Texas A&M), and Virginia Polytechnic Institute and State University (Virginia Tech) to provide the technical services called for under the Project Grant Agreement.

Project Offices were established in June 1979 at the University of Peradeniya with Prof. T. Jogaratnam, PGIA Director, as Project Director, and Prof. Y. D. A. Senanayake, FA Dean, as Co-director; and Dr. Howard E. Ray as Chief of Party (replaced in December 1982 by Mr. Stephen T. Martin); and at the Academy for Educational Development in Washington, D.C., with Dr. John Elmendorf as Home Office Coordinator. The present Co-directors of the Project are Prof. Y.D.A. Senanayake, PGIA Director, and Prof. H. P. M. Gunasena, FA Dean; and the Home Office Coordinator is Mrs. Margarita F.B. Driscoll.

B. Project Objectives

The objectives of this institutional development project were to train 38 junior staff members at the Ph.D. level (later changed to 36 Ph.D.'s , two masters', and five short-term technical trainees); provide long and short-term technical assistance to teach at the PGIA; assist in postgraduate research and design new curricular to reflect the changing agricultural situation in Sri Lanka; make arrangements for the purchase and shipment to Sri Lanka of laboratory equipment to facilitate increased research activities by the PGIA/FA students and staff; provide ten jeeps for the use of project and PGIA staff; and purchase up to 10,000 books and arrange for subscriptions of 60 to 65 professional journals for the PGIA Library. The project was originally scheduled to take six years to implement and was later extended, at no additional cost, for another year. The Project Activities Completion Date (PACD) is September 30, 1986.

C. Project Accomplishments

Upon completion of the project, the Consortium will have fulfilled all of the requirements called for in the contract (See Annex 2). The Consortium, however, has not felt bound to limit its assistance to the formal provisions of the Contract Agreement. In fact, throughout the life of the project, Consortium members have been responsive to additional needs of the PGIA/FA as they arose and have developed new programs as appropriate. For example, the formal agreement called for training to be geared exclusively toward the junior faculty, but several senior faculty members from the PGIA/FA were invited to spend their sabbatical leaves, at no cost to the project, lecturing at the Consortium universities. Each Consortium university met the salary and other expenses of the visiting professors on these occasions. This commitment to project goals has been apparent throughout the implementation of the project, as described below.

1. Participant Training Highlights

Since 1979, the Consortium universities have provided technical (5), master's level (26), and Ph.D. (36) training to PGIA/FA participants. A key requirement was established at the outset for Ph.D. candidates to return to Sri Lanka to carry out in-country research. This requirement served an important purpose. Participants were given the opportunity to reacquaint themselves with the characteristics of the agricultural situation in Sri Lanka, thereby enhancing the relevance of their particular research topics. The duration of in-country research varied from one month to two years. To further consolidate the period of in-country research, the participant's major advisor in the United States travelled to Sri Lanka to work in collaboration with PGIA/FA senior faculty. This exchange proved to be a major factor in developing the linkages and its eventual formalization through the MOU recently signed by the four universities in the Consortium.

2. Short-term Technical Training

In the summer of 1984, the first short-term technical nondegree participant arrived at Penn State for three months of training in Library Science. During the 1985 Consortium Council meeting, it was agreed that additional short-term technical training could be funded through this project. Soon after, four PGIA/FA technicians were identified to undergo training at the Consortium institutions. Their training was to be for three months each in the fields of Instructional Systems Technology, Hydrology, and Animal Science and for two months for the PGIA Assistant Registrar. Training took place during the months of April through August 1986 at Virginia Tech.

3. Technical Assistance

The technical assistance component was a valuable source of expertise for the PGIA/FA. During the 1984 Consortium Council meeting, the PGIA/FA inquired about the possibility of having project-funded U.S. advisors in fields other than those required for participant research. Approximately 15 person-months of additional technical assistance were requested by the PGIA/FA to address new academic and research topics. The fields included Plant Tissue Culture, Inland Fisheries, Meat Processing, Farm Mechanization, and Post-Harvest Technology. In addition to these, the PGIA/FA also requested assistance in two nonagricultural subjects. It asked for a maintenance/calibration team to train technicians in the maintenance and repair of research and instructional equipment purchased under this project and an English as a Foreign Language expert to assist in developing in PGIA courses in academic English and

technical writing. During the 1985 Consortium Council meeting, technical assistance in Agricultural Meteorology was also requested. Assignments in these fields took place during 1985 and the first half of 1986.

4. Equipment Procurement

All technical laboratory equipment, as well as library books and journals, were bought and delivered to the PGIA/FA, as specified in the contract.

During the 1985 Consortium Council meeting, it was agreed that additional funds would be set aside to purchase spare parts for existing equipment as well as the tissue culture lab components. This equipment was purchased in 1986 and was shipped to Sri Lanka in August.

In addition to the above, participants used funds from their computer/research accounts to purchase personal computers (hardware, software, and printers in most cases) and other lab and photographic equipment necessary for research. This was done at the request of the PGIA/FA and with the approval of the USAID/Sri Lanka project manager. All participant purchases have been or will be transferred to the PGIA/FA by PACD for their use at the various department labs and for the establishment of the Computer Center at the PGIA.

5. Contributions by Consortium Universities Beyond Contractual Requirements

The U.S. universities used Strengthening Grant funds to send to Sri Lanka other members of their staff in addition to the project-funded advisors. These included experts in Agricultural Engineering/Irrigation and Animal Science from Texas A&M, and in Agro-forestry from Penn State. Virginia Tech issued an invitation to a former participant to return and teach a summer course in 1986. Another former Virginia Tech participant submitted a proposal to AID/Washington for collaborative research between the PGIA and Virginia Tech, which was subsequently approved. Throughout the life of the project, the universities have donated books, journals, and laboratory equipment to the PGIA/FA.

Another major contribution of the U.S. universities was to the spouses of several of the participants. Many received financial aid which enabled them to enroll in graduate programs at the Consortium universities, with the intention of working at the PGIA/FA upon return to Sri Lanka. A total of ten spouses of Sri Lankan participants were trained at these universities, thereby enhancing the potential manpower resources available to the PGIA/FA.

It is our hope that by PACD, all equipment will be in place and operational and the participants will have returned to resume their posts at the PGIA/FA. The linkages established during this project will make it possible for coordinated future activities between the Consortium universities and the PGIA/FA.

II. LINKAGES

A. Development of Linkages

During the past two years, members of the Consortium, as well as PGIA/FA officials, have given much thought to how the relationship developed over the life of the project could be institutionalized. Continued linkages in some form between the PGIA/FA of the University of Peradeniya and the U.S. Consortium universities would be beneficial to all concerned in the long run. Linkages, it was felt, should be structured to further strengthen instruction, research, and extension in the fields of agriculture and in related areas.

At the April 1984 Consortium Council meeting held in Sri Lanka, a Committee was appointed to identify areas in which these linkages could be further developed and to define a plan of action. In addition to the Committee's work, the Field Coordinator submitted a report in July 1985 to USAID/Colombo offering recommendations for project follow-up activities in four areas: research, technical assistance, publications, and seminars.

At the October 1985 meeting of the Consortium Council, the Dean of the Faculty of Agriculture and the Director of the PGIA strongly urged the Council to act on the following recommendations for action that would strengthen collaboration and linkages between the Consortium and the PGIA/FA:

- Encourage continued contact between participants and their U.S. advisors after return to Sri Lanka.

- Include the PGIA/FA in new projects and programs, or identify possibilities for collaboration in existing ones.

- Immediately after PACD, hold a three- to six-month management seminar for all returned participants, as recommended in the 1984 Consortium Council meeting. Such a seminar would enable participants to better carry out administrative duties in the research stations, farms, and so forth.

- Design collaborative research to be carried out between the Consortium universities and the PGIA through the exchange of faculty.

- Investigate the possibility of sponsoring PGIA staff attendance at professional seminars and conferences.

- Design one-year exchange programs for PGIA students to attend U.S. universities as part of their degree program from the University of Peradeniya. Their U.S. advisors would be invited to go to Sri Lanka to be part of their committee and to participate in research and teaching activities.

- Help to identify funding sources for research development at the PGIA, such as USDA, World Bank, etc.

The linkages' concept was placed on the agenda for the Campus Coordinators' meeting held in April 1986. Those present at this meeting stressed the importance of producing a tangible agreement before the end of the project and recommended that such an agreement take the form of a Memorandum of Understanding. This Memorandum would become the basis of discussion at the final project meeting to be held in Sri Lanka in June 1986.

B. Memorandum of Understanding

The CAED Campus Coordinators brought samples of memoranda of understanding that their universities had with other international institutions for review to the April meeting. The Chairman for the forthcoming linkages' meeting, Dr. H.O. Kunkel, Dean of the College of Agriculture at Texas A&M; Dr. P. Howard Massey. Director of International Development at Virginia Tech; Dr. J. Dean Jansma, Director of International Agricultural Programs at Penn State; and Mrs. Margarita Driscoll, Home Office Coordinator, drafted the Memorandum of Understanding between the Consortium universities and the PGIA/FA of the University of Peradeniya. The draft copy was circulated among the Council members before the final version was sent to Sri Lanka.

The final draft was submitted to the Director of the PGIA, the Dean of the Faculty of Agriculture, and USAID/Sri Lanka for their comments. The MOU was well received by officials at both institutions, and a date was set for the U.S. Council members to travel to Sri Lanka for final discussion and signature of the document. The Agricultural Education Workshop on Linkages took place in Kandy from June 2 - 6, 1986, and the MOU was signed during the closing ceremonies.

C. Agricultural Education Workshop on Linkages

The Agenda for the workshop (Annex 1) was organized to allow the greatest amount of interaction between the Consortium Council members and PGIA/FA faculty and staff. The program of the first day provided an overview of project accomplishments, including a tour of campus facilities developed through the project and meeting with former participants. The second day focused on the proposals for linkages which had been prepared by each department of the Faculty of Agriculture and by the PGIA. A roundtable discussion of agricultural manpower needs was held on the third day, based on the 1985 Agricultural Manpower Survey, and joint recommendations regarding the Memorandum of Understanding and its implementation were presented to University officials. On the fourth day, the CAED Project Status Report was presented, and closing ceremonies were held.

D. Tentative Implementation Strategy of Linkage Activities after PACD

After meeting with department heads and faculty members, representatives of the Consortium drafted an additional document (Annex 4) that would provide the tentative implementation strategy for the Memorandum of Understanding. This document was reviewed and approved by the Director of the PGIA and the Dean of the Faculty of Agriculture. It includes joint research projects, staff training, curriculum review, short-term technical assistance, reciprocal educational exchange programs, library development, computer facilities, short-term courses, conferences and professional seminars, and continued communication among the various institutions. It stresses three caveats, as follows:

1. The nature of this implementation strategy is tentative and requires acceptance by all participating institutions.

2. Individual implementation orders would be negotiated and signed by PGIA/FA and one or all of the Consortium members before there is a siginificant commitment of funding to a specific linkage activity.

3. The implementation strategy is neither inclusive of all activities nor exclusive of activities that may be devised.

It was made clear to all present that, in order for the Memorandum of Understanding to work effectively, joint proposal writing to donor agencies in Sri Lanka and the United States must be undertaken. Mutual areas of interest will have to be identified for the activities described in the strategy document, sources of funding located, and proposals developed.

E. PGIA/FA Proposals

From the commencement of the workshop, it was evident that the PGIA/FA faculty and staff had been busy identifying research and other activities in which they would welcome future collaboration with the Consortium universities. Both the Postgraduate Institute of Agriculture and the Faculty of Agriculture had prepared proposals for the Workshop (See Annexes 5, 6, and 7)

The proposals stressed the need to maintain achievements in educational development brought about through the project, especially in the areas of staff and curriculum development. The FA proposal included specific recommendations for staff and student exchange programs, so that a two-way flow of information and expertise would be continued. In terms of strengthening course developments, curriculum revision, and modernization of teaching methods, the FA recommended the creation of a special Agricultural Education Unit. This Unit would coordinate and implement technical training activities in agriculture between the various ministries and governmental institutions in Sri Lanka. Also mentioned are needs to continue laboratory, library, and capital development programs (See Annex 7).

The FA also submitted a proposal addressing the needs of the Maha Illuppallama Subcampus, a center located in the dry zone, where first-year undergraduate students go for practical training. The proposal recomended expanding the user group to post-graduate students, staff, and governmental groups (See Annex 7).

The PGIA submitted specific proposals in addition to the overall FA proposal and recommended continuance of the split program training for graduate students to study both at the PGIA and abroad. (Split programs usually involve some coursework outside Sri Lanka, though research and thesis writing would be conducted in Sri Lanka. The degree would be granted by the University of Peradeniya.) The PGIA also recommended the recognition of outstanding Ph.D. students as candidates for scholarships at the Consortium universities. Other PGIA recommendations addressed library and computer facilities development. The PGIA also strongly urged the design of a program in management and administrative training for senior PGIA/FA staff (See Annex 6)

In terms of the dissemination of PGIA/FA research and teaching activities, the proposals recommended expanded publications and production of teaching materials, development of short courses, seminars, and workshops.

F. Departmental Recommendations

Each Department Head of the Faculty of Agriculture also prepared specific recommendations regarding areas of collaborative research with the Consortium universities. These proposals appear in Annex 5.

G. Implementation Steps

The Memorandum of Understanding states that an activities' coordinator for continuing collaboration between the PGIA/FA and the Consortium universities will be appointed at each campus. The coordinator, who would serve for a one-year term, should be either the Dean of the College of Agriculture or his appointed representative. The PGIA/FA would select a committee to coordinate the efforts from Sri Lanka.

The Consortium universities agreed to appoint the coordinator by September 30, 1986. It was also agreed that the work plan for the first year of post-project collaboration would be drawn up by the U.S. universities' Coordinators in close consultation with the proposed PGIA/FA Committee.

The communication process, elaborated in the tentative implementation strategy, would begin by the end of summer 1986 with an exchange of information regarding research projects at each of the Consortium universities relevant to the concerns of the PGIA/FA. The PGIA/FA staff would complete proposals for collaborative teaching/research in selected areas for submission to the Consortium universities.

In terms of future AID involvement, Mr. Charles Uphaus (USAID/Sri Lanka) explained that the entire management of the AID Mission would change during the summer of 1986 and that no follow-on project was envisioned. There are areas, however, in which USAID/Sri Lanka could assist the PGIA/FA under the Diversified Agricultural Research Project (DARP), such as through the design and implementation of short courses using DARP funds.

It was recommended that a formal agreement be drawn up between the PGIA/FA and DARP officials that would identify activities to be carried out by the PGIA/FA on behalf of the DARP project. Another recommendation was for Department of Agriculture participants to enroll at the PGIA prior to undertaking training at U.S. institutions in a split program arrangement; participants would then return to the PGIA to complete final degree requirements and to receive their degrees from the PGIA. Representatives of the Consortium universities offered to give special attention to DARP candidates who were recommended by the PGIA/FA and who met admission requirements at their respective institutions.

III. AGRICULTURAL MANPOWER NEEDS

A. Survey Background

In 1985, an Agricultural Manpower Needs Assessment survey was carried out by Dr. Earl Jones of Development Associates, Inc., under contract to the Office of Agriculture and Rural Development, USAID/Sri Lanka. This study assessed the supply of and demand for technical and university personnel in the areas of agriculture, animal sciences, fisheries, and forestry. The study was conducted with the full assistance and collaboration of Sri Lankan officials from the University Grants Commission; the agricultural faculties and training institutes; and the Ministries of Agriculture, Education, and Planning.

B. Roundtable Discussion

At the request of Mr. Charles Uphaus, USAID/Sri Lanka, the 1985 Manpower Needs Assessment study was included on the agenda of Agricultural Education Workshop on Linkages. Mr. Uphaus and Mrs. Sithy Thaha, AID Project Manager, USAID/Sri Lanka; Dr. William Selleck, Director of the Diversified Agricultural Research Project; and the Representative of the British Council attended this meeting, in addition to the Council members and the PGIA/FA staff and faculty.

The purpose of this discussion was for AID to get a first-hand reaction to this survey from members of the academic community, that is, the Consortium universities and the PGIA/FA, who are directly involved and have experience in agricultural education and training in Sri Lanka. It was recommended that another meeting be held at a later date on which government officials from the Ministries of Education, Agriculture, and External Resources and the University Grants Commission could be present as well.

In preparation for discussion at this meeting, the Consortium Council members presented a concept paper (Annex 8) on agricultural education in Sri Lanka. The Faculty of Agriculture also prepared a paper (Annex 9) discussing its potential role in middle-level (certificate and diploma) manpower training in agriculture. The outcome of the discussion is presented in the sections that follow.

C. Role of the PGIA/FA in Mid-level Manpower Training

Several surveys of the supply of and demand for trained agricultural personnel in Sri Lanka have been conducted recently. Even though these surveys have produced some divergent results, a constant finding has been the shortage of and need for graduates trained at the diploma (one year) or certificate (two year) level. The need for personnel with applied technical training remains critical to the continued expansion of agriculture in Sri Lanka.

A pragmatic and cost-efficient method of meeting this unfulfilled demand for certificate/diploma holders would be to use the faculty resources and facilities of the PGIA/FA at the University of Peradeniya. The advantages to initiating such a move are as follows:

1. The quality and prestige attached to the diploma/certificate program would be enhanced substantially. The involvement of the University of Peradeniya would also lead to the diploma/certificate programs

being readily recognized by other universities and institutions, both in Sri Lanka and abroad. Even though several Ministries in Sri Lanka currently award diplomas in allied fields, these diplomas are not recognized by most universities and institutions.

2. The active involvement of the PGIA/FA in the administration of certificate/diploma programs at the University of Peradeniya would afford students greater access to superior library resources and other research facilities.

3. The participation of PGIA/FA faculty in certificate/diploma programs would benefit the applied aspects of the research and development efforts.

D. Instructional Materials Development

The development of an instructional materials center, through the use of the Media Unit at the PGIA, could also prove useful in further promoting the active involvement of the PGIA/FA staff in the two-year certificate/diploma course. The present Media Unit was established with project funds and is fully operational. This center could contain the outlines of lecture and laboratory classes of the PGIA/FA, audio and visual aids, computer software, and other related facilities. The advantages of such a center would be quality control and a more effective use of faculty, library, and other resources available only at the University Peradeniya. Similar instructional materials centers remain crucial components of the curricular of agriculture oriented programs at several U.S. land-grant universities, such as Texas A&M University.

E. Recommendations

The Faculty of Agriculture will investigate ways in which it can be involved in technical training at the university level (certificate/diploma) and assume leadership in training handled by the various Ministries. The Postgraduate Institute of Agriculture will continue to organize workshops, short courses, seminars, and diploma programs at the executive and postgraduate level in cooperation with interested Ministries. For example, the PGIA has, during the past two years, been conducting a diploma program in food and nutrition policy planning to upgrade staff for the Ministry of Plan Implementation. Another such program in farming systems is currently being developed to upgrade the staff of five Ministries.

The implementation of this proposal would require basic infrastructural changes. The PGIA/FA has, to date, been involved only in teaching formal degree-oriented undergraduate and graduate-level courses. Thus, the adoption of this proposal would involve alterations and expansion of the PGIA/FA curriculum. As the results of the various surveys depict an unfulfilled demand for quality graduates at the diploma/certificate level, it is appropriate and timely to actively pursue use of the resources of the PGIA/FA. The integration of diploma/certificate programs with undergraduate and graduate level studies is widely prevalent and successful in the United States. Both Virginia Tech and Penn State offer models for such programs.

A main concern is the potential negative implications of PGIA/FA staff teaching the certificate/diploma level courses. A concerted attempt should be made here to ensure that this additional teaching load does not hinder the quality of teaching at the undergraduate and graduate levels and also that it does not impede research efforts of the faculty member concerned.

Another related factor to be addressed is the composition and design of the certificate/diploma program. The extent to which courses from the undergraduate program should be integrated into the diploma/certificate program remains unanswered at this time. Also of concern is the efficient use of the available resources, such as livestock, field plots, classrooms, laboratories, libraries, and so forth.

IV. LESSONS LEARNED FROM THE AED PROJECT, 1979 - 1986

On the day following the Agricultural Education Workshop on Linkages meeting of the Consortium Council, discussions were held with USAID officials and with officials of the University Grants Commission to brief both groups on the outcome of the workshop and discuss project accomplishments to date. The PGIA/FA's expanded facilities will allow the faculty to carry out research and teaching activities at a professional level to maintain its reputation as a center for excellence in higher education in agriculture in the region. The Memorandum of Understanding will keep the doors open for the PGIA/FA and the U.S. universities to continue to work collaboratively in the future. The stage is now set for the PGIA/FA to play a leadership role as well in technical training in agriculture in Sri Lanka.

The following issues were discussed at length as they applied directly to this project.

A. Participant Selection

Question 1: Should the training component be designed exclusively for the junior faculty, or should refresher courses for senior faculty be included?

The consensus was that senior faculty members should be included in future training programs. A few PGIA/FA senior faculty spent their sabbatical leaves at Consortium universities, thereby allowing them to keep abreast of recent developments in agricultural education.

Question 2: Was participant selection thorough enough?

Participant selection was made by University of Peradeniya officials, USAID/Sri Lanka, and the contractor's representative in the field. The active involvement of the institutions mentioned above resulted in academically top quality participants being selected. Problems that ensued once the project was under way could not be foreseen at the time of selection, nor how the unrest in Sri Lanka following the 1983 riots was going to affect the participants already in training in the United States.

B. Training Program

Question 1: Was training too long, and did participants sever ties with their own country and become too "Americanized?"

The objective of the project was to train the existing PGIA/FA staff at the Ph.D. level. The majority (26) needed double degrees, which accounted for more than five years' training in the United States. This was the only way to fulfill this institutional building requirement using the staff already at the PGIA/FA.

Although training was long, most participants did research in Sri Lanka. Other projects allow for participants to "break" training by going home after two years. The in-country research activity of this project served the purpose of bringing participants back in touch with the reality of their own country.

Question 2: Did participants take too long to analyze data, write a thesis, and defend it?

Progress on participant data analysis and dissertation writing is based on participant and advisor's reports. Once the coursework is finished, it is difficult to measure progress or lack thereof, as many variables will affect outcome, that is, seeds sprouting/or not, computer malfunction, incorrect or inadequate data input, and so forth.

Question 3: How can one develop realistic expectations regarding when a specific participant should finish his/her graduate program?

It is useful in planning to set guidelines based on the average time for a participant to complete training, but it must be recognized that some students will finish several months earlier and others will finish several months later than the average. Predicting the length of time a piece of research takes is not an exact science.

C. Spouses and Families

Question 1: Were families an added burden to participants?

Some spouses were granted permission by the INS to get part-time jobs. Others were given financial support by the universities to pursue graduate studies. Participants were able to concentrate on their studies better as he/she did not have to worry about his/her family's well-being back home.

Question 2: Will participants better learn English if family is not with them when they first arrive in the United States?

In the case of participants who had problems with the English language, it was felt that having their families along isolated them from having contact with Americans and the English language. Consensus was split on this issue, some recommending that in future programs dependents be allowed to join participants after completing their first year of training. On the other hand, it was pointed out, that participants without dependents generally room together and did not speak English among themselves as a rule.

D. Other Issues

Several other issues also were introduced at these meetings.

Question 1: Is there a way of making the processing of requests for leave extension less involved and cumbersome?

Although on several occasions participants requested leave for the necessary period of time that would allow them to complete a certain portion of their training, the PGIA/FA and USAID/Sri Lanka gave only partial approval, thereby requiring that the participant, advisor, and campus coordinator write several times requesting the same leave.

Question 2: How does Sri Lanka benefit by having participants conduct thesis research in-country?

The conclusion of the Campus Coordinators of the three universities involved in this project on this subject are as follows:

Except in special circumstances, it is better for the developing nation involved and the individual participants in AID sponsored training programs to conduct thesis research in the participant's home country. This plan is preferable for two reasons:

1. The research can be conducted on problems of high priority to the country. It is a known fact that young researchers tend to continue pursuing during their careers the same type of research that is conducted for their dissertation. High priority topics would be reinforced for continuing research.

2. These young scientists need to demonstrate to themselves and others that relevant and good research can be conducted in their own academic environment in the absence of excellent equipment and good support systems that may be available in the U.S. universities.

Question 3: How can the University of Peradeniya retain senior faculty at the PGIA/FA in the future?

Sri Lanka is surrounded by countries that have well known and successful agricultural research centers, among them, the Philippines, Thailand, and Taiwan. These centers pay higher salaries and provide excellent conditions for research in tropical agriculture. It was recommended that the University pay better salaries, offer adequate faculty housing, and other benefits to retain its present staff. Research equipment should be adequately maintained and updated periodically to insure that high quality research can continue to be conducted at the PGIA/FA.

Question 4: How do periodic evaluations help in the implementation of a project?

Throughout the life of this project, participating institutions had the flexibility to accommodate new demands or expectations as they arose. An evaluation of the project was carried out midway into its implementation, and several recommendations were later put into effect. The problems associated with in-country research is an example. The PGIA/FA and the Chief of Party streamlined activities so that the participant received the logistics, transportation, and facilities support needed to allow him/her to maximize the time spent in Sri Lanka. In addition, the in-country advisor was identified and nominated well in advance of the participants' arrival. This approach allowed for closer identification and guidance according to departmental needs in various research areas.

On several occasions, Council members requested evaluations to be carried out while the project was under implementation. This would have allowed

for changes and adjustments, such as the one mentioned above. No other interim evaluation was planned for this project, unfortunately. A final evaluation is scheduled to take place within six months of project completion.

ANNEX 1

Agenda of the Agricultural Education Workshop on Linkages

CONSORTIUM FOR INTERNATIONAL
AGRICULTURAL EDUCATION
DEVELOPMENT

Academy for Educational Development, Inc.
The Pennsylvania State University
Texas A&M University
Virginia Polytechnic Institute and State University

AGENDA

SPECIAL LINKAGE MEETING OF CONSORTIUM COUNCIL

June 2, 1986 (Monday)

9:00 a.m. - 12 noon — Tour of major facilities developed in the project:

Library, new buildings, labs, research and teaching facilities
Farms

2:00 p.m. - 3:30 p.m. — Postgraduate Institute of Agriculture:

Chairman: Prof. Y. D. A. Senanayake
Director, PGIA

Briefing of Consortium Council Team
Director of PGIA, Dean of Faculty of Agriculture
Vice Chancellor of University of Peradeniya

4:00 p.m. - 5:00 p.m. — Council members meet with former project participants

June 3, 1986 (Tuesday)

Team divides into special interest groups for in-depth discussion with Departments with specific plans and concepts for additional linkages.

9:00 a.m.
Penn State: Department of Crop Science
Texas A M: Department of Animal Science
Virginia Tech: Department of Agricultural Engineering
AED: Director of PGIA, Dean of Faculty of Agriculture

10:30 a.m.
Penn State: Department of Agricultural Economics and Extension
Texas A M: Departments of Soils, and Food Science
Virginia Tech: Department of Agricultural Biology
AED: Library

2:00 p.m. — Postgraduate Institute of Agriculture:

Chairman: Prof. H. P. M. Gunasena
Dean, Faculty of Agriculture

Development of joint recommendations with University of Peradeniya representatives (Dean, Directo, Department He

Field Office: Agricultural Education Development Project, Postgraduate Institute of Agriculture, The University of Peradeniya, Peradeniya, Sri Lanka Telephone: (08) 88203

Home Office: 1255 Twenty-third Street, N.W., Washington, D.C. 20037
Telephone: (202) 862-1900 Telex: ACADED WSH 197601 Cable: ACADED WASHINGTON, D.C.

June 4, 1986 (Wednesday)

9:00 a.m.	Postgraduate Institute of Agriculture:
	Chairman: Dr. James Nichols Dean, College of Agriculture and Life Sciences Virginia Tech
	Round table discussion of 1985 Agricultural Manpower Survey--USAID/Colombo, University officials and invited guests
2:00 p.m.	Chairman: Dr. H. O. Kunkel Dean, College of Agriculture Texas A M
	Presentation and discussion of joint recommendations to University officials and Department Heads

June 5, 1986 (Thursday)

9:00 a.m.	Postgraduate Institute of Agriculture:
	Chairman: Mr. Ricardo Villeta Vice President for Administration International Division AED
	Presentation of CAED Project Status Report
2:00 p.m.	Chairman: Prof. Y. D. A. Senanayake Director PGIA
	Closing ceremonies Finalize recommendations on linkages Signing of Memorandum of Understanding Closing remarks

June 6, 1986 (Friday)

6:00 a.m.	Travel to Colombo
11:30 a.m.	Meeting with USAID/Colombo officials to discuss completion of contract, recommendations, and agreements for continuing linkages
3:00 p.m.	Meeting with University Grants Commission to discuss recommendations on future linkages and Memorandum of Understanding

ANNEX 2

Project Status Report - May 1986

CONSORTIUM FOR INTERNATIONAL
AGRICULTURAL EDUCATION
DEVELOPMENT

Academy for Educational Development, Inc.
The Pennsylvania State University
Texas A&M University
Virginia Polytechnic Institute and State University

SRI LANKA
AGRICULTURAL EDUCATION DEVELOPMENT
Project Status Report

May 19, 1986

for presentation during
Linkage Workshop/Meeting
Kandy, Sri Lanka
June 2-6, 1986

Prepared under Contract No. AID/ASIA-C-1397

Field Office: Agricultural Education Development Project, Postgraduate Institute of Agriculture,
The University of Peradeniya, Peradeniya, Sri Lanka Telephone: (08) 88203

Home Office: 1255 Twenty-third Street, N.W., Washington, D.C. 20037
Telephone: (202) 862-1900 Telex: ACADED WSH 89660 Cable: ACADED WASHINGTON, D.C.

TRAINING

From Contract No. AID/ASIA-C-1397:

38 junior staff trained to the Ph.D. level

Progress to date: As of December 30, 1979-86, and May 17, 1986 (a)

Long-term Participants

Year	Entered Training	Completed Ph.D.	Dropped	In Training
1979	10			10
1980	18			28
1981	10	1		37
1982		2	1	34
1983	1	5		30
1984		1	3	27
1985		8	2	17
1986		6		11
Total to date	39	18	6	

Technician Training

	Actual	Current	Pending
Short-term Participants			
Assistant Librarian (Penn State, 1984)	3.0		
Hydrology (Virginia Tech, 1986)		3.0	
Instructional Systems (Virginia Tech, 1986)		3.0	
Assistant Registrar (Virginia Tech, 1986)		2.0	
Animal Science (3 months--Virginia Tech, 1986)			3.0

Total Technician Training by PACD (using Technical Assistance funds) 14.0 p.m.

Training (continued)

Total Training Projected by PACD

Participants trained to Ph.D.	32
Participants trained to M.S.[b]	2
Short-term trainees	5
No. dropped without completing degree	5
No. vacated post after completing degree	3

b Includes one terminated at Masters level and one admitted in January 1983 for Masters level training only.

PARTICIPANT STATUS REPORT

May 19, 1986

CONTRACT NO.AID/ASIA-C-1397
Agricultural Education Development Project/Sri Lanka

Completed training (in chronological order):

	Actual Departure	Degree
Bogahawatte, C. (TAMU)	82/01	Ph. D.
Wickremasinghe, P. (TAMU)	82/02	M. S.
Kailasapathy, K. (PSU)	82/12	Ph. D.
Sivayoganathan, C. (TAMU)	82/12	Ph. D.
Dayawathie, B. (TAMU)	83/06	Ph. D.
Ravindran, G. (VPI)	83/09	Ph. D.
Perera, L. (PSU)	(83/12)	Ph. D.
Yapa, L. (PSU)	83/12	Ph. D.
Jegasothy, K. (TAMU)	(84/12/22)	Ph. D.
Panditharatne, S. (VPI)	85/01/03	Ph. D.
Thattil, R. (VPI)	85/03/10	Ph. D.
Ravindran, V. (VPI)	85/07/30	Ph. D.
Ranamukaraachchi, S. (PSU)	85/07/09	Ph. D.
Wickremasuriya, A. (PSU)	85/08/15	Ph. D.
Goonasekera, K. (VPI)	85/10/15	Ph. D.
Fernandez, G. (TAMU)	(85/12/16)	Ph. D.
Sriskantha, A. (PSU)	85/11/16	Ph.D.
Perera, A. (PSU)	86/03/15	Ph.D.
Peiris, Colin (PSU)	86/04/05	Ph.D.
Jayatissa, D. (VPI)	86/04/28	M.S.
Bandara, D. (PSU)	86/05/11	Ph.D.
Jayatilaka, M. (PSU)	86/05/23	Ph.D.
Sumanasinghe, V. (PSU)	86/05/28	Ph.D.
Short-term trainees:		
Muddanayake, I. (PSU/3 mos.)	84/09	Library

- 34

PARTICIPANT STATUS REPORT

May 19, 1986

CONTRACT NO.AID/ASIA-C-1397
Agricultural Education Development Project/Sri Lanka

In the United States (will complete training):

	Ext Approved To	ETD
Ariyaratne, A. 146719	86/09/30	86/09/30
Chanmugathas, P. 149020	86/09/30	86/09/30
Jayasekera, A. 501231	86/09/30	86/09/30
Pararajasingham, S. 501002	86/08/31	86/09/30
Perera, Kalyani 144419	86/06/30	86/08/30
Perera, Neil C.** 622-993	86/06/30	86/06/30
Piyasena, A. 148762	86/07/31	86/09/30
Prathapar, S. 146722	86/05/31	86/05/31
Puvirajasinghe, P. 146717	86/03/31	86/05/31
Rajapakse, Nihal 501004	86/09/30	86/09/30
Rajapakse, R. S.** 622-995	86/06/30	86/06/30
Rajapakse, Sriyani 501003	86/09/30	86/09/30
Wijeratne, Sumana** 622-994	86/06/30	86/06/30
Zuhair, M. 501233	86/09/30	86/09/30

**Short-term trainees.

25

Training Costs Incurred at U.S. Universities by Terminated Participants:
(As presented by each University)

	Date	Costs
Mills, R. (VPI)	1982	$ 18,394.87
Navaratnam, K. (VPI)	1984	40,676.04
Rajakulendran, V. (TAMU)	1984	48,183.72
Jeyanayagam, S. (VPI)	1985	64,045.34
Nadarajah, K. (VPI)	1985	55,380.37
Resigned from Post after Resuming Duties at University:		
Perera, L. (PSU)	1984	35,800.90
Vacated Post After Completing Training:		
Jegasothy, K. (TAMU)	1984	51,779.23
Fernandez, G. (TAMU)	1985	63,125.39

96

TECHNICAL ASSISTANCE

From Contract No. AID/ASIA-C-1397:

Approx. 22 p. yrs. (269 p. mos.)

As per Amendment No. 6:

Approx. 20 p. yrs. (238 p. mos.)

Progress to date:

		p. mos.	Required
A.	Chief of Party		
	H. Ray (4/79-6/79) in D.C.	3.00	
	H. Ray (7/79-11/82) in S.L.	41.00	
	S. Martin (12/82-12/85)	37.00	
		81.00 p.m.	74.3 p.m.
B.	Long Term Advisors		
	Downs (79-80)	13.00	
	Deegan (1/80-2/82)	25.00	
	Omran (81-83)	28.50	
		66.50 p.m.	61.0 p.m.
C.	Short Term Advisors		
	1979	14.00	
	1980	19.25	
	Additional: 12 days*	0.60	
	1981	9.00	
	1982	7.00	
	Additional: 4.3 days*	0.22	
	1983	8.50	
	Additional:	1.25	
	1984	10.00	
	1985	14.25	
	1986 (through 5/19/86)	3.00	
	Additional: 33 days*	1.50	
	Subtotal	88.57	102.6 p.m.
	TOTAL TO DATE	236.07	237.90 p.m.

27

Technical Assistance (continued)

	Projected for remainder of project 1986	p. mos.	Required
A.	Short Term Advisors		
	Farm Mechanization (VPI) (May 17-June 17, 1986)	2.00	
	Meat Processing	1.50	
	Subtotal	3.50	
	Total Projected by PACD	239.57 p.m.	237.90 p.m.

Additions mentioned in C., previous page:
Miller - 2 days (1980)
Thornton - 10 days (1980)
McCord - 2 days (1982)
Mason - 2.3 days (1982)
Ray - 1.25 p.m. (12/82-6/83)
Martin - 33 days (1/86 - 5/86)

EQUIPMENT

From Contract No. AID/ASIA-C- 1397: (including shipping and associated costs)[a]

Original contract (incl. inflation factor)	$ 969,229
As per Amendment No. 6	$ 967,445 [b]
As revised to conform with Project Grant Agreement Amendment	$1,100,229
As revised August 20, 1985, increased to within 15 percent of line item flexibility limit	$1,120,000 [b]
As revised March 17, 1986, reflecting Library acquisition increase	$1,045,000 [b]

Progress to date:

Equipment procured	$1,076,586 [c]

(Includes equipment purchased through FETCO, locally purchased xerox, computer, etc., and video and rice milling equipment purchased in Japan.)

Projected by PACD

All equipment will have been procured by June 1986, including pending spare parts and tissue culture lab equipment.

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a Equipment component identified in terms of dollar value only.

b

Obtained by subtraction	Est. in 1984	Est. in 1985	Est. in 1986
Line item 8 in Amend. 6	1,452,445	1,620,000	1,575,000
Less Vehicles	110,000	110,000	110,000
Less Library acquisition	375,000	390,000	420,000
	$ 967,445	$1,120,000	$1,045,000

c Subject to final confirmation of shipping and associated costs of pending final shipment. Funds beyond amount previously budgeted ($1,045,000) are available due to reallocation in budget line items.

TRANSIMPORT TRADING COMPANY

CAID/SRI LANKA 2554
FEICO, PAGE 12 (ROUND III)

DATE	VOUCHER #	FREIGHT	INSURANCE	3.5% FEE	7% FEE	EQUIPMENT	PAYMENT	
BALANCE BROUGHT FORWARD		175265.91	22758.98	48482.88	3437.01	722987.15	972931.93	
APR 13,1986	31			2488.40		2979.35		
						3089.00		
						3389.03		
						1677.37		
						-1372.92		
						513.00		
						493.00		
						8299.00		
						243.70		
						403.90		
						-218.00		
						100.00		
						1092.00		
						3997.81		
						-9.01		
						493.00		
						675.75		
						245.00		
						6523.37		
						10.00		
						1662.78		
						493.00		
						23599.08		
						-3433.36		
						493.00		
						887.75		
						136.00		
						400.00		
						1378.06		
						425.60		
						270.00		
						493.00		
						1320.00		
						955.90		
						729.33		
						30.00		
						8140.85		
						493.00	73586.78	
		175265.91	22758.98	50971.28	3437.01	794085.49	1046518.71	0.00

TOTAL INVOICES TO DATE: 1046518.67

VEHICLES

From Contract No. AID/ASIA-C-1397:

Ten jeeps (diesel, 4-wheel drive), seven trail bikes, two minibuses, two diesel buses, one pick-up truck, and one 2-3 ton stake truck.[a]

As per Amendment No. 6:

10 jeeps

Progress to date:

10 jeeps procured and in service in project	$110,000

[a] All but jeeps subsequently deleted to conform with the terms of the Project Grant Agreement.

LIBRARY DEVELOPMENT

From Contract No. AID/ASIA-C-1397:

	No.
Journals	165
Books	18,000
Micro	90

As understood from Project Grant Agreement Amendment:

Journals	60-64
Books	8-10,000
Micro	90

Progress to date:

		Cost
Journal/periodical subscriptions	63	$ 60,530
Books purchased	9,447	$346,360
Micro (volumes)	952	

NOTE: Above do not include donations of books and journals received from CAED universities and individuals.

Total Projected by PACD

Journals	63	$ 62,000
Books (incl. micro)	10,399	$358,000
		$420,000*

*Including shipping costs

-32-

EXPIRATION DATES FOR JOURNALS

Agricultural Education Development Project/Sri Lanka
May 1986

1986	December*	28
1987	March	1
	July	1
	December	2
1988	July	2
	December	18
1989	December	3
1990	December	3
1993	December	1
1994	August	1
	December	3
	Total publications	63

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*Publishers contacted re extension.

ANNEX 3

Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE POSTGRADUATE INSTITUTE OF AGRICULTURE
THE FACULTY OF AGRICULTURE
UNIVERSITY OF PERADENIYA
KANDY, SRI LANKA
AND
THE COLLEGE OF AGRICULTURE
PENNSYLVANIA STATE UNIVERSITY
STATE COLLEGE, PENNSYLVANIA, USA
AND
THE COLLEGE OF AGRICULTURE
TEXAS A&M UNIVERSITY
COLLEGE STATION, TEXAS, USA
AND
THE COLLEGE OF AGRICULTURE & LIFE SCIENCES
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
BLACKSBURG, VIRGINIA, USA

THE POSTGRADUATE INSTITUTE OF AGRICULTURE AND THE FACULTY OF AGRICULTURE, UNIVERSITY OF PERADENIYA; THE COLLEGE OF AGRICULTURE, TEXAS A&M UNIVERSITY; THE COLLEGE OF AGRICULTURE, PENNSYLVANIA STATE UNIVERSITY; THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES, VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY OF THE UNITED STATES OF AMERICA. HEREINAFTER REFERRED TO AS "THE PARTIES."

WHEREAS:

TECHNOLOGY EXCHANGE IS NECESSARY TO REACH DEVELOPMENT AND TECHNICAL SELF-EFFICIENCY WHICH WILL ALLOW THE CONSERVATION AND UTILIZATION OF AGRICULTURAL PRODUCTS AND NATURAL RESOURCES.

COOPERATION ON AGRICULTURE AND FOOD MATTERS WITH THE UNIVERSITY OF PERADENIYA HAS BEEN STRENGTHENED THROUGH THE SIGNING OF THE CONTRACT BETWEEN THE ACADEMY FOR EDUCATIONAL DEVELOPMENT; PENNSYLVANIA STATE UNIVERSITY; TEXAS A&M UNIVERSITY; AND VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.

SCIENTIFIC AND TECHNICAL INVESTIGATION IN FIELDS OF MUTUAL INTEREST COULD CONTINUE TO GENERATE BENEFICIAL RESULTS IN THE EXCHANGE OF AGRICULTURAL DEVELOPMENT PLANS WHICH ARE BEING DEVELOPED BY THE PARTIES.

THE PARTIES HAVE AGREED TO THE FOLLOWING:

ARTICLE 1

ESTABLISH AND CARRY OUT JOINT PROGRAMS (SUBJECT TO RESOURCE AVAILABILITY) ON SCIENTIFIC AND TECHNOLOGICAL COOPERATION IN SPECIFIC AREAS OF MUTUAL INTEREST OF AGRICULTURE AND FOOD; TO STRENGTHEN INSTRUCTION, RESEARCH, AND EXTENSION IN THE FIELDS OF AGRICULTURE AND RELATED STUDIES.

ARTICLE 2

THE ANNUAL WORK PROGRAMS CONSTITUTE THE UNDERLYING FOUNDATION OF COOPERATION PROVIDED FOR BY THIS MEMORANDUM FOR THE FULFILLMENT OF THEIR GOALS; SAID PROGRAMS WILL BE ELABORATED BY COMMON AGREEMENT BETWEEN THE PARTIES, AND SHOULD INCLUDE:

A) DEFINITION OF OBJECTIVES, REFERENCE TERMS, GOALS AND SPECIFIC PURPOSES TO BE ATTAINED;
B) PROCESS-METHODOLOGY TO BE FOLLOWED IN THE PROGRESSIVE REALIZATION OF THE GOALS WHICH HAVE BEEN PROGRAMMED;
C) RESPONSIBILITY FOR EVERY PHASE OF THE PROJECT;
D) TIMETABLE FOR THE BEGINNING AND TERMINATION OF THE PROJECT;
E) RECIPROCAL INTEREST AND AVAILABLE RESOURCES, HUMAN AND FINANCIAL;
F) OUTLINE FOR THE SURVEILLANCE AND EVALUATION OF THE PROJECT;
G) APPROVAL, EXECUTION AND FULFILLMENT OF OPERATIONAL PROCESS;

H) DISPOSITION, PUBLICATION AND/OR OTHER MEANS OF DISSEMINATION OF THE FINDINGS AND RESULTS ACHIEVED AT THE TERMINATION OF THE PROJECT.

ARTICLE 3

THE COOPERATION CHARACTERISTICS BETWEEN THE PARTIES MAY INCLUDE:

A) STUDENTS, SCIENTISTS AND SPECIALISTS EXCHANGE;

B) TECHNICAL AND SCIENTIFIC INFORMATION EXCHANGE;

C) ORGANIZATION OF SYMPOSIUMS AND CONFERENCES ON PROBLEMS OF INTEREST TO THE PARTIES;

D) JOINT INVESTIGATION OF TECHNICAL AND SCIENTIFIC PROBLEMS WITH POSSIBLE SUBSEQUENT IMPLEMENTATION OF THE RESULTS OF THIS WORK IN ITS PRACTICAL APPLICATION.

ARTICLE 4

IN ORDER TO FACILITATE THE COOPERATION PROVIDED FOR BY THIS MEMORANDUM, THE PARTIES WILL EACH HAVE AN ACTIVITIES COORDINATOR, TO ELABORATE, CONDUCT, AND REVIEW THE PROGRESS OF THE ACTIVITIES STIPULATED IN THIS MEMORANDUM.

THE COORDINATOR WILL BE RESPONSIBLE FOR THE EXECUTION OF THE SPECIFIC COOPERATION ACTIONS OF THE PARTY REPRESENTED UNDER THIS MEMORANDUM.

THE COORDINATORS REPRESENTING THE FACULTY OF AGRICULTURE AND THE POST-GRADUATE INSTITUTE OF AGRICULTURE, AND THE COLLEGES OF AGRICULTURE, PENNSYLVANIA STATE UNIVERSITY, TEXAS A&M UNIVERSITY, AND VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY, WILL BE THE DEAN OF EACH COLLEGE OR DESIGNATED REPRESENTATIVE.

ARTICLE 5

THE PARTIES MUST FORMULATE ANNUAL REPORTS FOR INTERNATIONAL PURPOSES ON THE PROGRESS AND ACHIEVEMENTS MADE UNDER THE PRESENT MEMORANDUM.

ARTICLE 6

THE ENTRY INTO THE COUNTRIES OF THE EQUIPMENT AND STAFF NECESSARY TO ACHIEVE THE OBJECTIVES OF THE PRESENT MEMORANDUM WILL BE CARRIED OUT IN ACCORDANCE TO NATIONAL RELEVANT LAWS AND AGREEMENT BETWEEN THE TWO COUNTRIES.

ARTICLE 7

BY COMMON AGREEMENT, THE PARTIES MAY INVITE OTHER NATIONAL INSTITUTIONS AS WELL AS SCIENTIFIC, ACADEMIC OR COMMERCIAL COMMUNITIES TO PARTICIPATE IN THE ANTICIPATED COOPERATIVE ACTIONS PROVIDED FOR IN THE IMPLEMENTATION OF THIS MEMORANDUM, TO WHICH EFFECT THE PARTIES WILL ENCOURAGE AND FACILITATE CONTACTS BETWEEN INSTITUTIONS AND SPECIALISTS.

ARTICLE 8

THE PARTIES WILL BE ABLE TO MAKE AVAILABLE FOR THE INTERNATIONAL SCIENTIFIC COMMUNITY, THE INFORMATION DERIVED FROM THE COOPERATIVE ACTION UNDER THE PRESENT MEMORANDUM, BY MUTUAL AGREEMENT.

ARTICLE 9

HUMAN, MATERIAL, TECHNOLOGICAL, AND FINANCIAL RESOURCES NECESSARY IN THE EXECUTION OF PROJECTS ARE TO BE DEVELOPED UNDER THE TERMS OF THIS MEMORANDUM AS RESOURCES ARE OBTAINED AND AVAILABLE.

ARTICLE 10

THE PRESENT MEMORANDUM WILL ENTER INTO FORCE UPON SIGNATURE AND REMAIN VALID FOR 5 YEARS AND MAY BE RENEWED FOR EQUAL DURATION PERIODS, BY AN EXCHANGE OF NOTES BETWEEN THE PARTIES, THREE MONTHS PRIOR TO THE EXPIRATION DATE, UNLESS TERMINATED BY EITHER PARTY UPON SIX-MONTHS WRITTEN NOTICE.

ARTICLE 11

THE PRESENT MEMORANDUM MAY BE MODIFIED OR AMENDED BY THE PARTIES' MUTUAL AGREEMENT AND THE MODIFICATIONS OR AMENDMENTS WILL ENTER INTO FORCE AS OF THE DATE OF THEIR APPROVAL AND MUTUAL NOTIFICATION.

THE EXPIRATION OF THE PRESENT MEMORANDUM WILL NOT AFFECT THE EXISTING ACTIVITIES PREVIOUSLY APPROVED BY THE PARTIES.

SIGNED THIS 5th DAY OF JUNE OF NINETEEN HUNDRED AND EIGHTY-SIX.

BY THE DIRECTOR OF THE
POSTGRADUATE INSTITUTE OF AGRICULTURE

BY THE DEAN OF THE FACULTY OF AGRICULTURE
UNIVERSITY OF PERADENIYA

BY THE VICE-CHANCELLOR
UNIVERSITY OF PERADENIYA

BY THE DEAN OF THE COLLEGE OF
AGRICULTURE, PENNSYLVANIA STATE
UNIVERSITY

BY THE VICE PRESIDENT FOR
INTERNATIONAL PROGRAMS OF
PENNSYLVANIA STATE UNIVERSITY

BY THE DEAN OF THE COLLEGE OF
AGRICULTURE & LIFE SCIENCES
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

BY THE PRESIDENT OF VIRGINIA
POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

BY THE DEAN OF THE COLLEGE OF
AGRICULTURE, TEXAS A&M UNIVERSITY

BY THE PRESIDENT OF TEXAS A&M
UNIVERSITY

June 25 1986
DATE SIGNED BY ALL PARTIES

40

ANNEX 4

Implementation Strategy for Memorandum of Understanding

TENTATIVE IMPLEMENTING STRATEGY FOR MEMORANDUM OF UNDERSTANDING BETWEEN FACULTY OF AGRICULTURE AND THE POSTGRADUATE INSTITUTE OF AGRICULTURE OF THE UNIVERSITY OF PERADENIYA AND THE ACADEMY FOR EDUCATIONAL DEVELOPMENT, INC., THE PENNSYLVANIA STATE UNIVERSITY, TEXAS A & M UNIVERSITY, AND THE VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

The Memorandum of Understanding, dated June 5, 1986, which was developed by the participating members of the Consortium Council of the Agricultural Education Development Project provides the general parameters for a cooperative linkage agreement. The purpose of this statement is to provide example of the kinds of activities envisioned in the implementation of the basic linkage agreement. Three caveats should be stressed:

1) the tentative nature of this implementing strategy and the need for its acceptance by all participating institutions;

2) individual implementation orders would be negotiated and signed by PGIA/FA, and one or all of the Consortium members before there is a significant commitment of funding to a specific linkage activity; and

3) the implementation strategy is neither inclusive of all activities or exclusive of activities that may be devised.

* Joint Research Projects

The Consortium members acknowledge the importance of continuing the process of strengthening the research/teaching at the PGIA/FA. It is believed that this can best be accomplished through a program of collaborative research/teaching between the PGIA/FA and the Consortium Universities. To the extent possible the Consortium Universities will respond to all proposals for collaborative research/teaching submitted by the PGIA/FA. This response will include a sharing of information on sources of funding, identifying other faculty members interested in that area of research/teaching, and a professional critique of the submitted proposal. To assist in implementing this process the Consortium Universities will send a list of their active research projects with name of principal investigators and their departmental association. It is hoped that a similar list of current and proposed research programmes will be provided by the PGIA/FA to stimulate closer collaboration between interested faculty members in departments of the Consortium Universities and the PGIA/FA.

* Staff Training

The Consortium Universities will provide special consideration in reviewing the applications of Sri Lankan candidates sponsored by PGIA/FA for cooperative programs at all levels -- including senior staff and administration of the PGIA/FA. The special knowledge gained from long association of the Consortium Universities with PGIA/FA, should enhance the feasibility fo granting scholarships and assistantships or postdoctoral fellowships to Sri Lankan candidates -- within the parameters of the general caveat concerning deparmental approval and the availability of funding.

* Curriculum Revision

The Consortium Universities will, upon request, provide assistance in reviewing proposed curricula and syllabi being developed or modified by the PGIA/FA. A large number of faculty members from the Consortium Universities will have first hand knowledge of the PGIA/FA. This will mean that the proposal will typically be reviewed by someone from the Consortium Universities who has worked in Sri Landa.

* Short-Term Assignments

If interested members of the PGIA/FA faculty will submit a copy of their curriculum vitae to each member of the Consortium, they will be considered as possible candidates for short-term assignments in other development projects being implemented by the Consortium members. These consulting assignments will give the faculty additional professional experience and exposure in other developing nations.

* Reciprocal Educational Opportunities Abroad

The PGIA/FA has been identified as a "Center of Excellence" in agricultural education in Southeast Asia. As such, it will be promoted to students at the Consortium Universities as a site to gain knowledge and exposure in a developing nation and where they will be receiving top level education. When it seems mutually beneficial to PGIA/FA and the students at the Consortium Universities, they will be encouraged to apply to the PGIA/FA for instruction.

* Library Development

The Consortium will continue beyond the project completion date its current policy of submitting a periodic listing of recent library acquisitions in the field of agriculture.

* Computer Facilities

The Consortium Universities will provide, as requested, copies of appropriate public domain computer software programs relevant to the PGIA/FA. In order to be able to do so the PGIA/FA should keep the Consortium Universities informed of their latest interests and/or research projects.

* Short-Term Courses

As a support mechanism to other linkage activities, the Consortium Universities will entertain proposals to provide a limited number of short term courses in areas such as management, administration, computer skills, and teaching methods for the staff of PGIA/FA. It is expected these courses will be supported by extramural funds or grants to bring the PGIA/FA faculty members to the United States and provide for their per diem costs and other relevant costs.

* Conferences and Seminars

The Consortium members will provide copies of announcements of conferences and professional seminars of interest to the PGIA/FA. It is expected that the PGIA/FA will, in a reciprocal manner, provide similar information regarding conferences and seminars of interest organized in the region.

* Communication

The Consortium members will continue periodic professional contacts with the PGIA/FA. These contacts will be in the form of college publications and newsletters, alumni news, mailing of course catalogues, and providing copies of selected articles and special papers of interest to the PGIA/FA. As feasible, periodic visits to Sri Lanka will be made by representatives of the Consortium to discuss items of mutual interests of the PGIA/FA staff.

ANNEX 5

Proposals Submitted by the Departments of the Faculty of Agriculture

Department of Agricultural Biology

Department of Agricultural Economics and Extension

Department of Agricultural Engineering

Department of Animal Science

Department of Crop Science

Department of Food Sciences and Technology

Department of Soil Science

Five year development proposal for the Department of Agricultural Biology.

The department of Agricultural Biology (originally Divisions of Agric. Zoology and Agric. Botany) is responsible for offering basic courses such as Micrcbiology, Entomology, Physiology, Crop Botany and Genetics, and Applied courses in Plant Protection (Plant Pathology and Pest Management) and Plant Breeding.

Department staff is actively involved in PGIA activities and average out put of (M.Phil/M.Sc. and Ph.D.) post graduate students who follow the subjects offered by our staff is around 15 a year. About 15 - 20 undergraduate students follow advanced courses offered by Dept. of Agric. Biology and complete short term research projects.

Department of Agric. Biology expects increase in activities in research and teaching when the department moves into new Agric. Biology building in this September. The present building will accommodate department's pesticide research and spray technology laboratory, Biological nitrogen fixation laboratory and two large lecture rooms.

In view of the wide variations of fields of study that encompass the Dept. of Agric. Biology it is proposed that the Department could initially separate into:

(a) Dept. of Agric. Botany - include, Plant Breeding, Physiology and Botany.

(b) Dept. of Plant Protection and Microbiology. - Microbiology, Pathology and Entomology.

Teaching programme

The Department of Agric. Biology propose to introduce following new courses at Bachelors levels (30 hrs lectures and 60 hrs practicals each).

1. Phytochemistry
2. Monoclonal antibodies and recombinant DNA technology
3. Application of Biotechnology in Agriculture
4. Apiculture

Continuing Education

Diploma and inservice facilities for those already employed in Agricultural research and extension are not yet offered by the faculty. To fulfill this requirement Department propose to initiate a diploma (in-service training) programme in

(a) Plant protection
(b) Pesticide Management
(c) Apiculture and Sericulture - Commercial entomology.

Out reach activities

Department staff has been actively involved in out reach activities as advisors in pest and disease control to many Government and non Government organizations. A clinic, still in informal manner is functioning in the department to help the public. However establishment of an organized plant clinical service is becoming imparative in view of the development of large scale and export oriented Commercialized Horticulture and Agriculture. If the department could sought funds for such purposes a self financed mobile clinic will meet the requirements of such commercial ventures.

Department also proposes to prepare advisory leaflets and a reference text books on:

(a) Tropical plant diseases and control.
(b) Pests of crops grown in Sri Lanka.
(c) Taxonomic guide of weeds of Sri Lanka.

Staff exchange

Agric. Biology envisage to be involved in an staff exchange programme for upgrading research programmes of the department. The financial support for the participation of seminars in Microbiology, Pathology, Plant Physiology, Entomology and Genetics & Plant Breeding are to sought from various international

organizations. It is expected at least 3 man months per year to be funded for this purpose over a period of five years.

Sabbatical leave

Over the next five years at least five staff members of the department will be entitled for sabbatical leave overseas. While the University of Peradeniya funds the cost foreign travel for this purpose living allowances have to be obtained from other univerties abroad. If research associateships or teaching assistantships could be negotiated for US Universities a well organized sabbatical programme could be initiated.

Collaborative research

The most vital for the sustaining of academic activities in the University is progress in research. Better performance by scientists could be achieved by closer corporation with US Universities in relevant research fields. Department has identified the following major research fields for collaborative research.

* 1. Pesticide degradation and environment pollution, Human exposure and spraying methodology.

2. Botanicals as pesticides/Biosynthesis and Mode of action.

3. Biological control of insect pests + weeds,

4. Biological Nitrogen fixation.

* 5. Recombinant DNA technology and tissue culture/protoplasm culture for creation of disease resistant plant.

6. Pollen culture techniques in rice for Breeding of rice.

7. Epidemiology.

8. Conservation of Germplasm. → No systematic Gol. storage & Maintaince of major germ plasm.

9. Stress Physiology. → heat & drought
Ex. Irrigation affects on salt content & ecology.

10- Post-Harvest Technology — Ex vegetable Crops for .... export, collaborate with Agri Engineering Dept.

46

Specialized laboratory equipment that would be required for teaching and research over the next five years would be mainly in relation to the activities of the above fields of study. The laboratory facilities should include major equipments such as Scintillation counters and Ancillary equipment for radio isotope assays, Scanning electrom microscope, Ultra centrifuge, Gas chromatographic and HPLC equipment and other ancillary facilities.

The travelling need of the research students and academic staff should not be a constraint for activities in research as such at least two passenger cars should be purchased.

Fulbrights

Department of Agricultural Economics and Extension
(Report available from Department)

Staff Linkages

1. Junior faculty - available for 3 months each year for cooperative activity -- with planning for 1 - 1 1/2 years.

2. Senior faculty - help with opportunities for sabbaticals.

3. Determine feasibility of assistance with Fulbright awards.

Collaborative Research

1. Joint submission of research proposals in search of donor funds.

2. How to make first step - suggest exchange of list of faculty and research interests at all Universities.

3. Joint direction of graduate students in split training programs.

Teaching Programs

1. Development of techniques for training "teachers" within the faculty of Agriculture.

Undergraduate Student Exchange

1. Potential for exchange of BSc level students -- (formal training, but also for a few to several months) -- Cultural exchange as well as training.

Department of Agricultural Economics

Areas of Specialization of Staff

Production Economics and Farm Management
Agric. Extension
Agric. Communications and Adult Education
Agric. Marketing
Natural Resource Economics
Rural Sociology
Agric. Education
Rural Development

Research Areas (Proposed)

1. Economics of Farming Systems
2. Economics of Livestock Production
3. Structure, Conduct and performance of Commodity Markets in Sri Lanka
4. Marketing Efficiency Studies
5. Use of information sources by farmers
6. Adoption of Agric. Innovations by farmers
7. Evaluation of Extension and Rural Development Programme
8. Economics of Environmental Protection

Staff Resources

Department of Agricultural Economics, University of Peradeniya

1. Prof. T. Jogaratnam
2. Dr. S. Pinnaduwage
3. Dr. H.M.G. Herath
4. Dr. C. Bogahawatte
5. Dr. C. Sivayoganathan
6. Dr. V. Jayatilake
7. Mr. H.B. Kotagama

Department of Agricultural Economics, Texas A&M, USA

Mr. A.V.G. Piyasena

Department of Agricultural Economics, Virginia Tech, USA

Mr. S. Zuhair

Department of Agricultural Economics, Wye College, England

Mr. T.B. Sappideen

Sources of Funding

1. USAID
2. International Development Research Centre, Canada
3. Asian Development Bank
4. World Bank
5. Winrock International
6. Food and Agriculture Organization, Rome
7. Social Science Research Council, New York
8. Kellog International Foundation, U.S.A.
9. Rockefeller Foundation, USA
10. Fullbright Hays Fellowship, USA
11. IRRI, Philippines
12. Swedish International Development Agency
13. SAREC
14. NORAD
15. NUFFIC, Netherlands

AGRICULTURAL ENGINEERING

The Department of Agricultural Engineering, Faculty of Agriculture, University of Peradeniya is committed to have sound teaching, research and extension activities in three major areas within the field of Agricultural Engineering.
These areas identified are:

1. Field engineering (which includes Soil and Water Conservation, Irrigation and Drainage, Ground Water Expoloration and Utilization, Hydrology and Environmental Impact of Water Resources Development).

2. Agricultural Mechanization (which includes Research, Design and Development of Appropriate Farm Machinery for Agricultural Operations).

3. Post Harvest Technology (which includes, handling, transportation, storage and preservation of agricultural produce).

Through USAID assisted AED programme and other similar programmes several of the Agricultural Engineering Faculty are receiving or received advanced training abroad. When all trainees return, the department is expected to have a total of 10 Faculty members with terminal degrees. Of these team four are trained in Field Engineering area and three each in the remaining two areas.

Future teaching, research and extension programmes must be developed utilizing this strength. Considering the background of the individual faculty members and considering the national needs several topics for cooperative research have been identified which could be pursued with the consortium of universities in the US under AED programme. These are;

AGRICULTURAL MECHANIZATION AND POST HARVEST TECHNOLOGY

1. Integrated energy development for agriculture (solar energy, and gassification)

a) Crop drying (grain and minor export crops)

b) Refrigeration

c) Water lifting

2. Development of appropriate machinery for post harvest operation in Sri Lanka such as;

a) Development of threshers for multi-purpose applications

b) Extraction of coconut milk etc.

c) Seperation of stalks from made tea.

3). Small scale machinery development. i.e. small powered sprayers, manual pumps, choppers of wood, straw and animal feed.

4). Development of a seeder for the use of liquid gel/grain injection

5) Reduction of power requirements for tillage by optimizing the timing of cultivation, methods and use of appropriate implements for different soil groups

STAFF RESOURCES:

Department of Agricultural Engineering, University of Peradeniya

1. Professor S.G.Ilangantilake

2. Dr. B.F.A. Basnayake

3. Mr. A.R.Ariyaratne

4. Mr. S. Elias

5. Mr. S. Punidadas

6. Mr. D.N.Jayatissa

7. Mr. V.W. Jayasena

Department of Agricultural Engineering, Virginia Tech, USA

1. Dr. J. V. Perumpral

2. Dr. D. H. Vaughan

3. Dr. J. S. Cundiff

4. Dr. W. Wilcke

5. Dr. K. Diehl

6. Dr. R. K. Byler

Department of Agricultural Engineering, Virginia Tech, USA

1. Dr. J. V. Perumpral

2. Dr. D. H. Vaughan

3. Dr. J. S. Cundiff

4. Dr. W. Wilcke

5. Dr. K. Diehl

6. Dr. R. K. Byler

FIELD ENGINEERING

1) Landuse resource planning; monitoring and aiding for proper implementation

2) Integration of drainage and irrigation by development of bore wells for dry zone agriculture in Sri Lanka.

3) Drainage of existing and newly developed agricultural lands of both wet and dry zones for increased cropping and horizontal expansion

4) Conservation tillage practices for soil, water and energy management

STAFF RESOURCES:

Department of Agricultural Engineering, University of Peradeniya

1.Dr.K.G.A.Goonasekere

2.Mr.N. Gunawardene

3.Mr. S.A.Prathapar

4.Mrs. A. Jayasekere

Departments of Agricultural and Civil Engineering, Virginia Tech, USA

1. Dr. V. C.Shanholtz

2. Dr. S. Mostaghimi

3. Dr. B.B. Ross

4. Dr. T. Dellaha

5. Dr. R. K. Byler

6. Dr. V. Y. Kuo

7. Dr. O. Yucel

8. Dr. V. Loganathan

9. Dr. J. Sherrard

POSSIBLE SOURCES OF FUNDING:

1) USAID under PSTCC grants

2) National Science Foundation

3) Asian Development Bank

4) Natural Resources Energy and Scientific Authority (NARESA)

5) NORAD (Norwegian Aid)

6) Danida (Danish Foreign Assistance)

7) Internationa Development Research Centre (IDRC, Canada)

8) Food and Agriculture Organization of the United Nations

9) Rockefeller Foundation

10) Agha Khan Foundation

11) Ford Foundation

Animal Science

The department of Animal Science of the Faculty of Agriculture, University of Peradeniya is heavily involved in teaching (Agriculture and Veterinary Science students) and research. It is also involved to a limited extent in assisting some livestock organization in their extension activities, and also serves as a service organization of supplying livestock breeding material to the public.

The major research interest areas are:

a. Monogastric nutrition
b. Ruminant nutrition and Pasture production
c. Reproductive physiology
d. Inland Fisheries

When four of the staff members who are undergoing training at the PhD level return by the end of this year, the department will have a strength of 10 MSc/PhD. In addition a few new recruits with MSc/PhD are also to be made before the end of this year.

Considering the background of the individual department members and also the needs of the Agriculture sector, the following sectors for cooperative research have been identified which could be taken up with the Consortium Committee.

a. Monogastric Nutrition and Production

1. Evaluation of non-conventional feed resources in Sri Lanka and then nutritive value for monogastric feeding.

2. Evaluation of production performance of layers, broilers and duck flocks of the country and upgrading them.

Staff resources: -

Prof. A S.B. Rajaguru
Dr. V. Ravindran
Mr. K. Samarasinghe

b. Ruminant Nutrition and Pasture Production

1. Utilization of Fibrous feeds for ruminant feeding

   - Agricultural residues
   - Leguminous tree fodders

2. Dynamics of fibre digestion in the rumen

3. Pasture production and utilization

- inventerization and assessing nutritive value of natural grasses.
- Legume - based pastures
- Fodder conservation (Hay/silage)
- Grass seed production

Staff resources: -

Dr.(Mrs.) S. Premaratne
Dr. M.N.M. Ibrahim
Mrs. V. Ramanathan

c. Reproductive Physiology

Reproductive performance of small ruminants in Sri Lanka.

Staff resources:-

Mrs. Kalyani Perera
Mr. Saliya Silva
Mr. H.W. Cyril

d. Inland Fisheries

1. Artificial breeding and improvements of the popular fish breeds in Sri Lanka.

2. Nutritional requirements of the above breeds.

Staff resources:-

Mrs. C.R. Shanthie
Mr. U. Edirisinghe (PGIA, PhD student)

Department of Crop Science
(See attached Departmental Reports)

Staff training (Priority Area Ranking)

1) Weed Scientist
2) Tissue culture
3) Biometrician
4) Horticulturist

Infrastructure

1) Glasshouse to share with 3-4 departments
2) Laboratories and lecture theatres
3) Equipment in support of teaching and research

Research linkages with Consortium Universities (not in priority ranking)

1) Farming Systems Research - Scientific evaluation of farming systems in Sri

2) Seed Physiology -- research on storage and treatments at farm level -- priority areas are:

   a. Vegetables
   b. Legumes

3) Reforestation and agroforestry (two separate areas)

   a. Reforestation -- efficiency in wood for fuel production and construction.
   b. Agro-forestry -- developed integrated crop-forest use of land resources.

4) Irrigation/Agronomy -- field level water use conservation - stress physiology.

5) Biometry (crop Science has faculty wide responsibility) analyse field experiments.

6) Horticulture -- fastest growing agriculture industry in country -- substantial private investment available.

Department of Food Science and Technology

The department of Food Science and Technology was recently created out of the old department of Agricultural Chemistry.

A. Research priorities:

1. Food technology including preservation of Sri Lankan fruits and vegetables and development of food products.

B. Education:

1. Extension of research capacity in using chromatographic equipment.

Food Science and Technology

The Department of Food Science and Technology was created on 6th January 1986 with an academic staff of 6 members (3 Ph.D., 1 M.S., 2 B.S.). This Department is expected to carry out teaching at undergraduate and graduate levels, research and extension in the following areas:

1. Food Analysis - Analysis of local raw materials and processed foods for nutrients, antinutrients and contaminants).

2. Food Preservation and Processing Technology - Improvement of local processing methods and development of new techniques.

3. Food and Nutrition - Development of Nutrition education, extension programmes and research in the areas of Nutrition.

To develop the activities in the above areas in Department is engaged in the following teaching and Research programmes.

Undergraduate teaching

2nd year - Biochemistry

3rd year - Food Science

4th year	(first term)	Nutrition
	(second term)	Food Chemistry Food Microbiology Food Preservation Research Project

Graduate teaching

M.Sc. - by course work (1 year)

M.Phil. - Course work 1 year
Research 1 year

Diploma (Graduate) in Food and Nutrition Policy Planning - (1 year)

Research

1. Development of Nutrition Data Bank on local foods.

2. Control of contaminants and adulterants in foods.

3. Development of processing techniques for local foods.

Extension

The Department members serve in the following organizations in different capacities.

1. Winged Bean Research Institute.

2. National Food and Nutrition Committee.

3. Public Analyst.

They are engaged in developing research activities, application of knowledge gained by research and in developing teaching and training materials to be used at the secondary schools, and for adult education.

Future

With the heavy demand in the area of Food Science both from the public and private sectors the Department needs more qualified staff specially in the following areas trained at the Ph.D. level.

a) Food Technology (Preservation and Processing of fruits and vegetables.)

b) Human Nutrition

Department of Soil Science

The department of Soil Science sets as its priorities in research as relating to soil fertility, soil chemistry and soil physics.

Research Priorities

1. Potassium in tropical (Sri Lankan) soils.
2. Loss of nutrients, leaching etc. in the Mahaweli systems.
3. Organic materials in soils.
4. Soil structure and moisture on plant growth and land management.
5. Utilization of organic wastes likely to cause pollution problems in the environment.

Instruction:

1. Functional priority related to future availability and repair of necessary equipment.

Activities of the Department of Soil Science

1. Teaching:

   There are many deficiencies in teaching equipment and laboratory equipment avaliable for the undergraduate and graduate teaching and research programmes.

2. On Going Research:

   The Department is involved in the following research projects in the field of soil fertility. This would supplement the blank left against Soil Science in Table 1 of the Department Proposal for the Faculty of Agriculture presented by Dean/Faculty of Agriculture on June 2nd.

   1. Effect of potassium buffer capacity of soils on potassium availablity.
   2. Release of nonexchangeable potassium under submerged conditions.
   3. Effect of soil moisture in potassium availability.
   4. Effect of organic matter incorporation on nitrogen dynamics of paddy soils.
   5. Effect of potassium on nitrogen fixation of winged bean.
   6. Nutrient leaching studiens in Mahaweli Systems (Lysimeter studies).
   7. Analysis of Mahaweli River Water for essential plant nutrients.
   8. Effect of incorporation of agricultural organic wastes on N and P availability (using wastes such as coir dust, saw dust, rice husk, etc.).
   9. Effect of incorporation of agricultural organic wastes on redox-potential changes.

3. Research Planned for Future:

1. Periodical analysis of water in reservoirs of Mahaweli H are to assess nutrient losses and entrophication of those (considering systme H as a model for newly started other systems).
2. Antagonistic effects of potassium and magnesium in soils.
3. Production of nitrogen - containing organic fertilizers through the synthesis of humic acids.
4. Problem on the non-response of crops to inorganic fertilizer on soils of Sri Lanka.
5. Studies on the microbial fertility of representative soils of Sri Lanka.
6. Characterization of the clay mineralogy of Sri Lankan soil.
7. Studies on the effect of effluents of agro-based industriy on the environment.

Soil Physics

1. On Going Research

1. Effect of soil moisture, soil strength/high bulk density on K availability.

2. Effect of soil moisture and soil strength on root growth.

3. Characterization of soil hydraulic properties for two Sri Lankan soils.

4. Soil physical characteristics and theri use in land management.

ANNEX 6

Proposal Submitted by the
Postgraduate Institute of Agriculture

PROPOSALS OF PGIA CONTINUING LINKAGES

The proposals identified by the Faculties would strengthen the graduate teaching and research programmes of the PGIA. In addition the PGIA would like to identify the following areas to be suggested in the proposed linkage programme between the PGIA/FA and the three Consortium Universities.

Split Programme Training of Graduate Students

Split programme training where the candidates for research degrees do part of the training (courses and research) at PGIA and the balance in a foreign institution has gained recognition. It permits graduate students to get the best from two institutions one local and the other abroad and gives the candidate the foreign exposure so vital to broaden the training. The Consortium Universities could examine the possibility of relaxing the regulations to accomodate such training. The PGIA could accept American students on a reciprocal basis.

2. Scholarships for Outstanding Graduates

The PGIA would like to recommend to the Consortium Universities Outstanding scholars who have an excellent GPA and who have in addition submitted a highly commended thesis for their M.Phil or Ph.D degrees. The Consortium Universities could consider them for Ph.D Scholarships or Assistantships or for Post-doctoral Fellowships as the case may be. This would be a recognition of productive Scholarship. We feel that many of them would return to Sri Lanka to contribute towards Agricultural Development in future.

3. Library Development

The creation of the PGIA has brought about a rapid development of library resources. The development has been quantified in the progress reports of the AED Project. The PGIA will continue to assist in library development with the objective of making it the best teaching and research library in the Agricultural Sciences in the country. When the new library is built, the problem of inadequate space will be corrected. The linkage programme should permit the flow of library resources and also make available the new technologies that are been developed for better user services. Assistance in obtaining computer print outs, access to data banks and preparation of software to assist researchers in special subject matter areas may be considered.

4. Development of Computer Facilities

The PGIA has begun to develop a small micro-computer facility. As the demand for this service is expected to increase rapidly the PGIA will need assistance under the linkage programme to expand and improve the capabilities of the Computer Unit. They would include hardware, software packages, and training of personnel.

5. Curriculum Revision

PGIA will continue to improve the course offerings with the assistance of the Faculty who have been trained under the project as well as others from within and outsider the Panels of Teachers. However since the peers on the different disciplines are few, the PGIA will need the assistance of outside peers from the Consortium Universities to give an outside opinion on our courses,

6. Outreach Activities

The dissemination of research results and the use of new findings and technologies as outputs of M.Phil and Ph.D research as well as Faculty research is still very weak. Besides the publication of papers in recognised journals we have to diversify the means of dissemination. The following outreach activities need immediate attention and assistance to develop them have to be canvassed.

6.1 Publications and Visual Aids

Each Board of Study should bring out Circulars, Technical Bulletins, Manuals, Slide Sets etc., on subjects that are given priority in Agricultural Development Programmes. Information that would be useful to end users, extension agents, teachers and others could improve our Agriculture. Trained staff is required to develop these aids.

6.2 Short Courses

Another area of activity would be the development of short courses on priority subjects. The staff of Consortium Universities and the Panel of Teachers of the PGIA could jointly offer such courses to participants from Sri Lanka as well as from other developing countries in the region.

6.3 Seminars/Workshops/Conferences

The Consortium Universities could plan to hold seminars/workshops/conferences with PGIA/FA on different development oriented issues and technical subjects. The results of joint research and guided research of the co-operating institutions would enhance such outreach activities.

7. Training on Administration/Management

The training of administrative and management staff of the PGIA have not been given adequate attention in the past. In order to improve skills in administration and management the senior and supporting staff who are responsible for academic administration, financial management and library management should be given training both short term and long term.

Prof.Y.D.A. Senanayake
DIRECTOR

ANNEX 7

Proposal Submitted by the Faculty of Agriculture

DEVELOPMENT PROPOSAL FOR

Faculty of Agriculture
University of Peradeniya
Sri Lanka.

Presented by

The Dean/Agriculture at Consortium
for International Agricultural Education
meeting held at PGIA/Peradeniya.

The Agricultural Education and Development Project (AED) which commenced in 1979 has achieved considerable success in developing the personnel and infrastructure of the faculty of Agriculture (FA) and Post-graduate Institute of Agriculture (PGIA) and strengthening the teaching and research programs in Agriculture. The main objective of training 38 junior members of academic staff of the faculty has nearly been accomplished. Concurrently existing curricula were revised and new curricula were formulated for further expansion. The critical mass of agricultural man power needs is now available which also has shown an increased involvement in research activities in diverse fields.

The above achievements were made possible with a U.S. $ 7.5 million from USAID and a counterpart funding from Sri Lanka amounting to 68.3 million Sri Lankan rupees. Most of the Sri Lankan contribution was utilized in developing much needed infrastructure both for the FA and the PGIA. The new changes have given a tremendous boost and recognition to agricultural education within the country and outside and it has now been recognized as a centre of excellence for Agricultural Education in south and South East Asia.

Further upgrading and strengthening of the personnel, teaching and curricula are necessary to cater to the diversified needs of Agriculture in the future for the region. In this regard special emphasis should be placed on areas and activities bypassed in the previous program. This would ensure a complete and a more comprehensive pattern of development.

It is imperative that the linkages developed with the US consortium universities be continued to ensure further expansion of the FA and the PGIA. Any future link programs can be organized and geared for the benefit of the FA, PGIA and also the consortium universities. It would assist the retention of the already trained man power particularly the junior staff and greater collaboration between Sri Lanka and the US in foestering better academic relations.

1. Staff Exchange

To foster closer co-operation and mutual sharing of experience a staff exchange programme is proposed. This exchange programme calls for consortium faculty members in various fields of agriculture to visit Sri Lanka FA/PGIA members to visit the consortium universities over a period of five years. The period or stay could be as long as one year. During this period each participant will be involved in workshops, lectures, seminars, participation in field research projects, informal discussions and other means of exchanging knowledge and skills. This program will create a long term partnership between, Peradeniya and the consortium universities which will facilitate the development and introduction of programmes in the seven different department of studies responsive to issues relevant to the developing world by harnessing the experience available with local staff. The consortium staff can contribute to the Peradeniya departments their experience and knowledge base in the specific disciplines of agriculture.

It is expected that 25-30 man months over a five year period will be required for each department. Similar requirements for expatriate staff is envisaged.

2. Sabbatical Leave Programme

Provision for a sabbatical leave programme will facilitate upgrading and exposure to new developments in research and teaching of FA/PGIA. Staff of the consortium universities could use this opportunity for gaining first hand information and exposure to problems of developing countries.

Table 1. Proposed major areas where collaborative research proposals could be developed between FA/PGIA and US consortium Universities.

Department of study at FA	Major research area
Animal Science	-
Crop Science	Farming systems; Seed Physiology Forestry, Biometry
Food Science	Food preservation and processing
Soil Science	
Agric. Biology	Pesticide Management & Botanical pesticides Biological N_2 Fixation; BioControl of insects. Recombinant DNA technology & protoplasm fusion for disease resistance; conservation of germplasm; stress physiology Plant disease Management.
Agric. Economics	Production Economics; Marketting Extension, Communication; Agric. Business Management & Agric. development.
Agric. Engineering	Field Engineering, Mechanization and Machine designing Environmental & Food Engineering.

The cost of travel of FA/PGIA staff proceeding on sabbatical leave overseas is met by UP, SL. It is expected that other international projects such as Fullbright travel grant could meet the cost of travelling of the consortium staff. The salaries or allowances for FA/PGIA staff could be sought through consortium Universities whereas for those consortium members who would serve the FA/PGIA on sabbatical it is suggested that the UP should pay the Professor's scale (UPSL- Scale) which would meet at least part of their living expenditure in UPSL.

It is expected at least 14 FA members would be entitled for their sabbatical leave during the period of next 5 years.

3. Collaborative Research

The strengthening of the research programme of FA/PGIA through collaborative research is an important aspect of the proposed linkage program. Collaborative research through funds and personnel from Peradeniya and the consortium helps orient faculty and students to the advantages of inter disciplinary research. It also establishes research mechanism which can undertake research into important mutually beneficial national and international issues in the various disciplines of agriculture.

A summary of potential collaborative program for the faculty is given in table 1.

4. Modernization of Teaching Methods

There is a pressing need to change the methods of teaching in the faculty in order to make the teaching programmes more effective. The audio-visual equipment could be used in making certain changes. Assistance of a fully qualified training specialist

Table 2. Training required for personnel to meet specific requirements in expansion programme.

Department of study	Field of specialization	Number of persons identified for training
Animal Science	-	
Crop Science	Weed Science	1
	Tissue culture	1
	Biometry	1
Food Science	Nutrition	1
	Food Microbiology	1
	Technology	1
Soil Science	-	
Agric. Biology	Plant Physiology (Molecular Biology)	1
	Nematology	1
	Genetics	1
Agric. Economics		3
Agric. Engineering	Computer aided design	1

in material preparation and teaching methods will further strengthen audio-visual capability of the departments. It is also proposed to establish an Agric. Education Unit for inservice instruction for university teaching and other Agric. Educators in the country. Initial manpower requests will have to be met by the US Universities or by Services of US expatriate whom could train the faculty staff eventually for running the unit.

5. Staff development in deficient areas

The expansion of teaching program and curriculum development a continuous process that has created deficiencies in resource personnel. To meet this requirement that are created with essential expansion, resignation and retirement of teachers training opportunities should be provided in specialized fields in agriculture, probably by providing at least three teaching/research assistant positions per year in the three consortium Universities. UPSL has the mechanism to meet their travel cost to US Universities and back. The projected areas where training of personnel upto Ph.D level is listed in table 2.

6. Student Exchange

The provision for student exchanges both at undergraduate and graduate level enables the very good students to avail themselves of an opportunity to raise their standards of knowledge. The exchange can be limited to deserving students in Sri Lanka and U.S. students who wish to come to Sri Lanka to learn more about the agriculture sector in Sri Lanka. They could be either accommodated into regular courses or provide training in research methodology.

Table 3. Requirement for specialised teaching/research facilities.

Department of study	Title of course offered	Level of training	Esti mated equip- ment cost USD	Availa- bility of Teaching staff
Animal Science	Inland Fisheries	B.SC		Yes
Agric. Engineering	Irrigation Water Management	B.SC		Yes
	Post harvest technology	B.SC		Yes
Crop Science	Floriculture	B.SC		Yes
	Data proce- ssing	Technical non degree		Yes
Agric. Biology Soil Science & Food Science	(Research Methodology) Technical training	do		Yes
Agric. Biology	Plant Protection	Diploma		Yes
	Apiculture	Certificate		Yes
Crop Science	Tissue culture	B.SC		No

7. Development of specialized teaching/research laboratorie

Faculty of Agriculture proposes to introduce several new courses at undergraduate level and as diploma courses or inservice training courses, of them four new courses namely, Floriculture, Inland fisheries, Irrigation Water Management, and Post harvest technology were approved by the UGC under its corporate plan 1984 - 1988. Other short term courses such as technician training, and Data processing and Computer programing is being proposed on specific request of Department of Agriculture through DARP project. The specific requirements for the courses that will be introduced 1986 - 1991 are listed in table 3.

8. Capital development

Increase in intake of the faculty to 200 students has resulted in increase demand for space in all departments.

Agric. Biology - Chemistry building is nearing completion at a total estimated cost of 42 Rs. Million. It is proposed to initiate the building programe for the Department of Animal Science in the near future. The TEC of Animal Science building and the proposed FA/PGIA library is Rs. 30 Million. The other proposed requirements of the FA/PGIA are a building to house the Department of Food Science (430 Sq. Meters) and to meet the requirement of expansion of Agric. Engineering & Economics.

Maha Illuppallama Sub Campus

The primary objective of this training unit at its inception was to, and at present is to

"Provide a practical training to the undergraduate students of the Faculty of Agriculture"

The six Departments of the Faculty of Agriculture, (Dept. of Crop Science, Dept. of Animal Science, Dept. of Soil Science, Dept. of Agricultural Economics & Extension, Dept. of Agricultural Biology and Dept. of Agricultural Engineering) at the time were responsible for developing the practical training for the undergraduate students. At the commencement of this University unit, it had minimal facilities to service maximum of fifty students interms of student housing, staff housing, lecture rooms, storage facilities, animal production units, and transport facilities whereas substantial extent of land is available for further development of this facility. Initially, the training programme was limited to field crop production, animal husbandry, surveying, workshop practice, instrumentation in meteorology, agricultural implement usage, processing of agricultural crops, and pest and disease control. Subsequently, a portion of the practical training given at Maha Illuppallama was shifted to Uduwela plantation management training programme. The particular advantages of this location for practical training are:

1. It is located in the heart of dry zone of the country where most of the key agricultural development programmes of the country are undertaken,

2. Close proximity of the Dry zone research centre and the production farm of the Department of Agriculture within which the facility is located, and

3. Reasonable proximity of the Farm Machinery Training Centre and the Rice Processing Research and Development Centre of the Ministry of Agriculture which are located at Anuradhapura.

Theoretically at least these advantages would have provided an opportunity to develop a sound practical training programmes for the undergraduates of agriculture. One of the major constraints that restrict the realization of the full potential of this valuable training unit. These constraints are:

a). Insufficient facilities for students and staff considering the increased student intake (from original 50 to 200 which is a 400 percent increase).

b). Inadequate participation by the faculty at Peradeniya due to distance and other heavy involvement at Peradeniya.

A high potential exists for the development of this unit due to its trained resident faculty, the supporting faculty at Peradeniya, the land available for expansion, the related institutions in the near vicinity, and due to the fact that it is located in a major agricultural area, the Kalawewa "H" area. A development plan considering the all these aspects including staff resources, buildings, equipment, library, livestock units, hostels and other supporting facilities are important to make this unit more effective with the expected increase of student intake of 200. Such a development is essential to cater to the needs of the greater student population.

Apart from the primary objective, it is strongly felt that this unit could, and should develop its facilities to cater to the following needs.

1. To provide support facilities to both undergraduate (Final year) and post-graduate projects. Since this is the only station of the university of Peradeniya in the Dry Zone, its facilities should be improved to the extent where students could conduct their individual projects.

2. To provide facilities for the practical training for the government and non governmental groups. The resedinetial and training facilities of this unit are used approximately 7 months of the year. Hence during the rest of the year, these facilities could be effectively used carryout outreach programmes to local farmer groups, agricultural workers and community development groups.

3. To provide facilities for staff. research. At present research facilities for staff at this unit is almost non-existant the fact that most of the resident faculty have obtained their postgraduate qualification alone is sufficient to justify this objective. Further this would provide opportunities for collaborative research among the staff of the Faculty of Agriculture and also among the research staff of the Department of Agriculture which will be mutually beneficial contributing to the overall productivity of this unit.

The development plan for the Maha-Illuppallama Sub Campus should have the long range objective of adequate facilities planning for the student and staff requirements to achieve the afore mentioned objectives.

1. Lecture room and auditorium facilities for 200 students including furniture fittings and public address systems.

2. Adequate housing for 200 students and the resident faculty at Maha-Illuppallama.

3. Laboratory and workshop facilities to meet above mentioned primary and secondary objectives.

4. Adequate water supply and sanitation facilities for the resident population.

5. Landscaping and land development to establish facilities for training and research programme.

6. Development of adequate irrigation and drainage facilities for crop production and crop production research.

7. Adequate staff resources development.

8. Adequate transportation facilities to cater to the needs of the entire facility.

Linkages with US Universities

From : Prof. H.P.M. Gunasena

To : All participants

Present Status of Faculty/PGIA

1. Qualified staff - 40 Ph.D's
   34 MS/M.Phils
   others under training or need to be trained

2. Student Intake Increased to 200, and admission of foreign students.

3. Laboratory and Farm Facilities added and improved but inadequate in view of increased intake.

4. Identified as a "Center of Excellence" for Agricultural Education in S & S.E. Asia.

5. The level of achievement to date has to be maintained.

Needs

1. Staff Training - Due to staff losses under the AED Project, and for new areas added to the curriculam.
2. US Staff visits for short or long periods. Assist in research supervision, teaching new courses, research etc.,
3. Exchange of students. Mostly postgraduate to follow courses not available locally and oriented to give broader training.

4. Workshops, Conferences, Seminars, short term assignments to gain experience.

5. Sabbatical leave for Senior Staff.

6. Research linkages - staff research, or research involving graduate students. Through the US Universities, USAID, IFS, others.

   Joint Research with local Ministries on projects funded by USAID.

7. Outreach programme & Various field oriented clinics, Overflow of research information (staff and PGIA students).

8. Organization of short courses with assistance of US Universities. Development of course contents, etc.

9. Assistance for Library, exchange of books, journals etc.,

10. Equipment not procured under AED project.

11. A language laboratory.

12. Maha-Illuppallama Sub-Campus.

13. New Buildings - Lecture room, Audio-Visual laboratories, outreach center etc.,

14. Transport.

ANNEX 8

Concept Paper - Agricultural Education in Sri Lanka

May 15, 1986

CONSORTIUM COUNCIL FOR
AGRICULTURAL EDUCATION DEVELOPMENT/SRI LANKA

CONCEPT PAPER—AGRICULTURAL EDUCATION IN SRI LANKA

Studies of the supply and demand for trained agricultural personnel in Sri Lanka have resulted in mixed results. The most recent study by Jones, et. al., 1985, suggests a potential for an oversupply of trained agriculturists at all levels but the certificate and doctoral level. The Hanson and Jogaratnam. study in 1983 found a quite different situation. They concluded that there was an excess of B.Sc. graduates, too few diploma (and by assumption certificate) graduates, and about the appropriate number of individuals with graduate level training. The critical role assigned to agriculturists with applied training makes it imperative a program is developed to provide an efficient and effective way of addressing these supply and demand considerations.

A direct method for assuring an adequate supply of certificate and diploma trained agriculturists would be to increase the facilities and staff available at certificate/diploma granting agricultural schools. However, we believe an indirect but more comprehensive approach would be to use the faculty resources and facilities already available in the Faculty of Agriculture and the Postgraduate Institute for Agriculture at the University of Peradeniya.

The core of our concept is that faculty and facilities available at the University of Peradeniya are a valuable resource to use in training of certificate and diploma level graduates. That is, the members of the faculty of Agriculture and PGIA are weli trained professionals that we believe have the academic flexibility needed to teach at the diploma level as well as the B.Sc. and graduate levels.

There are several advantages to using this approach:

1. It provides a "quality control" factor for the diploma and certificate programs. The professionalism of the faculty members would permit the development of a top rated program.

2. The teaching of a diploma or certificate course would help insure that the teaching faculty members would remain in touch with the applied aspects of their research program. Even some of the more basic oriented research faculty members may find it valuable to teach a course which requires them to examine the applied nature of their research.

3. The concentration of the diploma/certificate programs on the University campus would increase the effective use of the library and related resources available only at the University.

The integration of diploma (associate degree) programs with BS and graduate level studies has been a success at many U.S. land-grant institutions. For example, VPI and Penn State both have active programs for students interested in less than B.Sc. level training. The specifics of the program are different at the various universities, but the common thread is that in the vast majority of the cases with which we are familiar, the teaching at the associate or "short course" level is done by the College's permanent teaching faculty.

Implementation of certificate/diploma course and programs at the University of Peradeniya would require a review and evaluation of items such as:

1. Allocation of faculty time: The time required for developing and teaching a new course designed for the certificate/diploma program must be weighed against the potential negative impact on their teaching in the B.Sc. and graduate programs and in their own research program.

2. Curriculum development: The question of how new courses for the certificate/diploma programs would "fit" within the current course offerings would need to be addressed. In many programs in the United States, the students in the two-year programs enroll in a "mix" of regular undergraduate level courses and special courses developed for the associate degree students.

3. Facility usage: Another concern is how the implementation of such a program would impact on current use of herds, flocks, field plots, and facilities--and what mix of programs would provide the optimum use of classrooms, laboratories, libraries, etc., already available at the University.

To the extent that diploma training must be carried out by faculties or institutions other than the Faculty of Agriculture at the University of Peradeniya, the Peradeniya Faculty can have a critical role. An instructional materials facility could be established to prepare and transfer curricular and educational materials to other training institutions.

Instructional materials--outlines of lecture and laboratory classes, visual and audio aids, computer software, perhaps eventually video material--would be prepared using the material prepared or provided by the members of the Faculty of Agriculture and PGIA and provided (sold) to other diploma training instructions.

The advantages of such a center would be a quality control, more effective use of faculty, library and related resources available only at the University. The center could be augmented by Extension materials developed by the University. Curriculum development for diploma training at the University of Peradeniya could be made available throughout Sri Lanka. Of course, what cannot be transferred is the mix of laboratories, libraries, and direct contact with research faculty available at Peradeniya.

Such instructional materials centers are also successful parts of the faculties of agriculture at several U.S. land-grant universities. Texas A&M has such a center which supports the instruction in the agricultural sciences in secondary schools (high schools) and two-year colleges throughout Texas. Generally, the centers have their own staffs to adapt materials, but the entire Faculty is available for writing or checking accuracy.

The purpose of this concept paper is to provide the vehicle for further discussion at the Consortium Council meeting. We would stress that a great many details associated with implementing such a plan would need to be worked out, but we also feel the availability of well-trained, applied agriculturists is of critical importance to Sri Lanka's future.

ANNEX 9

Mid-level Manpower Training in Agriculture

MIDDLE LEVEL MANPOWER TRAINING IN AGRICULTURE

Prof. A.S.B. Rajaguru
Head/Department of Animal Science

The purpose of this paper is to focus attention on the possible ways of involving Faculty of Agriculture in the Peradeniya University in middle level agricultural manpower training programme.

The specific objectives will be:

a) To help to improve the quality of the present diploma courses in Agriculture and other relative training programmes to suit the needs of the country.

b) To organize the programmes to upgrade the skills of the Diplomates in the Faculty as a direct involvement in the middle level manpower training.

The institutions involved in Diploma level training in Agriculture and related fields:

Institutions	No: trained		
	(1975-79)	(1980-84)	(1985-89)
Ministry of Agriculture			
Kundasale	454	634	875
Pelvehera	0	173	74
Angunakolapelessa	0	91	222
Ministry of Higher Education			
Hardy Technical Institute	112	153	217
Ministry of Rural Industrial Development			
School of Animal Husbandry	0	71	143
School of Animal Health	0	94	267
Ministry of Land & Land Development			
Irrigation Technology Institute	0	204	226

All the Diploma courses listed above except the Diploma in Animal Health are of two years duration. They are designed to suit the needs of the individual Ministries.

Projections on Supply and Demand of Diplomates in the country

	1985	1986	1987	1988	1989	1990	1991
Demand	182	188	188	191	194	203	192
Supply	552	394	564	435	578	442	853

Projected supply and demand of Diplomates if positions held by certificate holders would also be filled by the Diplomates

	1985	1986	1987	1988	1989	1990	1991
Demand	360	374	370	373	289	297	513
Supply	573	417	594	460	603	469	610

These figures presented in the Manpower Survey Report of Dr. Earl Jones indicate that the turnover of Diplomates is higher than the demand. Also it was predicted in the same report that demand for diplomates will reduce after 1990. This may be partly due to the replacement of some of the positions held by the Diplomates by the Graduates.

Necessity to upgrade the Diplomates:

In the light of facts presented above the Diploma courses conducted under different ministries will have to be reorganized to fulfil following objectives.

1. To produce Diplomates who are better equipped to face the challenges in the development sector that is fast progressing.
2. To provide opportunity to upgrade the skills of the Diplomates who are employed in different Ministries as the opportunities that are available at present are very meagre.

Involvement of the University in middle level manpower training:

The Faculty of Agriculture in the Peradeniya University is expected to have a fully qualified academic staff of over 100 by 1987. These expertise could be used for a planned programme to help the middle level manpower development under the following guidelines.

Stage 1

a) To develop links between existing middle level institution and the Faculty to utilize specialized knowledge of its academic staff to conduct special lectures, refresher courses and seminars to the Diploma students.

b) To involve the university staff in curriculum planning, monitering and even in examinations to standadize the training.

c) To provide specialized knowledge of university staff in preparing technical information required for the Diploma courses through books and phamplets etc.

Stage 11

The Faculty of Agriculture could introduce National Diplomas to improve the skills of the talented Diplomates. Eg: National Dairy Diploma as identified in the USAID manpower report.

Stage 111

If the predictions in the USAID manpower report materializes and the demand for Diplomates will decrease after 1990, Faculty of Agriculture in consultation with the Ministries involved in middle level manpower training could plan to undertake training of Diplomates within the areas of specialization of the Faculty of Agriculture.